

# ADDON

S U O M E N

**ACT** catalog

**2022**

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# ACT solves your ICT, network and AV connectivity challenges











ACT was founded 20 years ago to provide users a brand for extremely reliable and consistent quality cabling, network products and ict accessories. ACT solutions mix and match seamlessly in use with other well known brands.



## More than a million products on stock

Did you know that ACT has more than one million products on stock? Also the one cable you need tomorrow. You can get started straight away.

## ACT Product portfolio:

-  Copper Network
-  Fiber Network
-  Video/audio cables, extensions, converters
-  Power cables
-  USB cables and solutions
-  Cable management
-  Cable on reel
-  ICT accessories

## Custom made service

Do you need a custom-made cable? For a different length or special connector? As a cable specialist nearly everything is possible!

## ACT Custom made service consists of:

- Excellent support by an experienced specialist
- Flexibility and short lead times
- Labelling as desired
- Clear data sheets
- Excellent price/quality ratio

We will be glad to support your way to find the best connectivity solution.

## Mix and Match approach

- ACT solutions mix and match seamlessly in use with other well known brands
- ACT matches and exceeds the international standards for maximum compatibility

## Consistent guaranteed quality

- In house quality management
- We believe in offering consistent quality each time you apply an ACT product
- Meet and exceed international standards and EU legislation
- ACT offers a 5 year warranty

# ACT solutions

Setting up  
workplace  
at home  
and office

Connecting  
screens

IT accessories  
on the go

Company  
network,  
server room,  
data center

Extension



# Custom made cables: copper, fiber optics and powercables



**Almost anything is possible in the field of copper and fiberglass assemblies.**

In addition to the extensive range of cabling, we specialize in custom cabling. Almost anything is possible in the field of copper and fiber optics assemblies.



In addition to the extensive range of cabling, we specialize in custom cabling. Almost anything is possible in the field of copper and fiber optics assemblies.

## Benefits of custom cabling:

- Extremely flexible, fast and competitively priced.
- Expertise per sub-area, internal quality management.
- We create a technical drawing for each custom cable to provide 100% clarity for both parties.
- It is possible to label cables with text/labels to your specific requirements.



## Cable labeling

Cable management is of crucial importance within data centers, among others. You want to see at a glance which cables are connected. Cable labeling is possible for almost all types of cables, such as network cables (CAT6 / CAT6A), fiber optic cables, DAC cables, power cables, etc.

## Benefits of cable labeling:

- Save on labor costs, cables are already labeled.
- No investment in printers and other equipment needed.
- Self-declare what needs to be labeled and on which part of the cable.



# Engineering: we translate your wishes into a suitable solution

## Engineering: ACT thinks with you

As a solution provider we would like to jointly look at the possibilities for the best solution. With the expertise, knowledge and experience of our engineering department, we are able to translate your needs into a suitable solution.

Engineering discusses and lists your requirements, via a video call, at your location or our office. Your requirements are recorded and discussed internally with the team. We will then translate your requirements into a technical solution. To ensure that this entire process runs smoothly, we use project management and keep you informed of progress. We find it important to stay in contact with you at all times. Cooperation is of great value in order to come to the right solution.

## What to expect from us:

- A detailed drawing of the solution
- Version and project management
- Sample possibilities for testing
- We will keep you informed about the progress of the project

## We are specialised in:

- Custom made cables
- Extensive wiring looms
- Complete networks
- Cabling infrastructure
- Control room solutions



### 1 APPLICATION

Your request comes to us. We advise and guide you through your application.



### 2 PLANNING

Your needs are identified and all details are fine-tuned.



### 3 ENGINEERING

We produce a drawing of the cable in which all specifications are included.



### 4 SOURCING

We select the right assembler that meets the required expertise.



### 5 SAMPLES

In consultation it is possible to make a sample or sample process.



### 6 PRODUCTION

The production process is started and we monitor the quality and the production process.

# Construction Product Regulation (CPR)

## What is CPR regulation?

The social importance of fire safety is increasing. People spend most of their time in buildings, unaware of the dangers that are present in the field of fire. Despite the fact that approximately 90% of all fires that break out every year take place in buildings. Guaranteeing quality in the use of building materials is therefore essential. CPR (Construction Products Regulation) is a European regulation that ensures that the essential characteristics and performance that construction products must meet are subject to clear requirements.

## What is the purpose of the CPR?

The Construction Products Regulation (CPR) is intended to provide reliable information on construction products, in relation to the performance of the products. This is achieved by providing a "common technical language" to determine uniform assessment methods for the performance of the construction products. Those assessment methods shall be drawn up in harmonised technical specifications. This uniform technical language should be applied by:

- Manufacturers in communicating the performance of their products
- Member State authorities in specifying requirements
- Users (architects, engineers, constructors,

## Which cables are covered by the CPR?

The following cables are subject to the CPR regulations:

- Cables that are intended to be used for the provision of electricity and communication in buildings and other civil engineering works and subject to fire performance requirements.
- Cables intended for the provision of electricity, communications, fire detection and alarms in buildings and other civil engineering works

## What performance characteristics of cables are covered by CPR?

The performance of cables that fall under the CPR are:

- Fire behaviour
- Function Preservation
- Release of hazardous substances under normal use, disassembly and recycling

## Which fire classes apply to the fire behaviour (Reaction to fire)?

In order to describe the fire behaviour of cables, cables are classified in a Euroclassification that consists of seven fire classes and the corresponding contribution to the fire.

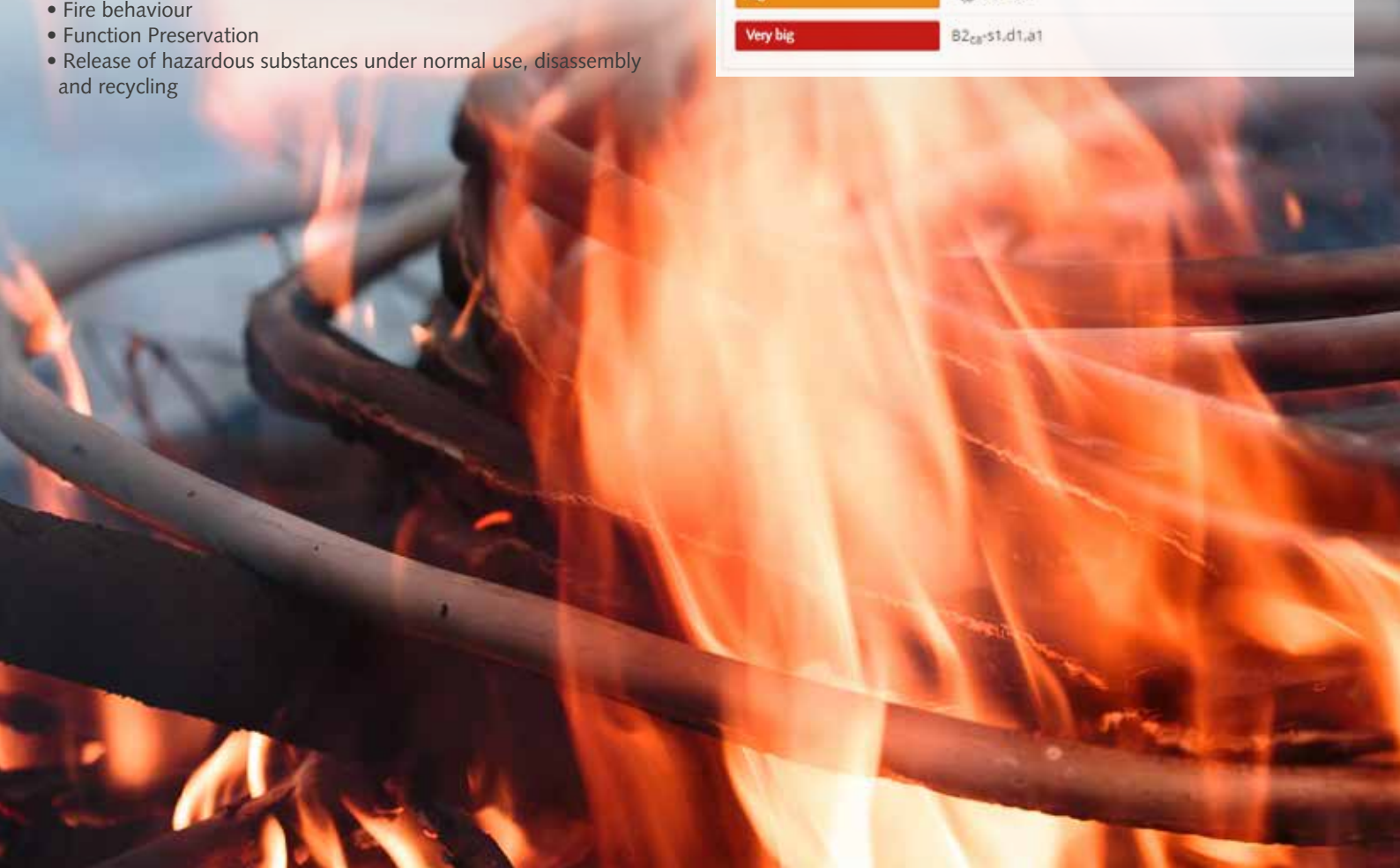
Euro classes	Fire propagation and heat generation	Smoke development (m <sup>2</sup> /m <sup>2</sup> )	Burning falling particles (d = droplets)	Toxicity/acidity of the combustion gases (z = body)
Aca	No			
B1ca	Barely			
<b>B2ca</b>	Very limited	s1 Little	d1 Limited	a1 Low
Cca	Limited	s1 Little	d1 Limited	a1 Low
Dca	Average	s3 strong, no demands	d2 High, no demands	a3 High, no demands
Eca	High	-	-	-
Fca	Not determined			

The four classes in bold are relevant for European countries. Heat release and fire propagation are the most important criteria. Smoke development, falling burning material and acidity of flue gases are additionally classified.

## Fire classes

To determine the correct fire classification for the application of cables in buildings, the CPR cables are classified in different fire classes.

Fire risk	Classification cable
low	Eca
Medium size	Dca*s3,d2,a3
Big	Cca*s1,d1,a1
Very big	B2ca*s1,d1,a1



# When to use shielded network cables?

A network cable can be affected by electromagnetic interference from outside. This is often caused by the cables being too close to other electrical equipment or cables. Network cables can also interfere with each other ("alien crosstalk").

These disturbances, also called interferences, can prevent the network signal from being transmitted properly. This causes errors in data transmission, potentially resulting in data loss. It can even cause total failure of the network connection.

An unshielded U/UTP network cable is designed to reduce interference to a limited level. This is achieved through the twisted pair design.

Shielded network cables have an additional conductive layer, also called a shield. This type of shielding is applied around the entire cable and/or around the individual twisted pair wires.

### Types of shielding:

- Foil shielding
- Braided shield
- Combination of foil and braided shield

This shielding protects the cable much better from unwanted interference and ensures a stable and well-functioning network connection.

### Shielded cabling is recommended in the following situations:

- Near high voltage panels or cables
- Next to 230V power cables
- Important network connections, where maximum reliability is essential. (For example switch to Server)

There are of course other situations where electromagnetic interference can occur. If it is not known whether there are sources of interference in the vicinity, then preferably use a shielded cable.

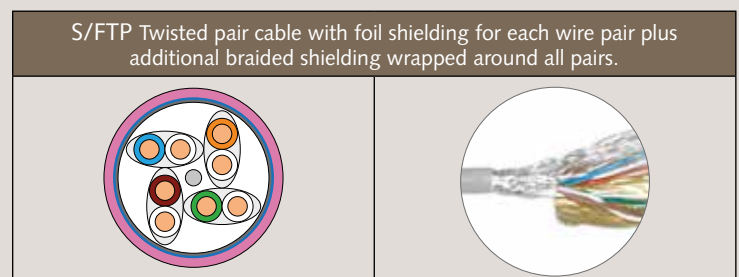
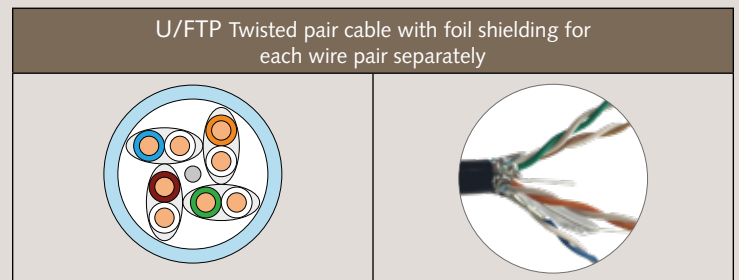
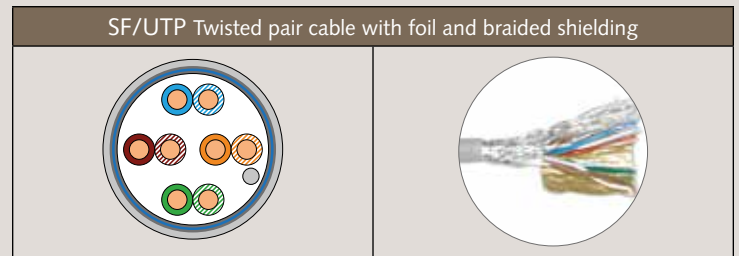
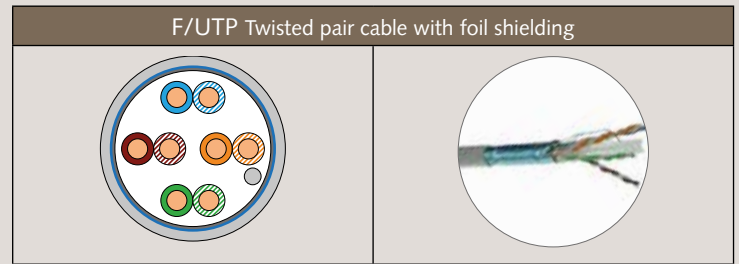
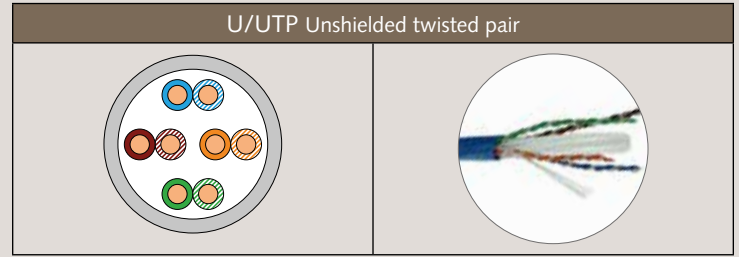
An example of a shielded network cable is the FP700B:



This is a fully double shielded cable (S/FTP), which means that the individual wire pairs and also the entire cable are shielded.

### What are the advantages of an unshielded U/UTP cable?

- Cost: a U/UTP cable is usually cheaper
  - Installation: installation is easier because the unshielded cables are often more flexible and have a smaller diameter.
- U/UTP is only a valid choice when no interference is expected.





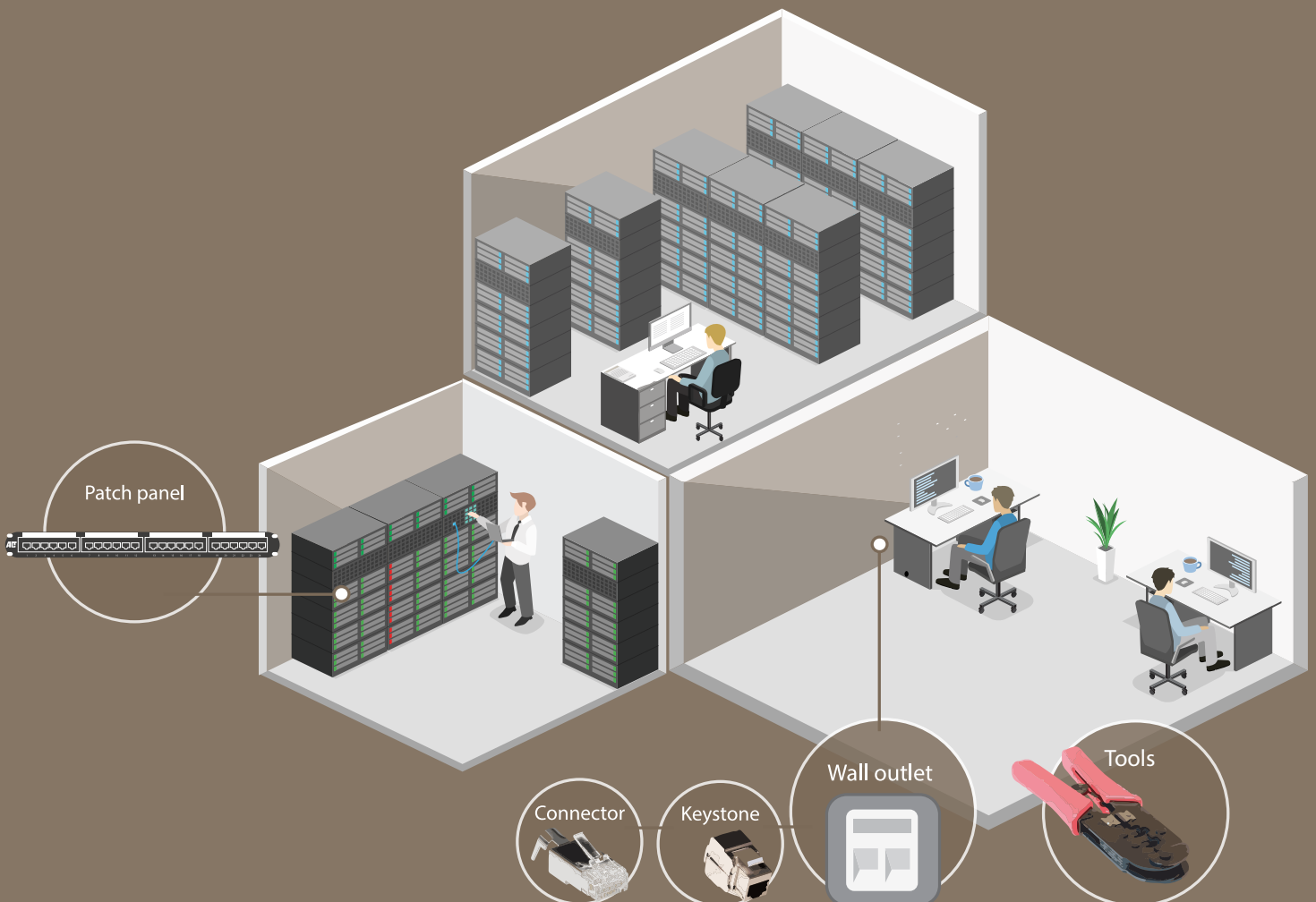
## CAT8

Category 8, ISO Class 1 with a bandwidth of 2000 MHz, can be used for 100 Mbps, 1000 Mbps, 10 Gigabit and for 40 Gigabit Ethernet networks up to a maximum length of 30 meters.



### S/FTP

Twisted pair cable with foil shielding for each wire pair plus additional braided shielding wrapped around all pairs.



CAT8 S/FTP LSZH patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	1m	1.5m	2m	3m	5m
Yellow	FB8001	FB8051	FB8002	FB8003	FB8005

Keystone CAT8

Description	Cable mounting	Colour	Type no.
Shielded toolfree	Back	Full metal	TD8511

ACT keystones are compatible with all ACT connecting hardware

Patch panel CAT8



Description	Ports	Application	Type no.
Keystone panel	24 ports	Suitable for mounting keystones	PP1030

Tools



Description	Application	Type no.
LSA Tool	Dogging tool for LSA contacts	64172K
Stripper	Stripper for data contacts	FHT501
110 block punchtool	Dogging tool for 110 block	TD060



## CAT6A

Category 6A, ISO Class EA with a bandwidth of 500 MHz, can be used for 100 Mbps, 1000 Mbps and 10 Gigabit Ethernet networks with a maximum length of 100 meters. Besides Ethernet, these cables are also suitable for other protocols, such as Profinet, ATM, Token Ring and RS-232 up to a distance of 100 meters.



The different cable types with the corresponding shielding

<p>U/UTP Unshielded twisted pair.</p>	<p>F/UTP Twisted pair cable with foil shielding.</p>	<p>SF/UTP Twisted pair cable with foil and braided shielding.</p>	<p>U/FTP Twisted pair cable with foil shielding for each wire pair separately.</p>	<p>S/FTP Twisted pair cable with foil shielding for each wire pair plus additional braided shielding wrapped around all pairs.</p>



**ACT** CAT6A, U/UTP twisted pair installation cable



Colour	Shielding	Outer Jacket	AWG	305m box
Grey	U/UTP	PVC	24	EP400B
Red	U/UTP	PVC	24	EP455B
Blue	U/UTP	PVC	24	EP456B
Green	U/UTP	PVC	24	EP457B
Yellow	U/UTP	PVC	24	EP458B
Black	U/UTP	PVC	24	EP459B
Grey	S/FTP	PVC	26	FP700B

**ACT** CAT6A U/UTP Solid twisted pair installation cable



Colour	Shielding	Outer Jacket	AWG	CPR level	DoP	305m reel	500m reel
Blue	U/UTP	PVC	23	Eca	1186892	XS6103	XS6105
Purple	U/UTP	LSZH	23	Eca	1186891	XS6113	XS6115
Grey	F/UTP	PVC	24	Eca	1186889	FS6103	FS6105
Purple	F/UTP	LSZH	24	Eca	1186890	FS6113	FS6115
Grey	F/UTP	PVC	23	B2ca	1175345	XS6120	XS6121



## ACT Modular surface mount box CAT6A



Description	Description	Connector	Type no.
Shielded	Modular surface mount box	1 x RJ45, 1 x IDC	FA7005
Shielded	Modular surface mount box	2 x RJ45, 2 x IDC	FA7004
Shielded	Modular surface mount box	8 x RJ45, 8 x IDC	FA7001
Keystone outlet	In-Wall keystone jack box	2 x keystone jack	FA6010

## ACT Keystone CAT6A



Description	Cable attachment	Colour	Type no.
Unshielded toolfree	Down	Black	TD6016
Unshielded toolfree	Down	White	TD6017
Shielded punch down	Back	Metal	TD6511
Shielded punch down	Down	Metal	TD6023
Shielded toolfree	Back	Metal	TD6510
Keystone coupler RJ45 Shielded	Back	Metal	SD6519

ACT keystones are compatible with all ACT connection hardware

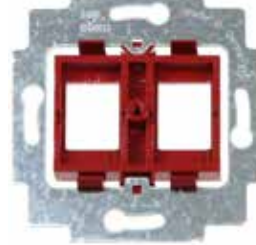
Compatible with all listed keystones



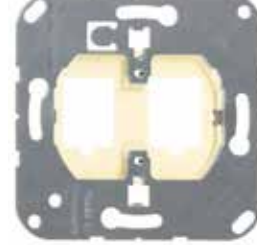
Gira\*  
19100



Peha\*  
740011



Busch-Jaeger\*  
2CKA001753A8055



Jung\*  
569-2NWE / CD569-2NWEWW

\*All brand names mentioned are the property of their trademark owners.

## ACT Patch panel CAT6A



Description	Ports	Connector	Type no.
Shielded	24 Ports	RJ45, IDC	PP1020
Keystone panel	24 Ports	Suitable for mounting keystones	PP1030
Shielded	Consolidation point	8 x RJ45, 8 x IDC	FA7001

## ACT Multimedia inserts/keystones



Description	Type no.
LC Duplex adapter Singlemode/Multimode	TD4101
HDMI 2.0 A-A female	TD4102
HDMI 2.0 A-A female angled	TD4103
USB 3.2 Gen1 A-A female	TD4104
USB 3.2 Gen2 C-C female	TD4105

Compatible with ACT hardware such as PP1030, FA6010/11/12

## ACT Connectors CAT6A



Description	Type no.
Shielded	Suitable for solid and flexible cable with positioning block, AWG24 (1.2 mm)
Shielded	Suitable for solid and flexible cable with positioning block, AWG23 (1.5 mm)

## ACT Tools



Description	Type no.
Krone punch tool	LSA plus
UTP cable stripper	For flat and round cables
Punch tool	For 110 block
Modular crimping tool	Strip, cut the cable - crimp the connectors on the cable (AWG23/24 cores)

# CAT6A - patch cable

**COPPER  
CAT6A**

## ACT CAT6A U/UTP PVC patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Ivory	IB3352	IB3300	IB3301	IB3351	IB3302	IB3303	IB3305	IB3307	IB3310	IB3315	IB3320
Grey	IB3452	IB3400	IB3401	IB3451	IB3402	IB3403	IB3405	IB3407	IB3410	IB3415	IB3420
Red		IB3700	IB3701	IB3751	IB3702	IB3703	IB3705	IB3707	IB3710	IB3715	IB3720
Blue		IB3800	IB3801	IB3851	IB3802	IB3803	IB3805	IB3807	IB3810	IB3815	IB3820
Green		IB3900	IB3901	IB3951	IB3902	IB3903	IB3905	IB3907	IB3910	IB3915	IB3920
Yellow		IB4100	IB4101	IB4151	IB4102	IB4103	IB4105	IB4107	IB4110	IB4115	IB4120
Black		IB4200	IB4201	IB4251	IB4202	IB4203	IB4205	IB4207	IB4210	IB4215	IB4220
Orange		IB4300	IB4301	IB4351	IB4302	IB4303	IB4305	IB4307	IB4310	IB4315	IB4320
Brown		IB4400	IB4401	IB4451	IB4402	IB4403	IB4405	IB4407	IB4410	IB4415	IB4420
Purple		IB6600	IB6601	IB6651	IB6602	IB6603	IB6605	IB6607	IB6610	IB6615	IB6620
Pink		IB7300	IB7301	IB7351	IB7302	IB7303	IB7305	IB7307	IB7310	IB7315	IB7320
White		IB9300	IB9301	IB9351	IB9302	IB9303	IB9305	IB9307	IB9310	IB9315	IB9320

## ACT CAT6A U/UTP PVC patch cable, AWG24 CU, 50µ gold-plated contacts, in Zip-bag



Colour	0.9m	2m	5m	10m
Black	AC4000	AC4002	AC4005	AC4010

## ACT CAT6A U/UTP PVC snagless patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	2.5m	3m	4m	5m	7m	10m	15m	20m
Ivory	IB3252	IB3200	IB3201	IB3251	IB3202		IB3203		IB3205	IB3207	IB3210	IB3215	IB3220
Grey	IB3052	IB3000	IB3001	IB3051	IB3002	IB3053	IB3003	IB3004	IB3005	IB3007	IB3010	IB3015	IB3020
Red	IB2552	IB2500	IB2501	IB2551	IB2502		IB2503		IB2505	IB2507	IB2510	IB2515	IB2520
Blue	IB2652	IB2600	IB2601	IB2651	IB2602		IB2603		IB2605	IB2607	IB2610	IB2615	IB2620
Green	IB2752	IB2700	IB2701	IB2751	IB2702		IB2703		IB2705	IB2707	IB2710	IB2715	IB2720
Yellow	IB2852	IB2800	IB2801	IB2851	IB2802		IB2803		IB2805	IB2807	IB2810	IB2815	IB2820
Black	IB2952	IB2900	IB2901	IB2951	IB2902		IB2903		IB2905	IB2907	IB2910	IB2915	IB2920
Orange		IB2100	IB2101	IB2151	IB2102		IB2103		IB2105	IB2107	IB2110	IB2115	IB2120
Brown		IB2200	IB2201	IB2251	IB2202		IB2203		IB2205	IB2207	IB2210	IB2215	IB2220
Purple		IB2300	IB2301	IB2351	IB2302		IB2303		IB2305	IB2307	IB2310	IB2315	IB2320
Pink		IB2400	IB2401	IB2451	IB2402		IB2403		IB2405	IB2407	IB2410	IB2415	IB2420
White		IB6300	IB6301	IB6351	IB6302		IB6303		IB6305	IB6307	IB6310	IB6315	IB6320

## ACT CAT6A U/UTP LSZH patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Ivory	IB1052	IB1000	IB1001	IB1051	IB1002	IB1003	IB1005	IB1007	IB1010	IB1015	IB1020
Grey	IB1152	IB1100	IB1101	IB1151	IB1102	IB1103	IB1105	IB1107	IB1110	IB1115	IB1120
Red		IB1200	IB1201	IB1251	IB1202	IB1203	IB1205	IB1207	IB1210		
Blue		IB1300	IB1301	IB1351	IB1302	IB1303	IB1305	IB1307	IB1310		
Green		IB1400	IB1401	IB1451	IB1402	IB1403	IB1405	IB1407	IB1410		
Yellow		IB1900	IB1901	IB1951	IB1902	IB1903	IB1905	IB1907	IB1910		
Black		IB3500	IB3501	IB3551	IB3502	IB3503	IB3505	IB3507	IB3510		

## ACT CAT6A U/UTP PVC cross-over patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.5m	1m	1.5m	2m	3m	5m
cable Boot	IB6200	IB6201	IB6251	IB6202	IB6203	IB6205

# CAT6A - patch cable

**COPPER  
CAT6A**

**ACT** CAT6A S/FTP PVC PIMF snagless patch cable, AWG26 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	25m	30m
Ivory	FB6052	FB6000	FB6001	FB6051	FB6002	FB6003	FB6005	FB6007	FB6010	FB6015	FB6020	FB6025	FB6030
Grey	FB3052	FB3000	FB3001	FB3051	FB3002	FB3003	FB3005	FB3007	FB3010	FB3015	FB3020	FB3025	FB3030
Red		FB6500	FB6501	FB6551	FB6502	FB6503	FB6505	FB6507	FB6510	FB6515	FB6520	FB6525	FB6530
Blue		FB6600	FB6601	FB6651	FB6602	FB6603	FB6605	FB6607	FB6610	FB6615	FB6620	FB6625	FB6630
Green		FB6700	FB6701	FB6751	FB6702	FB6703	FB6705	FB6707	FB6710	FB6715	FB6720	FB6725	FB6730
Yellow		FB6800	FB6801	FB6851	FB6802	FB6803	FB6805	FB6807	FB6810	FB6815	FB6820	FB6825	FB6830
Black		FB6900	FB6901	FB6951	FB6902	FB6903	FB6905	FB6907	FB6910	FB6915	FB6920	FB6925	FB6930
Orange		FB2100	FB2101	FB2151	FB2102	FB2103	FB2105	FB2107	FB2110	FB2115	FB2120	FB2125	FB2130
Brown		FB2200	FB2201	FB2251	FB2202	FB2203	FB2205	FB2207	FB2210	FB2215	FB2220	FB2225	FB2230
Purple		FB2300	FB2301	FB2351	FB2302	FB2303	FB2305	FB2307	FB2310	FB2315	FB2320	FB2325	FB2330
Pink		FB2400	FB2401	FB2451	FB2402	FB2403	FB2405	FB2407	FB2410	FB2415	FB2420	FB2425	FB2430
White		FB6400	FB6401	FB6451	FB6402	FB6403	FB6405	FB6407	FB6410	FB6415	FB6420	FB6425	FB6430

**ACT** CAT6A S/FTP PIMF LSZH patch cable, AWG26 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	25m	30m
Ivory	IB3652	IB3600	IB3601	IB3651	IB3602	IB3603	IB3605	IB3607	IB3610	IB3615	IB3620	IB3625	IB3630
Grey	IB4052	IB4000	IB4001	IB4051	IB4002	IB4003	IB4005	IB4007	IB4010	IB4015	IB4020	IB4025	IB4030
Red		IB5000	IB5001	IB5051	IB5002	IB5003	IB5005	IB5007	IB5010				
Blue		IB5300	IB5301	IB5351	IB5302	IB5303	IB5305	IB5307	IB5310				
Green		IB7400	IB7401	IB7451	IB7402	IB7403	IB7405	IB7407	IB7410				
Yellow		IB9100	IB9101	IB9151	IB9102	IB9103	IB9105	IB9107	IB9110				
Black		IB9200	IB9201	IB9251	IB9202	IB9203	IB9205	IB9207	IB9210				

**ACT** CAT6A S/FTP PIMF, LSZH patch cable snagless AWG26 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	30m
Ivory	FB7452	FB7400	FB7401	FB7451	FB7402	FB7403	FB7405	FB7407	FB7410	FB7415	FB7420	FB7430
Grey	FB7052	FB7000	FB7001	FB7051	FB7002	FB7003	FB7005	FB7007	FB7010	FB7015	FB7020	FB7030
Red		FB7500	FB7501	FB7551	FB7502	FB7503	FB7505	FB7507	FB7510	FB7515	FB7520	FB7530
Blue		FB7600	FB7601	FB7651	FB7602	FB7603	FB7605	FB7607	FB7610	FB7615	FB7620	FB7630
Green		FB7700	FB7701	FB7751	FB7702	FB7703	FB7705	FB7707	FB7710	FB7715	FB7720	FB7730
Yellow		FB7800	FB7801	FB7851	FB7802	FB7803	FB7805	FB7807	FB7810	FB7815	FB7820	FB7830
Black		FB7900	FB7901	FB7951	FB7902	FB7903	FB7905	FB7907	FB7910	FB7915	FB7920	FB7930
Orange		FB7100	FB7101	FB7151	FB7102	FB7103	FB7105	FB7107	FB7110	FB7115	FB7120	FB7130
Purple		FB8700	FB8701	FB8751	FB8702	FB8703	FB8705	FB8707	FB8710	FB8715	FB8720	FB8730
Pink		FB8800	FB8801	FB8851	FB8802	FB8803	FB8805	FB8807	FB8810	FB8815	FB8820	FB8830
White		FB7300	FB7301	FB7351	FB7302	FB7303	FB7305	FB7307	FB7310	FB7315	FB7320	FB7330

**ACT** CAT6A U/FTP PVC High Flex Tangle-Free patch cable, AWG26 CU, 50µ gold-plated contacts



Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Black	FB5000	FB5001	FB5051	FB5002	FB5003	FB5005	FB5007	FB5010	FB5015	FB5020

## When to use slimline patch cables?

Slimline patch cables can be used where cable space is limited, such as in data centers. The slimline version of standard patch cables is more than 40% thinner in diameter. These thin cables reduce the amount of cable space required in racks.

### Key benefits of slimline patch cables:

#### Better cable management and space saving:

The slimline cable has a smaller diameter, saving valuable space in your server room. Especially when bundling slimline cables, much less volume is used. Together with the greater flexibility, cable management improves significantly.

#### Energy efficiency:

Because slimline patch cables are 40% thinner and more flexible than normal patch cables, they have less air resistance. This improves airflow.

#### Snagless connectors:

A snagless connector has a small flap that covers the RJ-45 protective tab. This flap prevents the protective tab from breaking or becoming entangled with other cables during installation or when repatching. All of our slimline data center cables are equipped with snagless connectors.



**ACT** CAT6A U/FTP LSZH datacenter slimline patch cable, AWG32 CU, 50µ gold-plated contacts

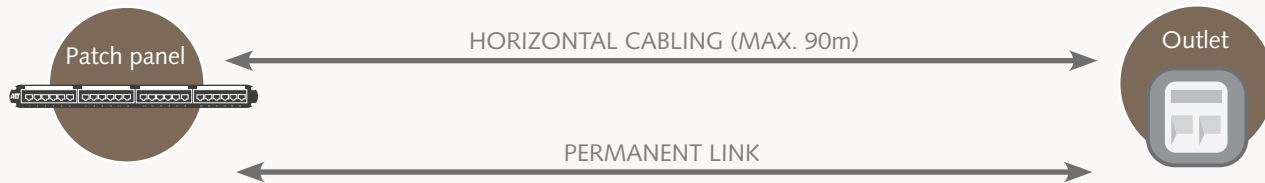


Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m
Grey	DC7052	DC7000	DC7001	DC7051	DC7002	DC7003	DC7005
Red	DC7552	DC7500	DC7501	DC7551	DC7502	DC7503	DC7505
Blue	DC7652	DC7600	DC7601	DC7651	DC7602	DC7603	DC7605
Green	DC7752	DC7700	DC7701	DC7751	DC7702	DC7703	DC7705
Yellow	DC7852	DC7800	DC7801	DC7851	DC7802	DC7803	DC7805
Black	DC7952	DC7900	DC7901	DC7951	DC7902	DC7903	DC7905



## Permanent link

Permanent link is the connection from a patch panel to the working area outlet (also called the horizontal cabling). This is the permanent mounted solid cable which will be kept in place for longer periods of time. The maximum permitted length is 90 m.



## Channel

Channel is the complete connection from an active device such as a switch to a network card in a computer. So this includes patch cables together with the horizontal cabling. The horizontal cabling together with the patch cords may not exceed 100 m.



## Structured ACT cabling systems - compatible and comply to international standards

ACT Copper and fiber network solutions are durable and exceed the specifications of international standards. Each product has a 5-year product warranty and offers excellent performance as you would expect from ACT products. Because of its compatibility, ACT cables are commonly used for modifications, also called moves adds and changes (MAC), in existing installations.

The ACT portfolio consists of a wide range of copper installation cables and connection devices in both Category 5E, Category 6, Category 6A and Category 8 that includes both unshielded and shielded solutions. The ACT portfolio is characterized by quality and convenience. ACT components allow structured cabling systems to be customized for regular office systems, 4-connector link solutions and cross-connect systems.

Copper ACT cables are suitable for installations where PoE, PoE+ or PoE++ is also used. ACT cabling specialists are ready to help you choose a solution.

Below an overview of the international standards ACT complies to:

Components	CAT5E	CAT6	CAT6A	CAT8
Bandwidth	100 Mhz	250 Mhz	500 Mhz	2000 Mhz
ISO-norm	ISO 1801Ed2.0 (2002)	ISO 11801Ed2.0 (2002)	ISO 11801 (CE2008)	ISO/11801-1 (2017)
EN-norm	EN50173-1 (2008)	EN50173-1 (2008)	EN50173-1 (2008)	EN50173-5 (2018)
Class	Class D	Class E	Class Ea	Class I
EIA/TIA-norm	EIA/TIA568-2D	EIA/TIA 568-2D	EIA/TIA 568-2D	EIA/TIA-568-2D

## Flexibility

Flexibility in your network is achieved by using consolidation points.

## Challenge

Consolidation points add an extra transition to your cabling. Additional transitions provide additional attenuation.

## Solution

By using component level patch cables network reliability is guaranteed because extra attenuation is compensated.

### ACT component level patch cables

Flexibility in your network is achieved by using consolidation points. But consolidation points add an extra transition to your cabling. This can affect the reliability of your network. Did you know that an additional transition/cable in the network also adds two additional connectors? (Each cable has two connectors). This results in an additional connector transition in the horizontal cabling: the so-called 4-connector model.

ACT component level patch cables compensate for additional transitions in your network due to its very high quality. ACT offers consolidation points in CAT5E up to and including CAT6A (these can be found in the product overviews under patch panels). The component level patch cords are applied when using an extra consolidation point in your network and at cross-connects.



## ACT component level patch cables

Component level patch cables guarantee optimal performance with a 4 connector link. These 4 connector links are used for consolidation points that are often placed near desk islands and cross connect systems in datacenters. For more information see page 17.

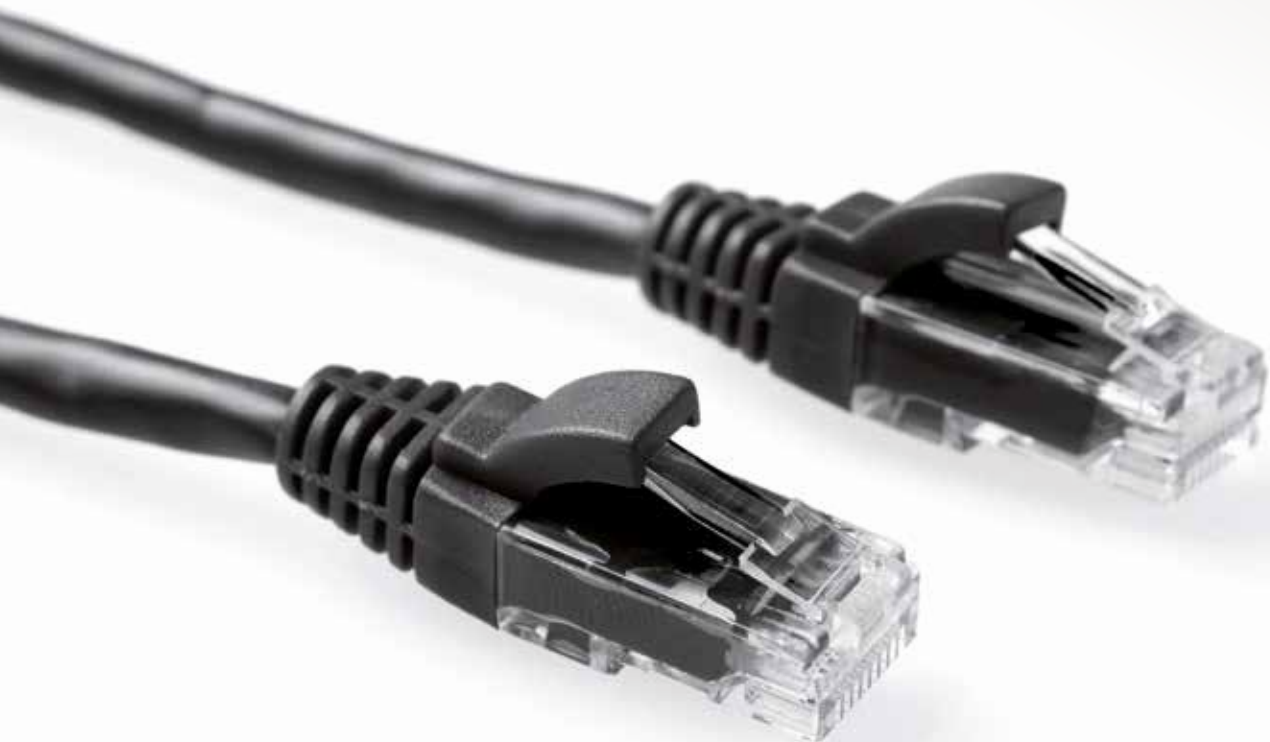
### Length of consolidation connections in CAT6 class E and CAT6A class EA

The adjacent connection lengths are simulated based on 10m of patch cable in addition to the two cables.

Using a consolidation point in an installation enables flexible furnishing of an office. From the consolidation point you bridge the last meters to the wall outlet with normal solid installation cable. The maximum length of the total installation cable is 90 meters. We advise to use a maximum of 30 meters from the consolidation point to the outlet.

- PP = Patch panel
- CP = Consolidation point
- WO = Wall outlet

Segment PP-CP	Segment CP-WO
60m	30m
65m	25m
75m	15m
85m	5m



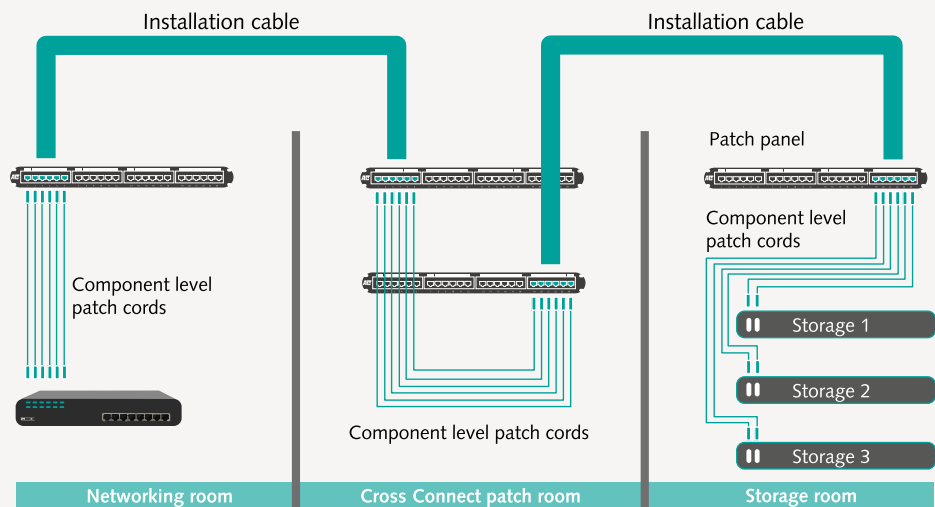
## Cross connects in datacenters – Another use for component level patch cables

Within datacenters the networking and storage are typically in a separate location. They are connected with each other via an installation cable. Somewhere in the middle you can find a cross connect patch room where cabling can easily be rerouted/repatched. Reasons datacenters choose for this setup are:

- Flexibility: in datacenters it is crucial to be able to fast and easily reroute cabling.
- Minimizing risks: High costs storage servers and networking equipment should have as little contact as possible with employees. Having employees doing all the repatching at a cross connect space in the middle minimizes contact with expensive equipment.

The cross connect patch room has incoming solid installation cables from the networking and storage area, which is terminated on patch panels. Between the patch panels component level patch cables are used to repatch / reroute connections. The 2 extra patch panels also add 2 transitions to your network. This can affect the reliability of your network. By using component level patch cables the network reliability is guaranteed.

The component level patch cables are used in the connection to the equipment in the networking and server locations as well in the cross connect room.



## Testing your cabling

When you buy ACT products you are assured of consistent quality products that exceed international standards. However these different components have to be installed the right way in order to ensure a trouble free operating network.

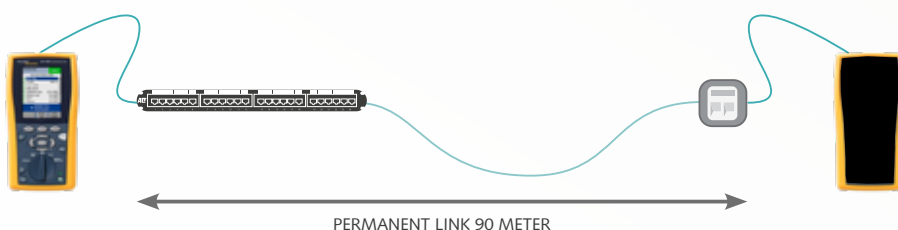
### Most common mistakes during installation:

During installations the following mistakes are most common:

- The cabling is bent more than the maximum advised bending radius (or even folded).
- Untwisting the pairs too much when cutting the jacket.
- The cables have been tightened to hard with cable ties.
- During installation the cables are being pulled to hard.

### Why testing is important

Some of these mistakes can't be visually checked and that is why we advise to test every permanent link, from patch panel to wall outlet.



Testing a link from the patch panel to the wall sockets.

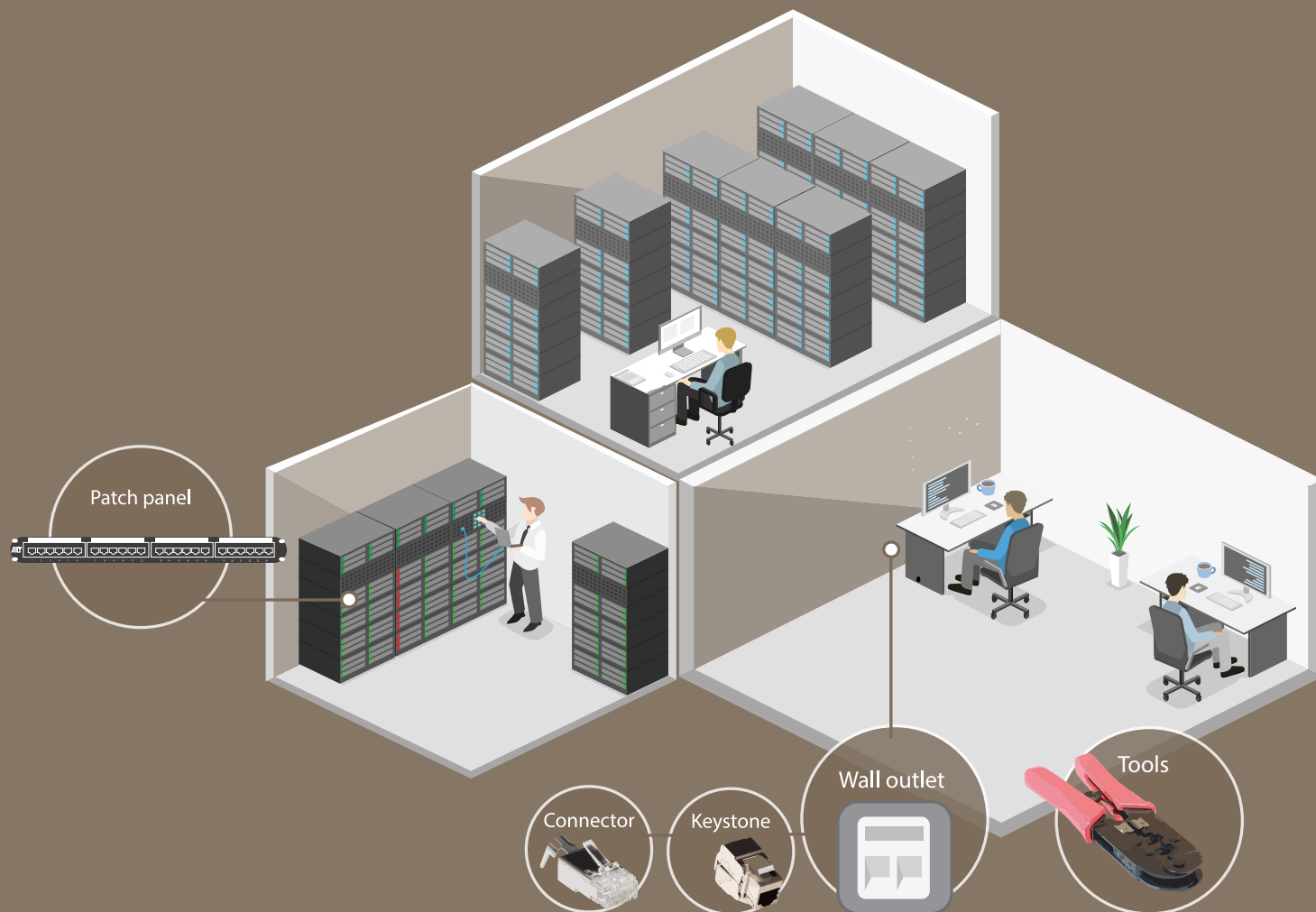
## CAT6

Category 6, ISO Class E with a bandwidth of 250 MHz, can be used for 100 Mbps and 1000 Mbps Ethernet networks, up to a maximum length of 100 meters. 10 Gigabit Ethernet can be used for a maximum length of 55 meters. The maximum length is 37 meters when the cables are bundled, due to alien crosstalk. Besides Ethernet, these cables are also suitable for other protocols, such as Profinet, ATM, Token Ring and RS-232 up to a distance of 100 meters.



### The different cable types with the corresponding shielding

<p>U/UTP Unshielded twisted pair.</p>	<p>F/UTP Twisted pair cable with foil shielding.</p>	<p>SF/UTP Twisted pair cable with foil and braided shielding.</p>	<p>U/FTP Twisted pair cable with foil shielding for each wire pair separately.</p>	<p>S/FTP Twisted pair cable with foil shielding for each wire pair plus additional braided shielding wrapped around all pairs.</p>



**ACT** CAT6, stranded twisted pair installation cable

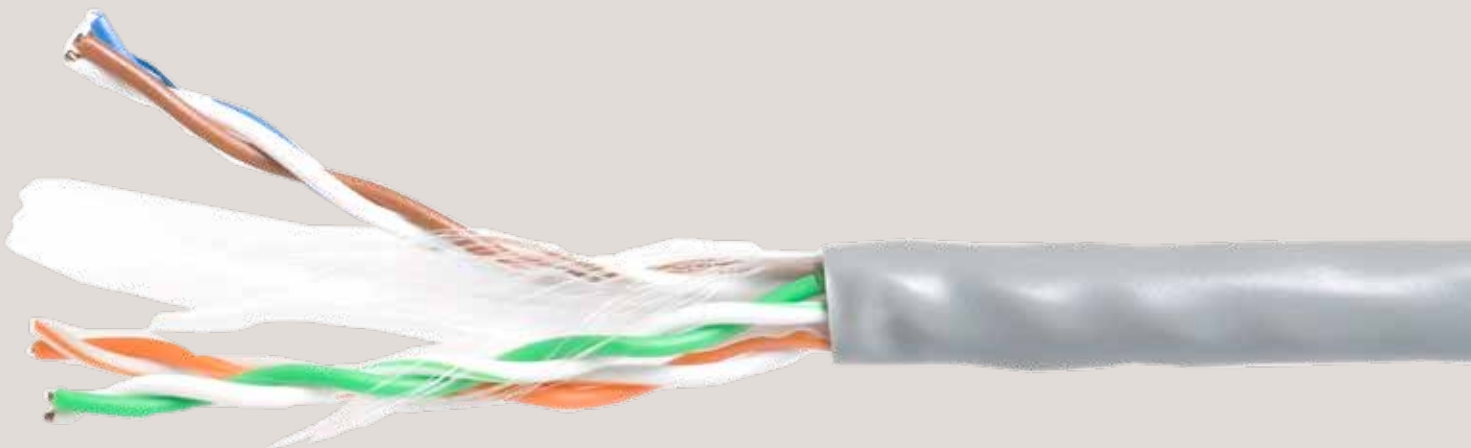


Colour	Shielding	Outer Jacket	AWG	100m	305m box	500m reel
Ivory	U/UTP	PVC	24	EP840H	EP384B	EP845A
Grey	U/UTP	PVC	24	EP800H	EP380B	
Red	U/UTP	PVC	24	EP850H	EP385B	
Blue	U/UTP	PVC	24	EP860H	EP386B	
Green	U/UTP	PVC	24	EP870H	EP387B	
Yellow	U/UTP	PVC	24	EP880H	EP388B	
Black	U/UTP	PVC	24	EP890H	EP389B	
Grey	S/FTP	PVC	26		FP600B	
Red	S/FTP	PVC	26		FP655B	
Blue	S/FTP	PVC	26		FP656B	
Green	S/FTP	PVC	26		FP657B	
Yellow	S/FTP	PVC	26		FP658B	
Black	S/FTP	PVC	26		FP659B	

**ACT** CAT6 Solid twisted pair installation cable



Colour	Shielding	Outer Jacket	AWG	CPR level	DoP	100m	305m box	500m reel
Grey	U/UTP	PVC	24	Eca	1186887	XS100H	XS305B	
Grey	F/UTP	PVC	24	Eca	1186889		FS6003	FS6005
Purple	F/UTP	LSZH	24	Eca	1186890		FS6013	FS6015
Grey	U/UTP	PVC	24	B2ca	1175349		XS6001	XS6002
Purple	U/UTP	LSZH	24	Dca	1176113		XS6003	



**ACT** Surface mounted box and In-wall keystone jack box CAT6



Description		Connector	Type no.
Unshielded	Surface mounted box	1 x RJ45, 1 x IDC	FA6003
Unshielded	Surface mounted box	2 x RJ45, 2 x IDC	FA6002
Keystone jack	In-Wall keystone jack box	2 x keystone	FA6010

**ACT** Surface mounted box shielded CAT6



Description		Connector	Type no.
Shielded	Surface mounted box	1 x RJ45, 1 x IDC	FA6005
Shielded	Surface mounted box	2 x RJ45, 2 x IDC	FA6004

**ACT** Keystone unshielded CAT6



Description	Cable attachment	Colour	Type no.
Unshielded punch down	Back	Black	TD6012
Unshielded punch down	Back	White	TD6013
Unshielded punch down	Down	Black	TD6014
Unshielded punch down	Down	White	TD6015
Unshielded toolfree	Back	Black	TD6010
Unshielded toolfree	Back	White	TD6011
Unshielded coupler RJ45	Back	White	SD6009

ACT keystones are compatible with all ACT hardware

**ACT** Keystone shielded CAT6



Description	Cable attachment	Colour	Type no.
Shielded punch down	Back	Metal	TD6021
Shielded punch down	Down	Metal	TD6022
Shielded toolfree	Back	Metal	TD6020
Shielded coupler RJ 45	Back	Metal	SD6019

ACT keystones are compatible with all ACT hardware

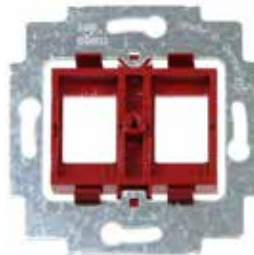
Compatible with all listed keystones



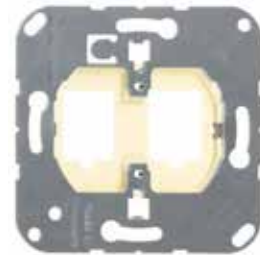
Gira\*  
19100



Peha\*  
740011



Busch-Jaeger\*  
2CKA001753A8055



Jung\*  
569-2NWE / CD569-2NWEWW

\*All brand names mentioned are the property of their trademark owners.

## **ACT** Patch panel CAT6



Description	Ports	Connector	Type no.
Unshielded	24 Ports	RJ45, IDC	PP1010
Shielded	24 Ports	RJ45, IDC	PP1012
Keystone panel	24 Ports	Suitable for mounting keystones	PP1030
Unshielded	Consolidation point	8 x RJ45, 8 x IDC	FA6000
Shielded	Consolidation point	8 x RJ45, 8 x IDC	FA6001

## **ACT** Multimedia inserts/keystones



Description	Type no.
LC Duplex adapter Singlemode/Multimode	TD4101
HDMI 2.0 A-A female	TD4102
HDMI 2.0 A-A female angled	TD4103
USB 3.2 Gen1 A-A female	TD4104
USB 3.2 Gen2 C-C female	TD4105

Compatible with ACT hardware such as PP1030, FA6010/11/12

## **ACT** Connectors CAT6



Description	Type no.
Unshielded	Suitable for solid and flexible cable with positioning block, AWG24-AWG26
Shielded	Suitable for solid and flexible cable with positioning block, AWG26-AWG24
Unshielded	Suitable for solid and flexible cable with positioning block, AWG23-AWG26
Shielded	Suitable for solid and flexible cable with positioning block, AWG23-AWG26

## **ACT** Tools



Description	Type no.
Krone punch tool	LSA plus
UTP cable stripper	For flat and round cables
Punch tool	For 110 block
Modular crimp tool	Strip and cut the cable, and crimp the connectors to the cable
Modular crimp tool	For easy connect RJ45 connectors, crimp and cut the wires in one step



## ACT CAT6 U/UTP PVC patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	30m
Ivory	IB8452	IB8400	IB8401	IB8451	IB8402	IB8403	IB8405	IB8407	IB8410	IB8415	IB8420	IB8430
Grey	IB8052	IB8000	IB8001	IB8051	IB8002	IB8003	IB8005	IB8007	IB8010	IB8015	IB8020	IB8030
Red	IB8552	IB8500	IB8501	IB8551	IB8502	IB8503	IB8505	IB8507	IB8510	IB8515	IB8520	
Blue	IB8652	IB8600	IB8601	IB8651	IB8602	IB8603	IB8605	IB8607	IB8610	IB8615	IB8620	
Green	IB8752	IB8700	IB8701	IB8751	IB8702	IB8703	IB8705	IB8707	IB8710	IB8715	IB8720	
Yellow	IB8852	IB8800	IB8801	IB8851	IB8802	IB8803	IB8805	IB8807	IB8810	IB8815	IB8820	
Black	IB8952	IB8900	IB8901	IB8951	IB8902	IB8903	IB8905	IB8907	IB8910	IB8915	IB8920	
Orange		IB1500	IB1501	IB1551	IB1502	IB1503	IB1505	IB1507	IB1510	IB1515	IB1520	
Brown		IB1600	IB1601	IB1651	IB1602	IB1603	IB1605	IB1607	IB1610	IB1615	IB1620	
Purple		IB1700	IB1701	IB1751	IB1702	IB1703	IB1705	IB1707	IB1710	IB1715	IB1720	
Pink		IB1800	IB1801	IB1851	IB1802	IB1803	IB1805	IB1807	IB1810	IB1815	IB1820	
White		IB9400	IB9401	IB9451	IB9402	IB9403	IB9405	IB9407	IB9410	IB9415	IB9420	

## ACT CAT6 U/UTP PVC snagless patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	2.5m	3m	4m	5m	7m	10m	15m	20m	30m
Ivory	IS8452	IS8400	IS8401	IS8451	IS8402		IS8403		IS8405	IS8407	IS8410	IS8415	IS8420	IS8430
Grey	IS8052	IS8000	IS8001	IS8051	IS8002	IS8053	IS8003	IS8004	IS8005	IS8007	IS8010	IS8015	IS8020	IS8030
Red	IS8552	IS8500	IS8501	IS8551	IS8502		IS8503		IS8505	IS8507	IS8510	IS8515	IS8520	
Blue	IS8652	IS8600	IS8601	IS8651	IS8602		IS8603		IS8605	IS8607	IS8610	IS8615	IS8620	
Green	IS8752	IS8700	IS8701	IS8751	IS8702		IS8703		IS8705	IS8707	IS8710	IS8715	IS8720	
Yellow	IS8852	IS8800	IS8801	IS8851	IS8802		IS8803		IS8805	IS8807	IS8810	IS8815	IS8820	
Black	IS8952	IS8900	IS8901	IS8951	IS8902		IS8903		IS8905	IS8907	IS8910	IS8915	IS8920	
Orange		IS1500	IS1501	IS1551	IS1502		IS1503		IS1505	IS1507	IS1510	IS1515	IS1520	
Brown		IS1600	IS1601	IS1651	IS1602		IS1603		IS1605	IS1607	IS1610	IS1615	IS1620	
Purple		IS1700	IS1701	IS1751	IS1702		IS1703		IS1705	IS1707	IS1710	IS1715	IS1720	
Pink		IS1800	IS1801	IS1851	IS1802		IS1803		IS1805	IS1807	IS1810	IS1815	IS1820	

## ACT CAT6 U/UTP LSZH patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m
Grey	IB9000	IB9001	IB9051	IB9002	IB9003	IB9005	IB9007	IB9010
Red	IB9500	IB9501	IB9551	IB9502	IB9503	IB9505	IB9507	IB9510
Blue	IB9600	IB9601	IB9651	IB9602	IB9603	IB9605	IB9607	IB9610
Green	IB9700	IB9701	IB9751	IB9702	IB9703	IB9705	IB9707	IB9710
Yellow	IB9800	IB9801	IB9851	IB9802	IB9803	IB9805	IB9807	IB9810
Black	IB9900	IB9901	IB9951	IB9902	IB9903	IB9905	IB9907	IB9910
Wit	IB8300	IB8301		IB8302	IB8303	IB8305		

## ACT CAT6 U/UTP PVC cross-over patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.5m	1m	2m	3m	10m
cables Boot	IB8100	IB8101	IB8102	IB8103	IB8110

## ACT CAT6 S/FTP PIMF LSZH patch cable, AWG26 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	25m	30m
Grey	FB9052	FB9000	FB9001	FB9051	FB9002	FB9003	FB9005	FB9007	FB9010	FB9015	FB9020	FB9025	FB9030
Red		FB9500	FB9501	FB9551	FB9502	FB9503	FB9505	FB9507	FB9510	FB9515	FB9520	FB9525	FB9530
Blue		FB9600	FB9601	FB9651	FB9602	FB9603	FB9605	FB9607	FB9610	FB9615	FB9620	FB9625	FB9630
Green		FB9700	FB9701	FB9751	FB9702	FB9703	FB9705	FB9707	FB9710	FB9715	FB9720	FB9725	FB9730
Yellow		FB9800	FB9801	FB9851	FB9802	FB9803	FB9805	FB9807	FB9810	FB9815	FB9820	FB9825	FB9830
Black		FB9900	FB9901	FB9951	FB9902	FB9903	FB9905	FB9907	FB9910	FB9915	FB9920	FB9925	FB9930

## ACT component level patch cable

### ACT component level patch cables

Flexibility in your network is achieved by using consolidation points. But consolidation points add an extra transition to your cabling. This can affect the reliability of your network.

Did you know that an additional transition/cable in the network also adds two additional connectors? (Each cable has two connectors). This results in an additional connector transition in the horizontal cabling: the so-called 4-connector model.

ACT component level patch cords compensate for extra transitions in your network thanks to the very high quality. The component level patch cables are used when using an extra consolidation point in your network and at cross-connects.

An ACT component level patch cable must always meet the set standards in the field of transmission speeds.

These are the best quality patch cords where extra attention is paid to the mounting of the cable in the connector. Everything to ensure that there is as little loss of speed as possible.

### ACT CAT6 component level U/UTP PVC snagless patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m
Ivory	IK8400	IK8401	IK8451	IK8402	IK8403	IK8405	IK8407	IK8410
Red	IK8500	IK8501	IK8551	IK8502	IK8503	IK8505	IK8507	IK8510
Blue	IK8600	IK8601	IK8651	IK8602	IK8603	IK8605	IK8607	IK8610
Green	IK8700	IK8701	IK8751	IK8702	IK8703	IK8705	IK8707	IK8710
Yellow	IK8800	IK8801	IK8851	IK8802	IK8803	IK8805	IK8807	IK8810
Black	IK8900	IK8901	IK8951	IK8902	IK8903	IK8905	IK8907	IK8910

## When to use slimline patch cable?

Slimline patch cables can be used where cable space is limited, such as in a data center.

The slimline version of standard patch cables is more than 40% smaller in diameter. These thin cables reduce the amount of cable space required in racks. This ensures maximum energy efficiency, better cable management and space savings.

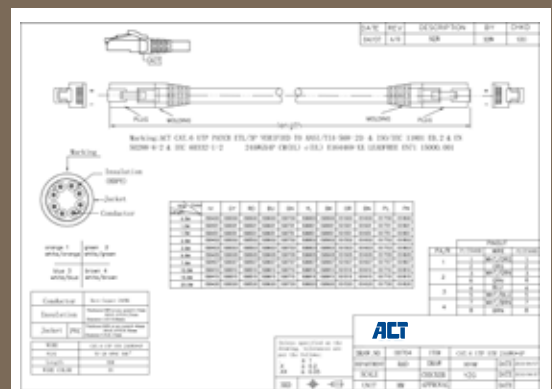
### ACT CAT6 U/UTP LSZH datacenter slimline patch cable, AWG28 CU, 50µ gold-plated contacts



Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m
Grey	DC9052	DC9000	DC9001	DC9051	DC9002	DC9003	DC9005
Red	DC9552	DC9500	DC9501	DC9551	DC9502	DC9503	DC9505
Blue	DC9652	DC9600	DC9601	DC9651	DC9602	DC9603	DC9605
Green	DC9752	DC9700	DC9701	DC9751	DC9702	DC9703	DC9705
Yellow	DC9852	DC9800	DC9801	DC9851	DC9802	DC9803	DC9805
Black	DC9952	DC9900	DC9901	DC9951	DC9902	DC9903	DC9905

## ACT datasheet

Our ACT patch cables are provided with a datasheet. You can download this datasheet on our website.



## PoE information

### Power over Ethernet (PoE)

Power over Ethernet (PoE) is a technology for wired ethernet local area networks (LANs) that allows the electrical current (necessary for the operation of each device) to be carried by the data cables. Using PoE minimizes the number of wires that must be used in order to install the network. PoE was originally developed to support devices like WiFi access points (APs) and IP phones. PoE made AP installations easier and more flexible, especially on ceilings.

For PoE to work, the electrical current must go into the data cable at the power-supply end, and come out at the device end, in such a way that the current is kept separate from the data signal so that neither interferes with the other.

#### PoE (Type 1) for low powered devices

PoE utilizes two pairs to connect many types of lower-powered devices to the network. Based on the initial IEEE 802.3af-2003 standard, it provides up to 15.4W of DC power to each PoE port (up to 12.95W of power for each device). PoE Type 1 can support devices such as VoIP phones, sensors/meters, basic access points and simple, static surveillance cameras that don't pan, tilt or zoom.

#### PoE+ (Type 2) for higher powered devices

Higher-powered devices are connected to the network using PoE, based on the IEEE 802.3at-2009 standard. It is backward compatible (meaning that it can also support the types of devices typically supported by PoE), and provides 30W of DC power to each PoE port (up to 25.5W of power for each device). PoE+ can support devices such as more complex surveillance cameras that pan, tilt or zoom, as well as advanced wireless access points, LCD displays, biometric sensors and tablets.

For PoE (Power over Ethernet) applications, it is important to use installation and patch cables with full copper conductors. All ACT cables have copper conductors and are suited for networks where PoE is used.



### PoE++ (Type 3) 4-pair

4-pair PoE uses all four pairs in a copper cable. It provides 60W of DC power to each PoE port (up to 51W of power for each device). 4-pair POE can support devices such as videoconferencing system components and building management devices.

### Higher-power PoE (Type 4)

Growing power requirements of network devices are pushing the need for higher power delivered through network cabling, which is where Higher-power PoE comes into play. It provides up to 100W of DC power to each PoE port (up to 71W of power for each device). PoE Type 4 can support devices such as laptops, TVs, and smart Led lighting for office buildings.



#### PoE network switch



Colour	Description	Type no.
Black	6 port, 10/100 Mbps 4x PoE+ (30W) port	AC4430
Black	24 port, 10/100 Mbps 24x PoE+ (30W) port	AC4434

#### Gigabit PoE+ (30W injector)



Colour	Description	Type no.
Black	Gigabit PoE+ (30W) injector	AC4438

## CAT5E

Category 5E, ISO Class D supports Gigabit networks; this cable category can be used for 100 Mbps and 1000 Mbps Ethernet networks. In addition to Ethernet, these cables are also suitable for other protocols, such as Profinet, ATM, Token Ring and RS-232 up to a distance of 100 meters.



### The different cable types with the corresponding shielding

<p>U/UTP Unshielded twisted pair.</p>	<p>F/UTP Twisted pair cable with foil shielding.</p>	<p>SF/UTP Twisted pair cable with foil and braided shielding.</p>	<p>U/FTP Twisted pair cable with foil shielding for each wire pair separately.</p>	<p>S/FTP Twisted pair cable with foil shielding for each wire pair plus additional braided shielding wrapped around all pairs.</p>



**ACT** CAT5E, Stranded twisted pair installation cable

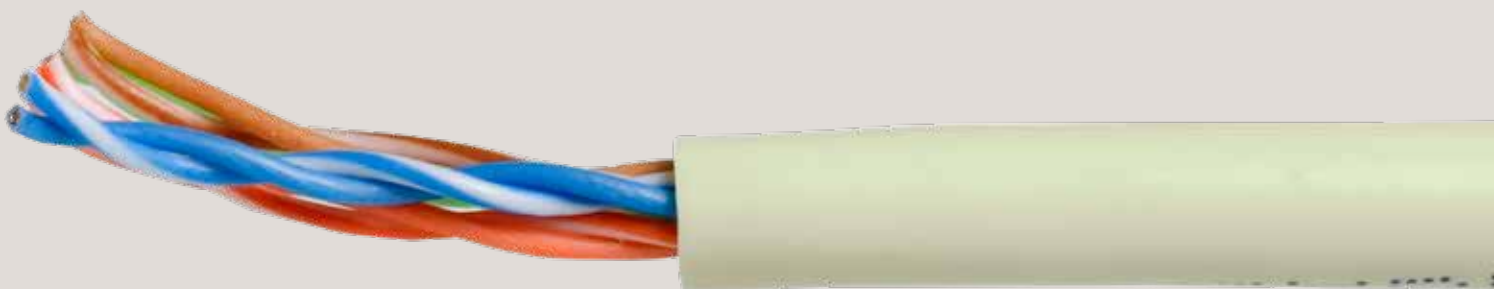


Colour	Shielding	Outer Jacket	AWG	100m	305m box	500m reel
Ivory	U/UTP	PVC	24	EP100H	EP305B	EP500A
Grey	U/UTP	PVC	24	EP600H	EP360B	
Red	U/UTP	PVC	24	EP550H	EP355B	
Blue	U/UTP	PVC	24	EP560H	EP356B	
Green	U/UTP	PVC	24	EP570H	EP357B	
Yellow	U/UTP	PVC	24	EP580H	EP358B	
Black	U/UTP	PVC	24	EP590H	EP359B	
Ivory	F/UTP	LSZH	26	FP100H	FP305B	FP500A
Grey	F/UTP	LSZH	26			FP7450
Red	F/UTP	LSZH	26	FP750H		FP7550
Blue	F/UTP	LSZH	26	FP760H		FP7650
Green	F/UTP	LSZH	26	FP770H		FP7750
Yellow	F/UTP	LSZH	26	FP780H		FP7850
Black	F/UTP	LSZH	26	FP790H		FP7950
Grey	SF/UTP	LSZH	26			FP510A

**ACT** CAT5E Solid twisted pair installation cable



Colour	Shielding	Outer Jacket	AWG	CPR level	DoP	100m	305m box	500m reel
Grey	U/UTP	PVC	24	Eca	1186884	ES100H	ES305B	ES500A
Blue	U/UTP	PVC	24	Eca	1186884		ES356B	
Grey	F/UTP	PVC	26	Eca	1186885	FS100H		



**ACT** In-Wall Box unshielded CAT5E 

Description		Connector	Type no.
Unshielded	In-Wall Box	2 x RJ45, 2 x IDC	FA5008
Unshielded	In-Wall Box	1 x RJ45, 1 x IDC	FA5003
Unshielded	In-Wall Box	2 x RJ45, 2 x IDC	FA5002
Keystone jack	In-Wall Box	2 x Suitable for ACT keystone jacks	FA6010

**ACT** Surface mounted box shielded CAT5E 

Description		Connector	Type no.
Shielded	Surface mounted box	1 x RJ45, 1 x IDC	FA5005
Shielded	Surface mounted box	2 x RJ45, 2 x IDC	FA5004


**ACT** Keystone surface mounted box CAT5E 

Description		Connector	Type no.
Keystone surface mounted box	Suitable for ACT keystone jacks	1 x port for keystone	FA6011
Keystone surface mounted box	Suitable for ACT keystone jacks	2 x ports for keystone	FA6012

**ACT** Keystone unshielded CAT5E 

Description	Cable attachment	Colour	Type no.
Unshielded punch down	Back	Black	TD5012
Unshielded punch down	Down	Black	TD5014
Unshielded punch down	Down	White	TD5015
Unshielded toolfree	Back	Black	TD5010
Unshielded toolfree	Back	White	TD5011
Unshielded coupler RJ45	Back	White	SD5009

ACT keystones are compatible with all ACT hardware

**ACT** Keystone shielded CAT5E 

Description	Cable attachment	Colour	Type no.
Shielded punch down	Back	Metal	TD5021
Shielded punch down	Down	Metal	TD5022
Shielded toolfree	Back	Metal	TD5020
Shielded coupler RJ45	Back	Metal	SD5019

ACT keystones are compatible with all ACT hardware

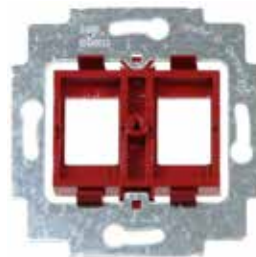
Compatible with all listed keystones



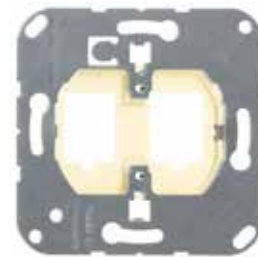
Gira\*  
19100



Peha\*  
740011



Busch-Jaeger\*  
2CKA001753A8055



Jung\*  
569-2NWE / CD569-2NWEWW

\*All brand names mentioned are the property of their trademark owners.

## **ACT** Patch panel CAT5E



Description	Ports		Type no.
Unshielded	24 Ports, angled	RJ45, IDC	P24AK1
Unshielded	24 Ports	RJ45, IDC	PP1001
Shielded	24 Ports	RJ45, IDC	PP1002
Keystone	24 Ports	Suitable for keystones	PP1030
Keystone	24 Ports, angled	Suitable for keystones	PP1033
Unshielded	Consolidation point	8 x RJ45, 8 x IDC	FA5000
Shielded	Consolidation point	8 x RJ45, 8 x IDC	FA5001

## **ACT** Multimedia inserts/keystones



Description	Type no.
LC Duplex adapter Singlemode/Multimode	TD4101
HDMI 2.0 A-A female	TD4102
HDMI 2.0 A-A female angled	TD4103
USB 3.2 Gen1 A-A female	TD4104
USB 3.2 Gen2 C-C female	TD4105

Compatible with ACT hardware such as PP1030, FA6010/11/12

## **ACT** Connectors CAT5E



Description		Type no.
Unshielded	Suitable for flexible and solid cable with positioning block, AWG26-AWG24	TD1118
Shielded	Suitable for flexible and solid cable with positioning block, AWG26-AWG24	TD1138


## **ACT** Tools



Description		Type no.
Krone punch tool	LSA plus	64172K
UTP cable stripper	For flat and round cables	FHT501
Punch tool	For 110 block	TD060
Modular crimp tool	Strip and cut the cable, and crimp the connectors to the cable	TD005
Modular Coupler RJ45 - RJ45	Coupler suited for the extension of your network cables	AC4105 Zip-bag





**ACT** CAT5E U/UTP PVC patch cable, AWG24 CU, 50µ gold-plated contacts 


Colour	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	25m	30m
Ivory	IB6452	IB6400	IB6401	IB6451	IB6402	IB6403	IB6405	IB6407	IB6410	IB6415	IB6420	IB6425	IB6430
Grey	IB6052	IB6000	IB6001	IB6051	IB6002	IB6003	IB6005	IB6007	IB6010	IB6015	IB6020	IB6025	IB6030
Red		IB5500	IB5501	IB5551	IB5502	IB5503	IB5505	IB5507	IB5510	IB5515	IB5520		
Blue		IB5600	IB5601	IB5651	IB5602	IB5603	IB5605	IB5607	IB5610	IB5615	IB5620		
Green		IB5700	IB5701	IB5751	IB5702	IB5703	IB5705	IB5707	IB5710	IB5715	IB5720		
Yellow		IB5800	IB5801	IB5851	IB5802	IB5803	IB5805	IB5807	IB5810	IB5815	IB5820		
Black		IB5900	IB5901	IB5951	IB5902	IB5903	IB5905	IB5907	IB5910	IB5915	IB5920		
Orange		IB4500	IB4501	IB4551	IB4502	IB4503	IB4505	IB4507	IB4510	IB4515	IB4520		
Brown		IB4600	IB4601	IB4651	IB4602	IB4603	IB4605	IB4607	IB4610	IB4615	IB4620		
Purple		IB4700	IB4701	IB4751	IB4702	IB4703	IB4705	IB4707	IB4710	IB4715	IB4720		
Pink		IB4800	IB4801	IB4851	IB4802	IB4803	IB4805	IB4807	IB4810	IB4815	IB4820		
White		IB5400	IB5401	IB5451	IB5402	IB5403	IB5405	IB5407	IB5410	IB5415	IB5420		

**ACT** CAT5E U/UTP LSZH patch cable, AWG24 CU, 50µ gold-plated contacts 


Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Grey	IB2000	IB2001	IB2051	IB2002	IB2003	IB2005	IB2007	IB2010	IB2015	IB2020

**ACT** CAT5E U/UTP PVC cross-over patch cable, AWG24 CU, 50µ gold-plated contacts 

Colour	0.5m	1m	1.5m	2m	3m	5m	10m
Black	IB6100	IB6101	IB6151	IB6102	IB6103	IB6105	IB6110

**ACT** CAT5E F/UTP PVC patch cable, AWG26 CU, 50µ gold-plated contacts 

Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Ivory	IB7200	IB7201	IB7251	IB7202	IB7203	IB7205	IB7207	IB7210	IB7215	IB7220
Grey	IB7100	IB7101	IB7151	IB7102	IB7103	IB7105	IB7107	IB7110	IB7115	IB7120

**ACT** CAT5E F/UTP LSZH patch cable, AWG26 CU, 50µ gold-plated contacts 

Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Grey	FB2000	FB2001	FB2051	FB2002	FB2003	FB2005	FB2007	FB2010	FB2015	FB2020
Red	IB7500	IB7501	IB7551	IB7502	IB7503	IB7505	IB7507	IB7510	IB7515	IB7520
Blue	IB7600	IB7601	IB7651	IB7602	IB7603	IB7605	IB7607	IB7610	IB7615	IB7620
Green	IB7700	IB7701	IB7751	IB7702	IB7703	IB7705	IB7707	IB7710	IB7715	IB7720
Yellow	IB7800	IB7801	IB7851	IB7802	IB7803	IB7805	IB7807	IB7810	IB7815	IB7820
Black	IB7900	IB7901	IB7951	IB7902	IB7903	IB7905	IB7907	IB7910	IB7915	IB7920

**ACT** CAT5E F/UTP cross-over LSZH patch cable, AWG26 CU, 50µ gold-plated contacts 

Colour	0.5m	1m	1.5m	2m	3m	5m	10m
Cable Boot	IB5100	IB5101	IB5151	IB5102	IB5103	IB5105	IB5110

**ACT** CAT5E SF/UTP PVC patch cable, AWG26 CU, 50µ gold-plated contacts, not molded boots 

Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m
Ivory	IB7000	IB7001	IB7051	IB7002	IB7003	IB7005	IB7007	IB7010	IB7015	IB7020

## ACT component level patch cable

### ACT component level patch cables

Flexibility in your network is achieved by using consolidation points. But consolidation points add an extra transition to your cabling. This can affect the reliability of your network.

Did you know that an additional transition/cable in the network also adds two additional connectors? (Each cable has two connectors). This results in an additional connector transition in the horizontal cabling: the so-called 4-connector model.

ACT component level patch cords compensate for additional transitions in your network thanks to their very high quality. ACT offers consolidation points in CAT5E up to and including CAT6A (these can be found in the product overviews under patch panels). The component level patch cables are applied when using an extra consolidation point in your network and for cross-connects.

**ACT** CAT5E component level U/UTP PVC snagless patch cable, AWG24 CU, 50µ gold-plated contacts



Colour	0.5m	1m	1.5m	2m	3m	5m	7m	10m
Ivory	IK5400	IK5401	IK5451	IK5402	IK5403	IK5405	IK5407	IK5410
Red	IK5500	IK5501	IK5551	IK5502	IK5503	IK5505	IK5507	IK5510
Blue	IK5600	IK5601	IK5651	IK5602	IK5603	IK5605	IK5607	IK5610
Green	IK5700	IK5701	IK5751	IK5702	IK5703	IK5705	IK5707	IK5710
Yellow	IK5800	IK5801	IK5851	IK5802	IK5803	IK5805	IK5807	IK5810
Black	IK5900	IK5901	IK5951	IK5902	IK5903	IK5905	IK5907	IK5910



# Fiber optic

## Reliable and future proof

More than 80% of all errors in networks and fiber optic networks are caused by failures related to cabling. Businesses that depend on excellent network performance invest in the best brands and products of active equipment like switches, servers and routers but often overlook the part that makes the biggest difference, the cabling. Customers choose for ACT cables and cabling solutions because our products are reliable and future proof. ACT cables and components meet and exceed international standards by using grade A fiber and fiber optic connectors. Premium materials are used and all our products have 100% quality control.

## Consistent low loss

In fiber optic networks it's important that all the light from the source reaches the end of the link. By using ACT cables you are ensured of a consistent low loss.

## Upgrade to 40-400Gb

ACT fiber optic cables ensure low loss in networks. This makes it possible to upgrade 1Gb or 10Gb to 40-100Gb (this depends on distance and chosen fiber type).

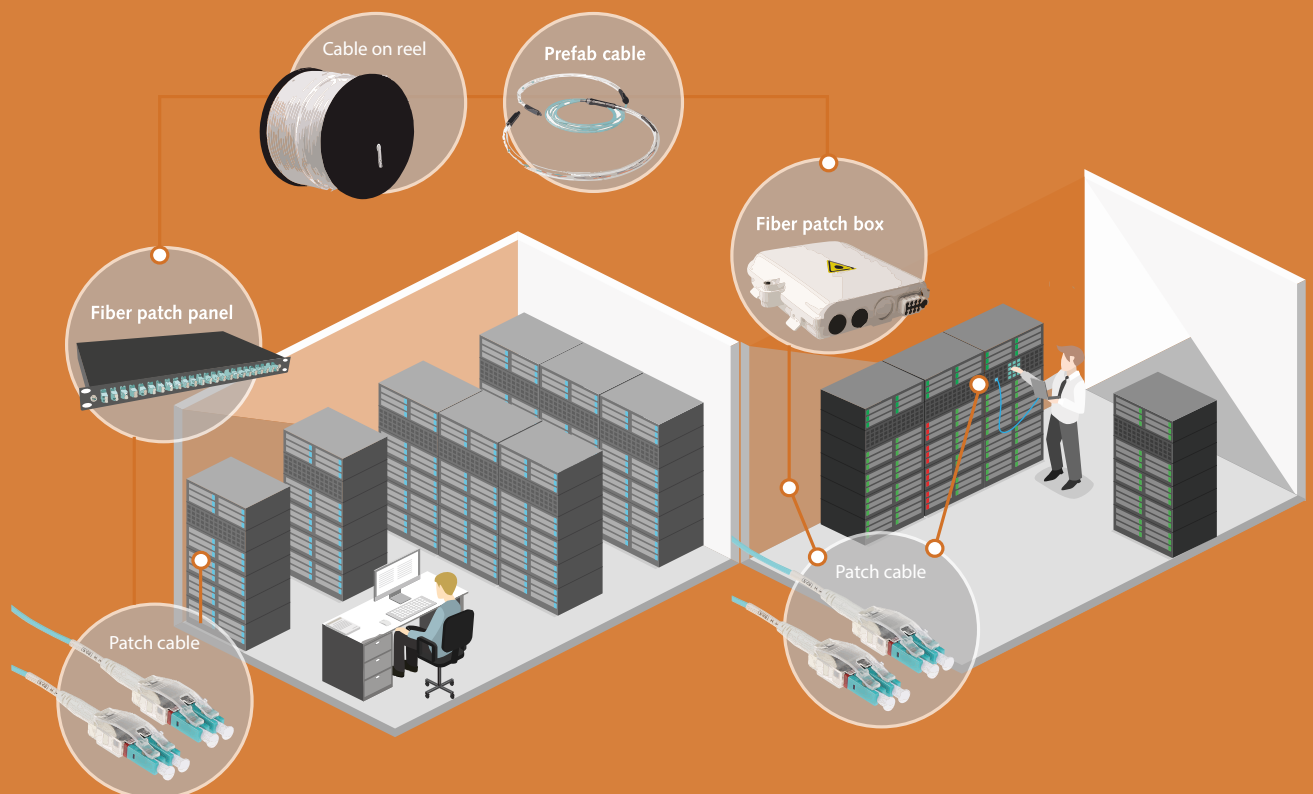
## Individual test report and third party testing facilities

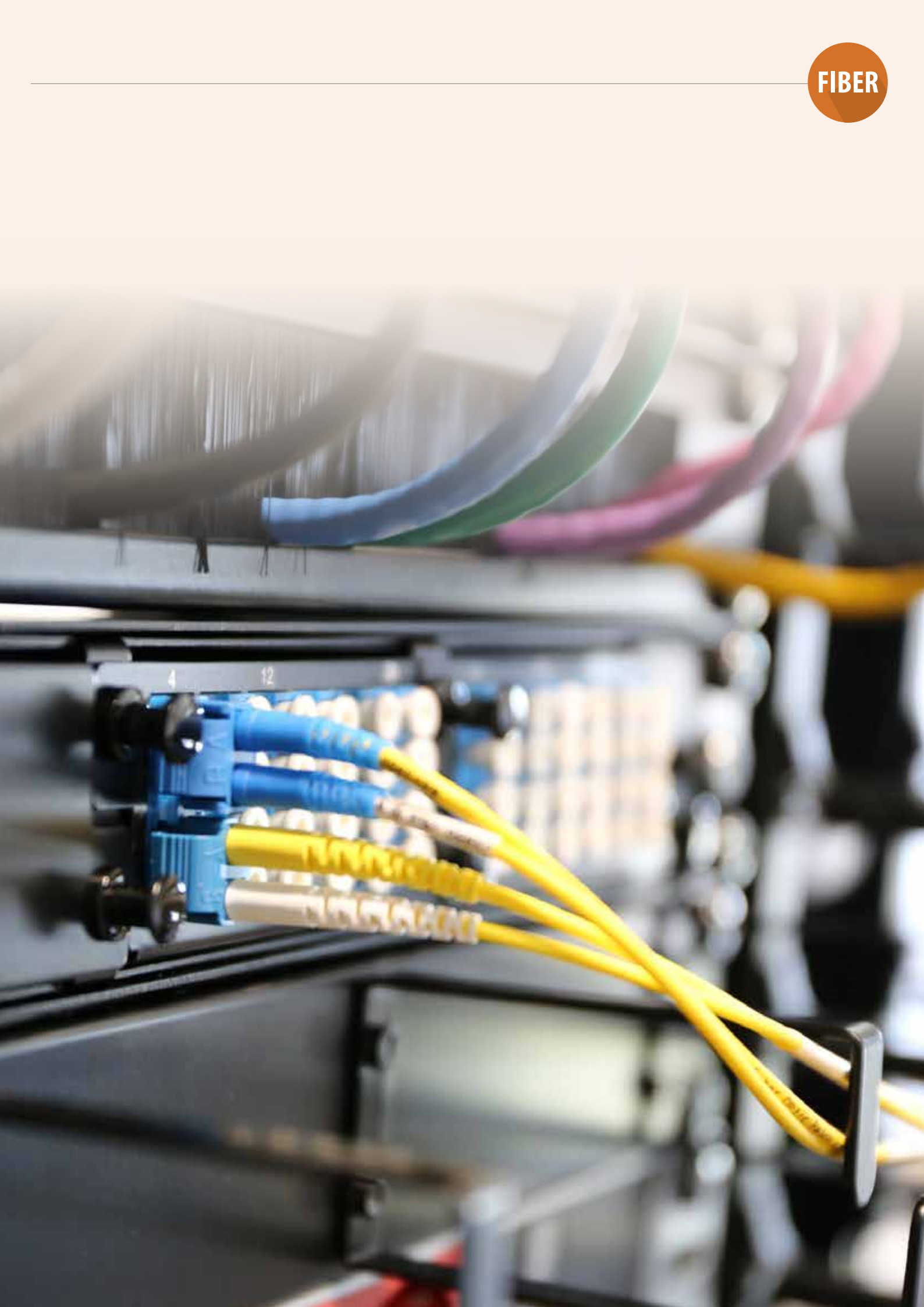
All of our cables are individually tested and have an individual test report so you know every part of your network is tested and can be accounted for.

Besides our own individual testing of fiber optic cables we do provide samples to third party testing facilities who perform their own testing as a double check.

Types of fiber and distances:						
Fiber Optic type	OM1	OM2	OM3	OM4	OM5	OS2
	Multimode					Singlemode
	62,5/125µm	50/125µm				9/125µm
Structuur						
Distance	2000 m	550 m	300 m	400 m	440 - 150 m	10 Km
Used for	10/100 Mb/s	1 Gb/s	10 Gb/s	10 Gb/s	40-400 Gb/s	*

\* Maximum length is related to the best suitable speed and depends on the transceiver.





## ACT Fiber Kit

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### **ACT Fiber Kit: pre-terminated fiber optic cables and patch cables custom made and labeled**

Would you also like to save time by faster installation of pre-terminated fiber optic cables and patch cables in a data center? Less chance of errors when installing pre-terminated fiber optic cables and patch cables in a data center because all products are packed per corridor?

To help you we have developed an ACT Fiber Kit: pre-terminated fiber optic cables, MTP / MPO cables and patch cables custom made and ready for use.

#### **What is ACT Fiber Kit?**

ACT Fiber Kit consists of multiple cables that are custom made and labeled for you. These can be patch cables but also MTP/MPO cabling or pre-terminated cabling. We make it extra convenient with the possibility to pack per corridor / aisle.

You can choose to have each cable packaged individually or with multiple cables at once for less waste and unpacking time during installation. ACT Fiber Kit is a turnkey tailor-made solution: pre-terminated fiber optic cables, MTP / MPO cables and patch cables custom made and ready for use.

#### **Why we offer it?**

The ACT Fiber Kit not only ensures easy installation, but also provides significant cost savings. You save by faster installation and do not need to invest in special equipment such as a label printer and expertise.

#### **Where is it applied?**

ACT Fiber Kit is suitable for use in a datacenter, server room or PoP and has been developed to relieve datacenter professionals



### Why choose ACT Fiber Kit?

✓ **Time saving**

You save installation time with our turnkey solution.

✓ **Cost savings**

The reduction in installation time also saves labour costs. You don't need to invest in a label printer and expertise.

✓ **Better organised**

ACT Fiber Kit consists of coded (labeled) cables. By using labeled cabling, your cabling is better organised and faults can be traced and resolved faster.

✓ **Exactly the right length**

No more bothering with excess cabling that you have to find a place for in precious space. Cables are made to measure, exactly the length needed.





**Use ACT Fiber optic cleaners for the best performance**

In order to get the best performance out of our fiber optic network we advise to always clean the ferrule tips of the connectors. Cleaning fibers is essential for an optimal connection as dirt can block the path of light and damages connectors and equipment. With the increase in network speeds we see that the cleaning of fibers is essential in order to prevent failures and degraded performances.

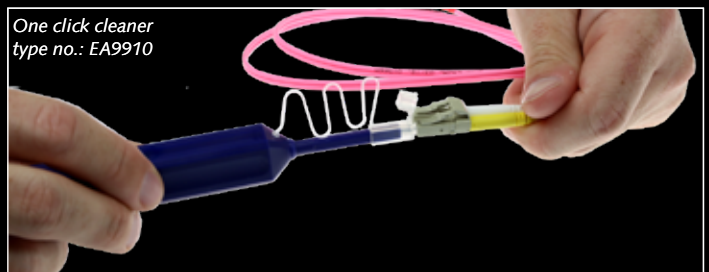
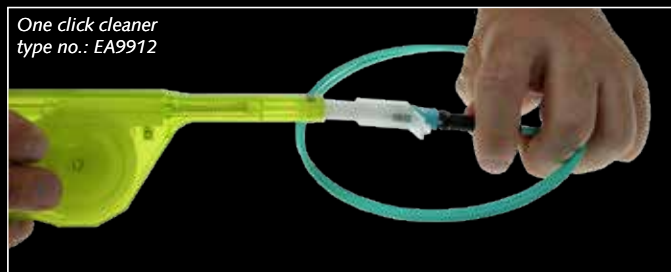
The greatest cause of link failures are issues with connector contamination. This is reported by 98% of installers and 80% of network owners in a study by NTT-Advanced Technology. Cleaning a fiber reduces the chance of contaminating another optical interface or expensive fiber optic equipment.

**Cleaners for fiber cables**

ACT advises to inspect and clean all connectors before they are plugged into connectors or equipment, this also applies to new cables. It is not necessary to periodically clean connectors that are already mated.

We offer two kind of ACT cleaners for fiber cables, a reel cleaner and one click cleaner. The advantage of a reel cleaner is the possibility to clean connectors with different ferrule sizes. The advantage of a one click cleaner is the possibility to clean both connectors and bulkheads (adapters). They are easy to use, minimizing the risk of clean mistakes.

By cleaning fiber connectors the transceivers will not get dirty either. When they do, we advise to use cleaning sticks. Cleaning sticks have the lowest chance of damaging your equipment.



Fiber optic cleaners				
Type no.	LC/MU	SC/ST/FC/E2000	MPO/MT	
One click cleaner	EA9910	EA9911	EA9912	
Cleaning sticks	EA9904	EA9905		
Reel Cleaner	EA9901	EA9901	EA9901	
Spare reel	EA9902	EA9902	EA9902	

## ACT fiber optics installation cable - delivered from stock

ACT Installation Cable's product range consists of fiber optic cables in different lengths (per meter), fiber types and number of fibers. We have these cables in stock and therefore can deliver the next day.

### characteristics

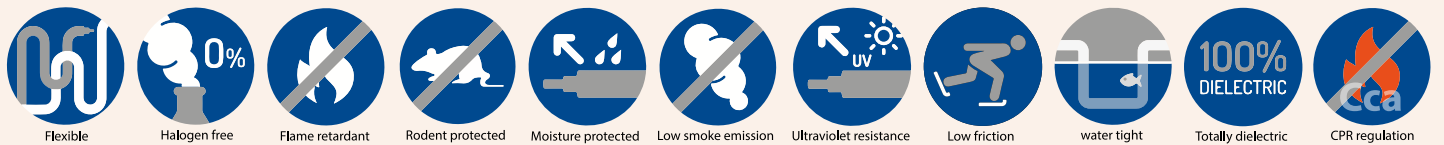
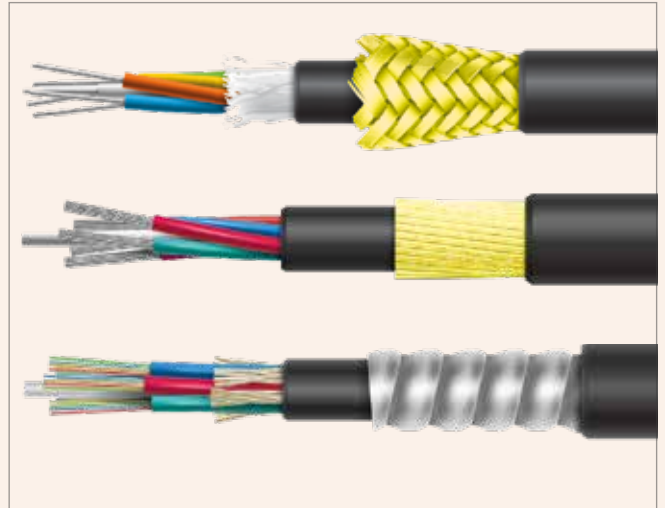
- Fiber optic installation cable in the desired length (per meter), fiber type and number of fibers.
- Suitable for indoor and outdoor use.
- Suitable for horizontal and vertical installation.
- Meets one of the highest CPR fire classes: Cca.
- Cable provides mechanical protection against external influences.

### Tailor-made cabling


Permanent cabling, also called installation cable, comes in different types, different lengths and is usually delivered on a roll, therefore it is also called cable on a roll.

In addition to our stock of installation cable, ACT specializes in custom cabling solutions. Almost anything is possible in the field of fiber optic installation cabling.


Please contact our sales department for your requirements.



We have these cables in stock and therefore we can ship out the same day.

**ACT** Fiber optic installation cable (in the length you specify) 

Colour	Fiber	CPR level	DoP	OM3	OS2
Black	6	Cca	0370-3935	RL4051	RL4011
Black	12	Cca	0370-3935	RL4052	RL4012
Black	24	Cca	0370-3935	RL4053	RL4013

**ACT** Pigtaills 

Connector	LC				SC
	1m / 1pcs	1m / 12pcs	2m / 1pcs	2m / 12pcs	1m / 1pcs
OM3	RL9695	RL9680			RL8695
OM4	RL8795	RL3780			RL8795
OS2	RL9995	RL9980	RL9996	RL9982	RL8995



With pre-terminated cables you can easily and quickly install a fiber optic network. There are a number of points to be aware of when installing pre-terminated cables. In this article we explain the most important ones.

## Structure of a pre-terminated cable

A pre-terminated cable is actually a cable assembly, a combination of different cables and connectors into one assembled ready-to-use product. A fiber optic pre-terminated cable nearly almost always contains multiple fibers.

A pre-terminated cable usually consists of the following parts:

- Installation cable: a robust installation cable that is suitable for bridging longer distances and offers good protection against external influences.
- Fanout kit: the transition from the installation cable to the fanout cables.
- Cable gland: is in some cases attached on the fanout kit and aims to fix the cable to, for example, a patch panel or fiber box.
- Fanout cables: are multiple small diameter cables with a fiber optic connector at the end.

## Achieving the right length

In order to calculate the correct pre-terminated cable length, it is essential to consider the following things:

*Straight line distance:* The distance between the two points you want to connect without considering any obstacles.

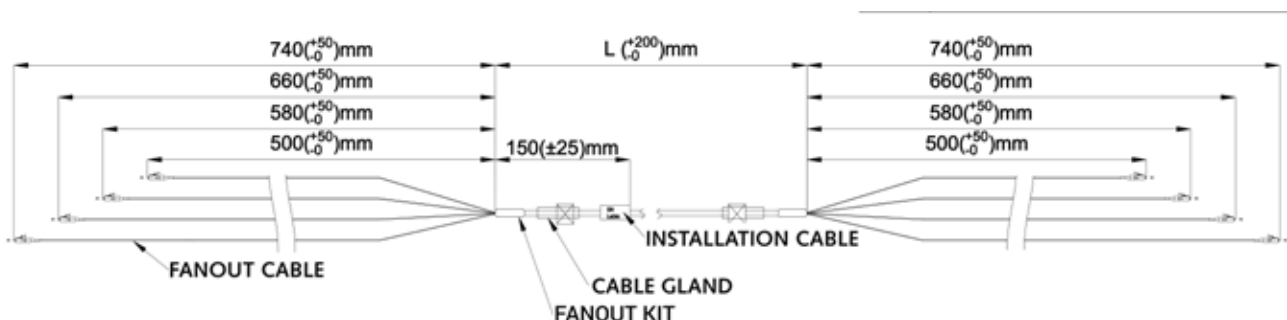
*Horizontal distance:* Usually you cannot move your cable from point a to point b without having to lay the cable around objects. Keep in mind that in datacenters, for example, cables are usually routed through a cable duct / fiber raceway.

*Vertical distance:* It is also important to consider the vertical distance. If the cable has to come out halfway through a 19" cabinet, it is important to count the distance from halfway through the cabinet to the cable duct (which may be in the ceiling or in the floor).

We recommend that you always choose a slightly longer cable than is calculated. Often there is an additional obstacle that has not been taken into account beforehand. Short over lengths are easy to eliminate. If a cable is too short it cannot be extended.

In that case an extra cable has to be connected and this causes an extra transition and optical losses.

Note: Is the length of the cable specified? This refers only to the installation cable and not to the fanout kit and the fanout cables. For more info, see the technical drawing below.



## Installing a pre-terminated cable

FIBER

### Protect the fanout cables and connectors

When installing a pre-terminated cable, it is important to protect the fanout cables and connectors. These are the most vulnerable parts that can be damaged without protection. We advise to use a protective conduit during installation. The protection conduit can be removed after installation. ACT pre-terminated cables are standard equipped with a protection conduit on both sides of the cable for optimal protection.

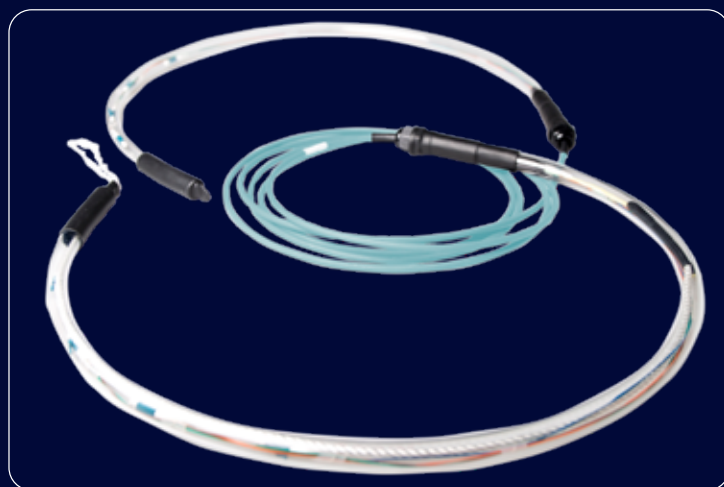
### Preferred installation

We recommend to lay the cable when possible and if installing is not an option then pull the cable. The fibers in a fiber optic cable can be damaged by pulling. Fiber optic cables are designed to withstand tensile load so that the fiber remains protected, this is called strain relief. It is important to strain within the specifications of the cable.

This maximum specified tensile load of a cable applies to the installation cable but not to the fanout cables. Of these, the tensile load is much smaller. To solve this, ACT pre-terminated cables are equipped with a pulling rope on one side at the end of the protection conduit. If this is pulled, the tensile load is placed on the installation cable and not on the fanout cables.

### Conduit for outdoor use

Pre-terminated cables are also suitable for outdoor use. Please note that most variants are not suitable for direct burial without any form of protection. The influences from outside are much greater than with indoor use, especially rodents. For this reason, when using pre-terminated cables outside, a conduit is required. An exception to this are pre-terminated cables with an armoured outer jacket, which offer sufficient protection against external influences because of the armoring.



## Pre-terminated cables - a do it yourself solution

Pre-terminated cables are used by the following target audiences:

- Network installers that are not specialized in termination of fiber optics.
- System integrators.
- Data center.

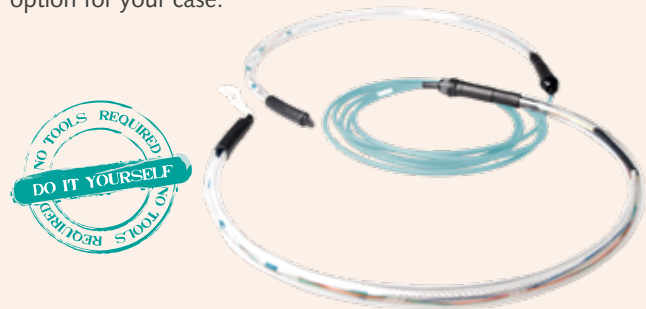
By using pre-terminated cables you have the following advantages:

- Connectors are terminated and tested in a clean room production environment.
- Cables come with individual test reports on insertion loss.
- No need to investment in equipment for splicing or testing.
- Up to 80% less installation time (compared to terminating your own connectors).
- Connectors are protected by protective tubing during installation.

### Stock assortment

We have a stock of pre-terminated cables in lengths from 10 up to 300 meters in both OM3 and OS2. These are Loose tube indoor / outdoor cables with 4 or 8 fibers. All other types will be custom made with very short lead-time.

Our experts are available to help you choose the best option for your case.



### ACT 4 Fibers pre-terminated indoor/outdoor cables OS2, with LC connectors

Colour	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
Yellow	RL2301	RL2302	RL2303	RL2304	RL2305	RL2306	RL2307	RL2308	RL2309	RL2310
	110m	120m	130m	140m	150m	160m	170m	180m	190m	200m
Yellow	RL2311	RL2312	RL2313	RL2314	RL2315	RL2316	RL2317	RL2318	RL2319	RL2320
	210m	220m	230m	240m	250m	260m	270m	280m	290m	300m
Yellow	RL2321	RL2322	RL2323	RL2324	RL2325	RL2326	RL2327	RL2328	RL2329	RL2330

### ACT 4 Fibers pre-terminated indoor/outdoor cables OM3, with LC connectors

Colour	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
Aqua	RL2401	RL2402	RL2403	RL2404	RL2405	RL2406	RL2407	RL2408	RL2409	RL2410
	110m	120m	130m	140m	150m	160m	170m	180m	190m	200m
Aqua	RL2411	RL2412	RL2413	RL2414	RL2415	RL2416	RL2417	RL2418	RL2419	RL2420
	210m	220m	230m	240m	250m	260m	270m	280m	290m	300m
Aqua	RL2421	RL2422	RL2423	RL2424	RL2425	RL2426	RL2427	RL2428	RL2429	RL2430

### ACT 8 Fibers pre-terminated indoor/outdoor cables OS2, with LC connectors

Colour	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
Yellow	RL4101	RL4102	RL4103	RL4104	RL4105	RL4106	RL4107	RL4108	RL4109	RL4110
	110m	120m	130m	140m	150m	160m	170m	180m	190m	200m
Yellow	RL4111	RL4112	RL4113	RL4114	RL4115	RL4116	RL4117	RL4118	RL4119	RL4120
	210m	220m	230m	240m	250m	260m	270m	280m	290m	300m
Yellow	RL4121	RL4122	RL4123	RL4124	RL4125	RL4126	RL4127	RL4128	RL4129	RL4130

### ACT 8 Fibers pre-terminated indoor/outdoor cables OM3, with LC connectors

Colour	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
Aqua	RL4201	RL4202	RL4203	RL4204	RL4205	RL4206	RL4207	RL4208	RL4209	RL4210
	110m	120m	130m	140m	150m	160m	170m	180m	190m	200m
Aqua	RL4211	RL4212	RL4213	RL4214	RL4215	RL4216	RL4217	RL4218	RL4219	RL4220
	210m	220m	230m	240m	250m	260m	270m	280m	290m	300m
Aqua	RL4221	RL4222	RL4223	RL4224	RL4225	RL4226	RL4227	RL4228	RL4229	RL4230

## Pre-terminated cables – minimize installation time and labor in your datacenter or server room

For fast and easy installation of installation and backbone cabling in your datacenter choose ACT pre-terminated cabling

### ACT for all your MAC (Moves Adds and Changes)

Unique is that ACT keeps stock of pre-terminated fiber cabling. For you this means you can start directly if you want to change or expand your backbone cabling.

### Cabling on stock

We have stock in Singlemode and Multimode cabling with 24 fibers and LC connectors lengths up to 100 meters. These are ultra-compact cables with uniboot connectors for the smallest possible fanout.

The most requested lengths are also available in MTP / MPO trunk cables up to 100 meters.

This range includes cables with 1,2 or 4 MTP / MPO connectors per side in both polarity A as B in Multimode.



**ACT** 24 fibers pre-terminated OS2 indoor, with LC polarity twist connectors

Colour	3m	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	60m	70m	80m	90m	100m
Yellow	DC5550	DC5551	DC5552	DC5553	DC5554	DC5555	DC5556	DC5557	DC5558	DC5559	DC5560	DC5561	DC5562	DC5563	DC5564	DC5565

**ACT** 24 fibers pre-terminated OM4 (OM3) indoor, with LC polarity twist connectors

Colour	3m	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	60m	70m	80m	90m	100m
Erika violet	DC5500	DC5501	DC5502	DC5503	DC5504	DC5505	DC5506	DC5507	DC5508	DC5509	DC5510	DC5511	DC5512	DC5513	DC5514	DC5515

**ACT** 1x 12 fibers trunkcable OM4 (OM3), with 1x MTP/MPO connector each side

Colour	25m	30m	35m	40m	45m	50m	60m	70m	80m	90m	100m
Polarity A											
Erika violet	DC5000	DC5001	DC5002	DC5003	DC5004	DC5005	DC5006	DC5007	DC5008	DC5009	DC5010
Polarity B											
Erika violet	DC5020	DC5021	DC5022	DC5023	DC5024	DC5025	DC5026	DC5027	DC5028	DC5029	DC5030

**ACT** 2x 12 fibers trunkcable OM4 (OM3), with 2x MTP/MPO connectors each side

Colour	5m	7m	10m	12m	15m	20m	25m	30m	35m	40m	45m	50m	60m	70m	80m	90m	100m
Polarity A																	
Erika violet	DC5200	DC5201	DC5202	DC5203	DC5204	DC5205	DC5206	DC5207	DC5208	DC5209	DC5210	DC5211	DC5212	DC5213	DC5214	DC5215	DC5216
Polarity B																	
Erika violet	DC5250	DC5251	DC5252	DC5253	DC5254	DC5255	DC5256	DC5257	DC5258	DC5259	DC5260	DC5261	DC5262	DC5263	DC5264	DC5265	DC5266

**ACT** 4x 12 fibers trunkcable OM4 (OM3), with 4x MTP/MPO connectors each side

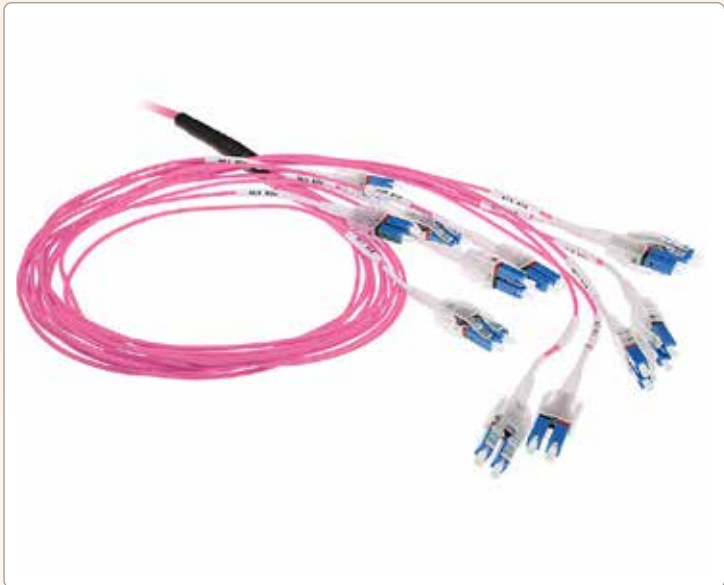
Colour	5m	7m	10m	12m	15m	20m	25m	30m	35m	40m	45m	50m	60m	70m	80m	90m	100m
Polarity A																	
Erika violet	DC5400	DC5401	DC5402	DC5403	DC5404	DC5405	DC5406	DC5407	DC5408	DC5409	DC5410	DC5411	DC5412	DC5413	DC5414	DC5415	DC5416
Polarity B																	
Erika violet	DC5450	DC5451	DC5452	DC5453	DC5454	DC5455	DC5456	DC5457	DC5458	DC5459	DC5460	DC5461	DC5462	DC5463	DC5464	DC5465	DC5466

## Pre-terminated fiber optic installation cables on stock.

ACT pre-terminated cables, also called pre-terminated fiber cables, are fiber optic installation cables with connectors already attached. The pre-terminated cables are used in Point to Point cabling and structured fiber optic cabling. No tooling is required for the installation. ACT pre-terminated fiber optic installation cables are available in the following variants:

- 4/8 fibers with LC connectors suitable for indoor / outdoor use.
- 24 fibers with LC Polarity Twist connectors for indoor data center applications.
- 12/24/48 fibers with MTP/MPO connectors for indoor data center applications.

Our ACT Pre-terminated cables are available from stock so you can get start your installation right away. The last two variants are for data center applications. What does this mean and why are these cables suitable for data centers? Read the rest of this article to find out.



## ACT pre-terminated fiber optic installation cables: flexible, scalable and suitable for fast MAC (Moves, Adds and Changes)

When designing a cabling system in a data center, flexibility and scalability of installation cables are of great important. Expansions or changes (Moves, Adds and Changes) regularly occur in a data center or server room.

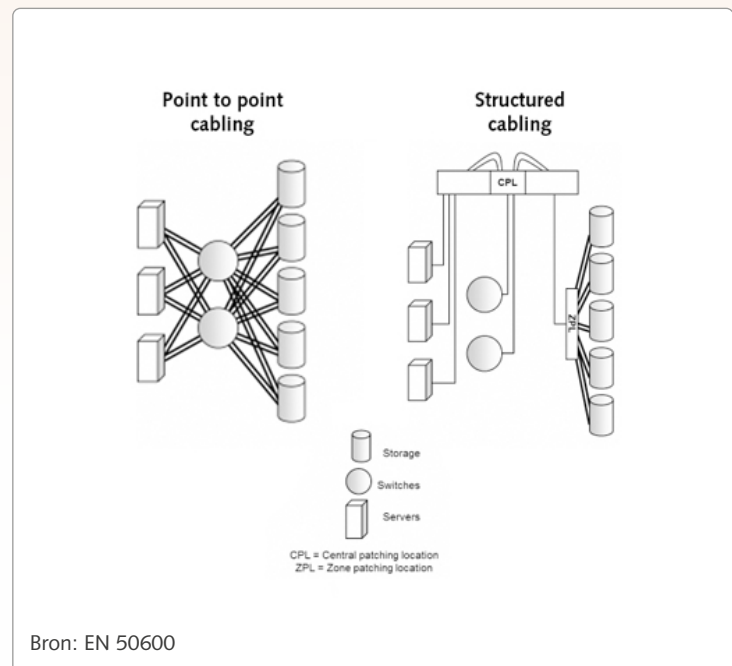
Use of pre-terminated fiber optic installation cables is an excellent solution because of its compact shape and Polarity Twist connectors. The range of ACT pre-terminated fiber optic installation cables consists of the multiple pre-terminated cables with 24 fibers and MTP/MPO trunk cables.

## Suitable for point-to-point and structured cabling

ACT fiber optic installation cables, pre-terminated cables, are suitable for both Point-to-point and structured cabling.

Point-to-point cabling involves connecting equipment directly to each other.

Structured cabling, also called fixed cabling, involves the use of panels, installation cabling and patch cabling. By using a staggered fanout, the pre-terminated fiber optic cables are easy to connect to both patch panels and equipment such as switches, servers and storage.

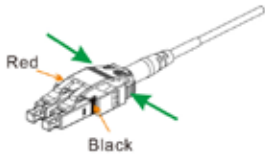


Polarity Twist connectors



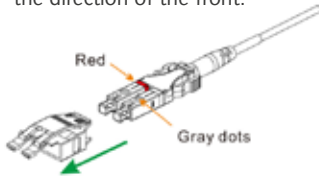
**1.**

Press both sides to unlock the triggermodule.



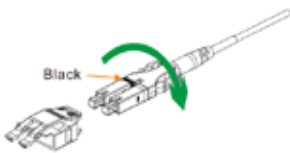
**2.**

Remove the triggermodule in the direction of the front.



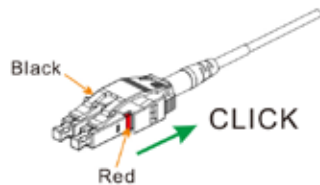
**3.**

Flip the connection module upside down, gray dots are facing down.



**4.**

Return the trigger until you hear a CLICK.



**ACT multiple pre-terminated cables with 24 fibers and Polarity Twist connectors**

With ACT multiple pre-terminated cables with 24 fibers, your data center is prepared for the future. The multiple pre-terminated fiber optic cables are equipped with Polarity Twist connectors.

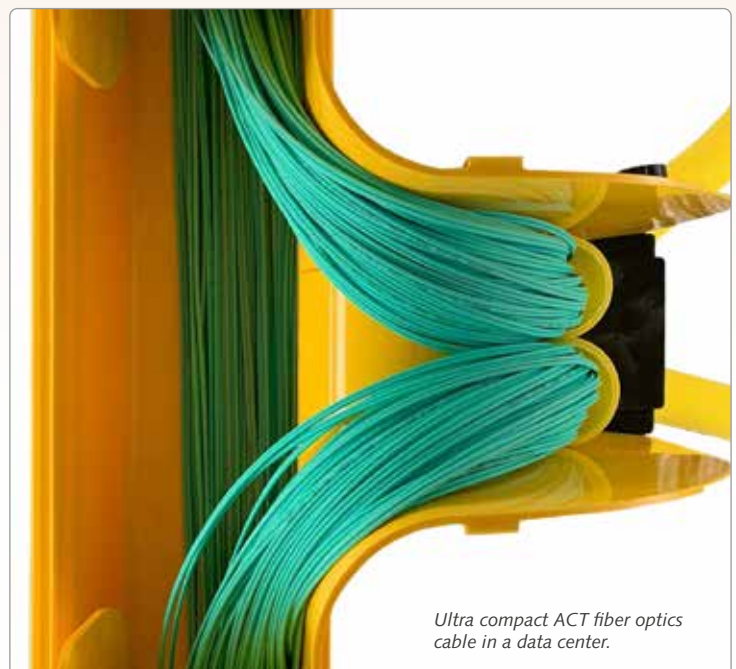
Polarity Twist connectors offer several advantages:

- The polarity of the two fibers can be adjusted within seconds by rotating the outside of the connector.
- Halving the number of fanout cables by having two fibers instead of one fiber per connector.
- Thinner fanout cables, 2mm instead of 3mm thick a savings of 33%.

In addition to the Polarity Twist connectors, a divisible gland is also available for ACT 24-fold pre-terminated cables. For direct connection of equipment, point-to-point, in most cases no gland is needed. In 19" panels, however, a gland is often used to secure fiber optic cable. With the divisible gland you can easily add a gland. A diameter of 6.5mm and the fanouts of 2mm makes the installation cable compact and robust.

**Save space with prefabs: Up to 50% more capacity thanks to ultracompact cable**

Due to their small diameter, ACT pre-terminated cables are suitable for High density solutions in data centers and server rooms. Our design of ultracompact thin diameter cables allows you to fit up to 50% more cables in the fiber raceway / cable tray or in your 19" cabinet. This provides better scalability and flexibility for future network expansions.



*Ultra compact ACT fiber optics cable in a data center.*

## ACT solutions for patching fiber and more

ACT has a wide range of solutions for patching fiber optic cabling. In this overview we present our 19" patch panels and enclosures in both standard as Multifunctional HD series. We also present our patch boxes in a variety of formfactors. You can find the different options and advantages to help you chose the best patching solution for your need.



### ACT fiber optic patch panel enclosures

ACT fiber optic panel enclosures are designed for convenience and a complete solution for patching your fibers.

#### ACT panel enclosures come with the following accessories:

- 2 splice cassettes,
- 2 M20 glands,
- Management spools,
- Ty wraps and adhesive ty wrap cable mounts.

## Fiber panels enclosures loaded

- Loaded
- Installation time: 2-5 minutes
- Customization: Low

Advantage of a preloaded panel is the short installation time. The adapters and accessories are already installed to save installation time. For pre-terminated cabling you do not need any extra's, for installation cable without connectors pigtailed can be added. For an overview of ACT pigtailed see the end of this chapter.



**ACT** Fiber panels loaded

Fiber connector	OM3LC	OM4LC	OS2LC	OM3SC	OS2SC
24 Ports	FA2037	FA2040	FA2036	FA2039	FA2038

## Fiber panels enclosures unloaded

- Unloaded
- Installation time: 7-10 minutes
- Customization: High

ACT unloaded fiber optic patch panel enclosures are a flexible solution that can be equipped with a range of different kind of fiber optic adapters. Main advantage is the flexibility in choice of fiber optic adapters. If you only need a few adapters or a combination of different type of fiber optic adapters this is the panel of choice.



**ACT** Fiber panels unloaded

24 Ports	FA2044
48 Ports	FA2095

## ACT fiber optic patch panels

### ACT fiber optic patch panels

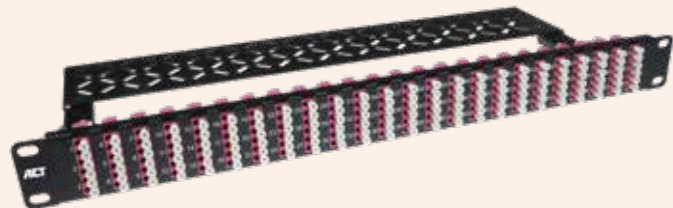
ACT patch panels are a lightweight solution which are used for pre-terminated cabling. Patch panels save space and cost because they don't have an enclosure. Instead of an enclosure the panels have a smaller cable management bar. Cabling can be fastened to the bar with Hook & Loop (velcro) cable ties.



## Fiber panels loaded

- Loaded
- Installation time: 2-5 minutes
- Customization: Low

The loaded fiber optic patch panels are high density panels with 96 ports / 192 fibers per U. The panels are a lightweight solution and come with a cable management panel at the rear end.



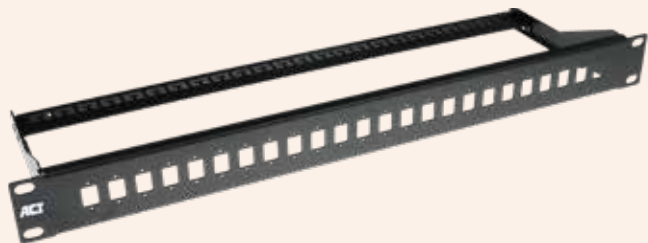
**ACT** Fiber panel loaded

Fiber connector	OM4LC	OS2LC
96 Ports	FA2100	FA2101

## Fiber panels unloaded

- Unloaded
- Installation time: 7-10 minutes
- Customization: High

ACT unloaded fiber optic patch panel are a flexible and lightweight solution that can be equipped with a range of different kind of fiber optic adapters. Main advantage is the flexibility in choice of fiber optic adapters. If you only need a few adapters or a combination of different type of fiber optic adapters this is the panel of choice. The unloaded fiber optic panels come in standard density (FA2047) and double density (FA2095). At the end of the chapter there is an overview of the different adapters and which adapter fits in which panel.



**ACT** Fiber panel unloaded

24 Ports	FA2047
48 Ports	FA2095



## ACT fiber patch boxes

ACT fiber patch boxes are smaller enclosures that are not for 19" use. The enclosures are unloaded, you can easily add adapters and the pigtails you need.



### ACT Fiber patch boxes

Number of ports	8 Ports	16 Ports	12 Ports DIN RAIL	2 Ports
Type	FA2033	FA2034	FA2043	FA2032

## ACT fiber optic adapters

Here is an overview of the ACT fiber optic adapters and in which panels they fit. An LC connector is half of the size of SC, ST, MTP and FC connector. That's why duplex LC has the same dimensions as simplex SC.



### Panels and boxes that fit duplex LC / simplex SC:

Unloaded 19" fiber	FA2044	FA2047		
Unloaded patchboxes fiber	FA2033	FA2034	FA2043	FA2032

### ACT Fiber optic adapters

Description	OM1	OM2	OM3	OM4	OM5	OS1/2	OS1/2 APC	Metal
MTP(MPO)-MTP(MPO) flange	EA9010	EA9010	EA9010	EA9010	EA9010	EA9010	EA9010	
LC-LC duplex flange	EA1005	EA1005	EA9005	EA9006	EA1016	EA1004	EA9007	
SC-SC simplex flange	EA1023	EA1023	EA1024	EA1025	EA1026	EA2003	EA3005	
LC-SC simplex flange								EA8001
SC-ST simplex flange	EA1036	EA1036	EA1036	EA1036	EA1036	EA1036		
LC-FC simplex flange	EA1041	EA1041	EA1041	EA1041	EA1041	EA1041		
SC-FC simplex flange	EA1042	EA1042	EA1042	EA1042	EA1042	EA1042		

### Panels that fit Quad LC, Duplex SC:

Unloaded 19" patch panels	FA2095	FA2097
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### ACT Fiber optic adapters

Description	OM1	OM2	OM3	OM4	OM5	OS1/2	OS1/2 APC
LC-LC quad flange	EA1018	EA1018	EA9008	EA9009	EA1019	EA1020	EA1021
SC-SC duplex flange	EA1006	EA1006	EA3003	EA3004	EA1027	EA3002	EA1028
SC-ST duplex flange	EA2002	EA2002	EA2002	EA2002	EA2002	EA2002	

### Adapters with other mounting:

### ACT Fiber optic adapters

Description	Metal
ST-ST simplex round	EA1001
Description	Multimode
LC-LC duplex square	EA9002

### Pre-terminated cabling

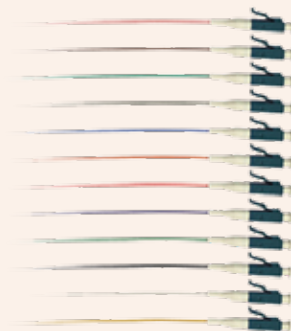
For pre-terminated cabling you only need the right adapters, for installation cable without connectors pigtails can be added. For an overview of the ACT adapters and pigtails see the end of this chapter.

## Fiber optic pigtails and splicing

All the ACT patch panel enclosures, both loaded and unloaded and the patch boxes can be used for housing pigtails that are spliced on an installation cable. The fiber optic patch panels without enclosures are not suited for splicing pigtails because they don't have anywhere the splice cassettes can be mounted.

### 12 pack of ACT pigtails.

When in 12 pack they come in different colours. When ordered per piece the colour is the same as colour scheme for the fiber type, so yellow of OS2, aqua for OM3 and Erika Violet for OM4.



ACT Pigtails					
Connector	LC				SC
	1m / 1pcs	1m / 12pcs	2m / 1pcs	2m / 12pcs	1m / 1pcs
OM3	RL9695	RL9680			RL8695
OM4	RL8795	RL3780			RL8795
OS2	RL9995	RL9980	RL9996	RL9982	RL8995

## Fiber optic protection

For protecting splices ACT offers the following splice protectors.



ACT Splice protectors			
Type	Thermo 45mm	Thermo 60mm	ANT crimp 30mm
	FA2028	FA2048	FA2041

ACT also offers the SK121 splice cassette (FA2082) which is both suited for thermo as crimp splice protectors. The SK121 cassettes are stackable and need a cover and have space for 2 splice holders per cassette.

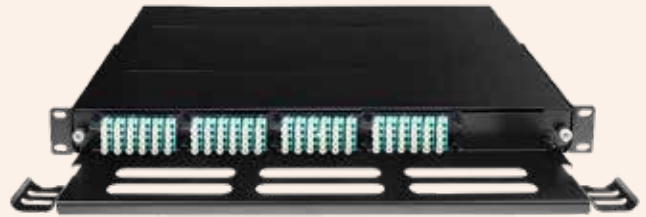
ACT SK121 splice cassette				
Type	Cassette	Cover	Thermo holder 6x	Crimp holder 12x
	FA2082	FA2083	FA2084	FA2081

ACT Accessoires		
ACT Cableguide for fiber optic panel		FA2068
ACT Cableguide with front for fiber optic panel		FA2069
Compatible with: FA2036, FA2037, FA2038, FA2039, FA2040, FA2050, FA2095		



## ACT Multifunctional HD fiber optic patch panel enclosures

- Installation time: 3-6 minutes
- Customization: High
- Extra: Also suited for twisted pair Cat5E-Cat8 and USB-C, USB-A and HDMI



Multifunctional HD fiber optic patch panel enclosures can be easily equipped with cassettes and adapter plates. The cassettes and adapter plates can be added to the panel in a matter of seconds. The use of ACT Multifunctional HD fiber optic patch panel enclosures provide flexibility, short installation time and high density. For even more flexibility the adapter plates fit products with a keystone formfactor. This means that the panels can be equipped with twisted pair Cat5E up to Cat8 but also USB-A, USB-C and HDMI.

The ACT Multifunctional HD fiber optic patch panel enclosures are high density panel enclosures. This means that it can have up to 60 connections / 120 fibers in the 1U version and 144 connections / 288 fibers in the 2U version.

ACT Multifunctional HD fiber optic patch panel enclosures	
5 slots 1U	12 slots 2U
FA2050	FA2056

## Cassettes

Cassettes are made up from an adapter plate with a small enclosure behind it. The enclosure in the ACT cassettes are used for the housing of the MTP to LC cable and the adapter plate is filled with LC duplex adapters.



ACT Cassettes		
	OM4	OS2
1x MTP-12xLC	FA2054	FA2055
2x MTP-24xLC	FA2052	FA2053

## Adapter plates

ACT provides adapter plates for LC to LC for fiber connections and adapter plates which can be fitted with keystone modules.

*Photo: Adapter plate that is equipped with HDMI, USB-A and USB-C adapters*



ACT Adapter plates						
	OM4	OS2	OS2 APC		Unshielded	Shielded
24x LC-LC	FA2152	FA2153	FA2151	4x keystone/coupler	FA2057	FA2058
12x LC-LC	FA2155	FA2156	FA2154			
12x SC-SC	FA2158	FA2159	FA2157			
6x SC-SC		FA2162	FA2160			
Blind plate	FA2049					
Adapter plate Brush	FA2148					
Adapter plate 2X20mm slots	FA2149					

## Keystone / Coupler

The keystones and couplers add extra flexibility because the panels can be equipped with twisted pair Cat5E up to Cat8 but also USB-A, USB-C and HDMI.

Keystones and couplers that are compatible with FA2057 and FA2058:



**ACT** Keystone / Coupler

	CAT5E	CAT6	CAT6	CAT8	Shielded
Keystone	TD5012	TD6013	TD6012	TD8511	FA2058
	CAT5E	CAT5E	CAT6	CAT6	CAT6A
Coupler	SD5009	SD5019	SD6009	SD6019	SD6519
	LC	HDMI	HDMI 90gr	USB-A	USB-C
Coupler	TD4101	TD4102	TD4103	TD4104	TD4105

## Fiber optic attenuator

**ACT** Fiber optic attenuator



Description	1dB	2dB	3dB	5dB	7dB	10dB	15dB
SC	EA4001	EA4002	EA4003	EA4005	EA4007	EA4010	EA4015
LC	EA4021	EA4022	EA4023	EA4025	EA4027	EA4030	EA4035

## Fiber optic attenuator

**ACT** Fiber optic tools



Fiber optic cable tester	CX1007
Fiber optic microscope	CX1008

1. When do I use fiber optic patch cable?
2. Which fiber optic patch cable do I choose?
3. What quality checks should I look at?
4. How is a fiber optic patch cable constructed?
5. What fibers are used in fiber optic patch cables?

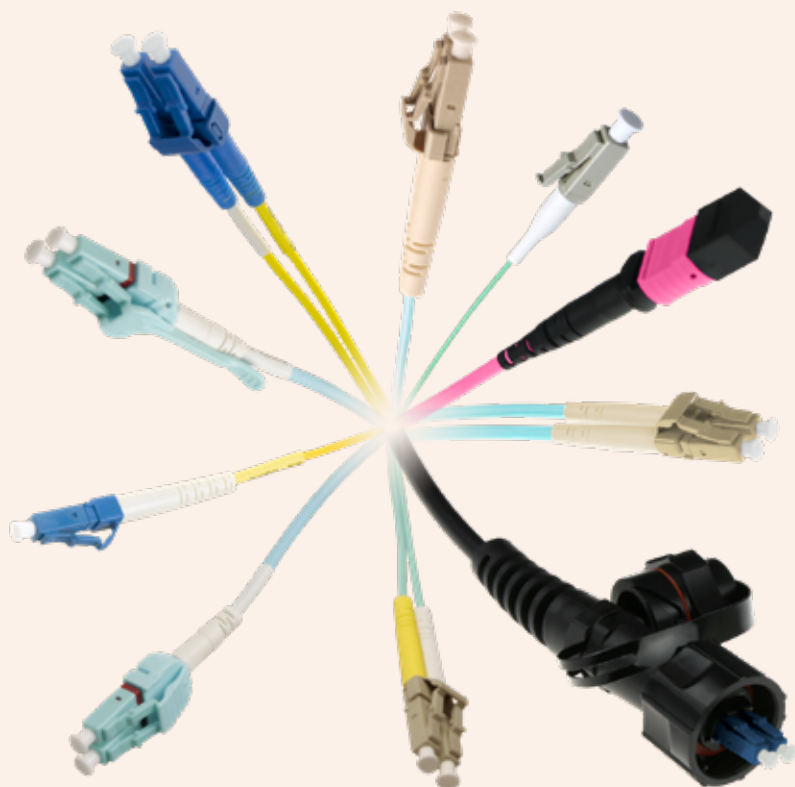
## 1. When do I use fiber optic patch cables?

Fiber optic patch cables are used for connecting active equipment. Fiber optic patch cables are mostly used to patch into 19" cabinets. In some cases you will also find fiber optic patch cables in cable ducts to bridge larger distances.

Fiber optic patch cables are also used to connect to fixed cabling. Fixed cabling (also known as installation cabling) can be cabling inside a building but also outside cabling in e.g. a Fiber to the Home network.

## 2. Which fiber optic patch cable do I choose?

Beside is an overview of the different types of fiber optic patch cables. These different types of fiber optic cables and their applications are explained in more detail in this brochure.



### The different types of fiber optics patch cables:



MTP / MPO patch cable



Duplex patch cable



Simplex patch cable



Polarity Twist patch cable



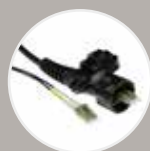
Short boot patch cable



Ruggedized patch cable



Armored patch cable



IP67 patch cable



Mode conditioning cable

### 3. What quality characteristics should I look for as a minimum?

Based on the appearance of a cable, it is impossible to determine the quality of a cable. But how do you determine the quality of a fiber optic patch cable? There are a number of points that you should at least pay attention to in order to determine the quality.

#### Grades

The International Electrotechnical Commission (IEC) has established various grades of quality. Grade A to C, where at Grade A you are assured of the best quality fibers and connectors. For professional applications where reliability is paramount we recommend Grade A.

#### Test report

We also recommend that you choose fiber optic cables that come with an individual test report. This means that each fiber in the cable has been tested for how much light is attenuated. This attenuation has a direct impact on the speed and reliability of your network. By choosing fiber optic patch cables with an individual test report you are assured of a cable that has been tested and you know the attenuation values in your network.

#### Quality control in the production process

Fibre type and an individual test report do not tell the whole story, however. Of great importance is the production process and its quality assurance. An incorrectly polished connector can cause the optical performance of your connector to deteriorate within a short time after installation. This is not visible in the test report because it is measured directly after production. Reduced optical performance can also occur with Grade A parts due to errors in the manufacturing process.

If you choose a reputable brand, the chance of errors in your network is minimal.

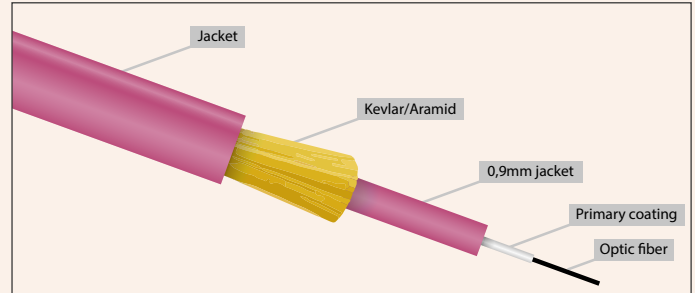
ACT is a reputable brand and has built a reputation over the years for delivering consistent quality. At ACT, we are proud of this and we will do everything to continue to deliver high consistent quality. With ACT cables you are assured of this and you will notice it through a reliable network.

### 4. How is a fiber optic patch cable constructed?

A fiber optic patch cable is composed of the following elements:

- The fiberglass / fiber
- Primary and secondary coating: strengthens the fiber and makes it suitable for installation.
- Kevlar\*: the fiber is protected from tensile stress by the kevlar/aramid around the secondary coating.
- The outer jacket m(also called jacket): strengthens the construction and protects the cable from external influences.

*\*Kevlar's main property is that it is very strong. For example, kevlar is used in bulletproof vests and high-end speaker systems. It is therefore ideal for protecting the fiber.*



### 5. What fibers and connectors are used in patch cables?

Fiber optic patch cables are available with different types of fibers and connectors.

#### Multimode fiber for short distances

Multimode fibers are used for short distances and have as light source an LED or VCSEL. These fibers are limited in length and speed. There are several generations of multimode fibers available, from OM1 to OM5. Which variant you can best use depends on the application and if you are going to extend an existing network. You can find more information in the table.

#### Single-mode fiber for long distances

Single-mode fibers are used for longer distances and have almost infinite bandwidth. The light source of a singlemode fiber is a laser, therefore it is more powerful and accurate, but also more expensive than an LED or VCSEL. In recent years, however, the price differential has continued to drop, so singlemode is increasingly used for short distances as well.

*Below you can find an overview of different fiber optics types.*

Fiber type	OM1	OM2	OM3	OM4	OM5	OS2
	Multimode					Singlemode
	62,5/125µm		50/125µm			9/125µm
Fiber						
Distance	2000 m	550 m	300 m	400 m	440 - 150 m	*
Used by	10/100 Mb/s	1 Gb/s	10 Gb/s	10 Gb/s	40-400 Gb/s	*

\* The maximum length is related to the most suitable speed and depends on the transceiver.

## MTP / MPO patch cable

If you want to make connections with high speeds (40G and more) an MTP/MPO patchcord is an excellent choice. The connector is able to connect 12 fibers at once over 1 compact cable. This cable is typically applied in situations where the bandwidth is high and the distance short, mostly up to 100 meters making this the high speed cable of choice in datacenters and server rooms. For lengths from 20 meters see our Trunk cables.



### ACT MTP/MPO to MTP/MPO patch cables



Colour	1m	2m	3m	5m	7m	10m	12m	15m	20m
OM4 Polarity A	RL7741	RL7742	RL7743	RL7745	RL7747	RL7750	RL7752	RL7755	RL7760
OM4 Polarity B	RL7761	RL7762	RL7763	RL7765	RL7767	RL7770	RL7772	RL7775	RL7780
OS2 Polarity A	RL7781	RL7782	RL7783	RL7785	RL7787	RL7790	RL7792	RL7795	RL7800

### ACT MTP/MPO to LC fanout cables



Colour	1m	2m	3m	5m
OM4 8 fibers	RL7841	RL7842	RL7843	RL7845
OM4 12 fibers	RL7851	RL7852	RL7853	RL7855
OS2 8 fibers	RL7861	RL7862	RL7863	RL7865
OS2 12 fibers	RL7871	RL7872	RL7873	RL7875

## Duplex patch cable – Most commonly used

Duplex patchcords are the most commonly used patchcords. Duplex patchcords consist of two connected cables with one fiber per cable. The two cables can easily be separated by zipping them apart, for this reason duplex patchcords are also known as zipcords. Duplex patchcords use one fiber for sending and one for receiving, enabling two way communication for applications like internet and interactive tv. Most of the following cables are modern variants of duplex patchcords with an improvement. This applies to uniboot (HD), short boot ruggedized and armored patchcords.



### ACT 50/125µm OM5 Multimode patch cable LSZH



Colour	Connectors	0.5m	1m	1.5m	2m	3m	5m
Lime	LC-LC	RL5800	RL5801	RL5851	RL5802	RL5803	RL5805
Lime	LC-SC	RL5900	RL5901	RL5951	RL5902	RL5903	RL5905

### ACT 50/125µm OM4 Multimode duplex patch cable LSZH



Colour	Connectors	0.25m	0.5m	1m	1.5m	2m	3m	5m	10m	15m	20m	25m	30m	50m
Erika Violet	LC-LC	RL9752	RL9700	RL9701	RL9751	RL9702	RL9703	RL9705	RL9710	RL9715	RL9720	RL9725	RL9730	RL9750
Erika Violet	LC-SC			RL8701	RL8751	RL8702	RL8703	RL8705	RL8710	RL8715	RL8720	RL8725	RL8730	RL8750
Erika Violet	SC-SC			RL3701	RL3751	RL3702	RL3703	RL3705	RL3710	RL3715	RL3720		RL3730	RL3750

### ACT 50/125µm OM3 Multimode duplex patch cable LSZH



Colour	Connectors	0.25m	0.50m	1m	1.5m	2m	2.5m	3m	4m	5m	7m	10m	15m	20m	25m	30m	50m
Aqua	LC-LC	RL9652	RL9600	RL9601	RL9651	RL9602	RL9653	RL9603	RL9604	RL9605	RL9607	RL9610	RL9615	RL9620	RL9625	RL9630	RL9650
Aqua	LC-SC		RL8600	RL8601	RL8651	RL8602		RL8603		RL8605	RL8607	RL8610	RL8615	RL8620		RL8630	RL8650
Aqua	LC-ST			RL7601	RL7651	RL7602		RL7603		RL7605	RL7607	RL7610		RL7620			
Aqua	SC-SC		RL3600	RL3601	RL3651	RL3602		RL3603		RL3605	RL3607	RL3610	RL3615	RL3620		RL3630	RL3650

## ACT 50/125µm OM2 Multimode duplex patch cable LSZH



Colour	Connectors	0.50m	1m	1.5m	2m	3m	5m	10m	15m	20m	25m	30m	50m
Orange	LC-LC	RL9500	RL9501	RL9551	RL9502	RL9503	RL9505	RL9510	RL9515	RL9520	RL9525	RL9530	RL9550
Orange	LC-SC	RL8500	RL8501	RL8551	RL8502	RL8503	RL8505	RL8510	RL8515	RL8520		RL8530	RL8550
Orange	LC-ST		RL7501	RL7551	RL7502	RL7503	RL7505	RL7510	RL7515	RL7520		RL7530	RL7550
Orange	SC-SC	RL3500	RL3501	RL3551	RL3502	RL3503	RL3505	RL3510	RL3515	RL3520		RL3530	RL3550
Orange	SC-ST	RL2500	RL2501	RL2551	RL2502	RL2503	RL2505	RL2510	RL2515	RL2520		RL2530	RL2550
Orange	ST-ST	RL1500	RL1501	RL1551	RL1502	RL1503	RL1505	RL1510	RL1515	RL1520		RL1530	RL1550

## ACT 62,5/125µm OM1 Multimode duplex patch cable LSZH



Colour	Connectors	0.50m	1m	1.5m	2m	3m	5m	10m	15m	20m	25m	30m	50m
Orange	LC-LC	RL9000	RL9001	RL9051	RL9002	RL9003	RL9005	RL9010	RL9015	RL9020	RL9025	RL9030	RL9050
Orange	LC-SC	RL8000	RL8001	RL8051	RL8002	RL8003	RL8005	RL8010	RL8015	RL8020		RL8030	
Orange	LC-ST		RL7001	RL7051	RL7002	RL7003	RL7005	RL7010	RL7015	RL7020		RL7030	RL7050
Orange	SC-SC	RL3000	RL3001	RL3051	RL3002	RL3003	RL3005	RL3010	RL3015	RL3020			RL3050
Orange	SC-ST	RL2000	RL2001	RL2051	RL2002	RL2003	RL2005	RL2010	RL2015	RL2020		RL2030	RL2050
Orange	ST-ST	RL1000	RL1001	RL1051	RL1002	RL1003	RL1005	RL1010	RL1015	RL1020		RL1030	RL1050

## ACT 9/125µm OS2 Single mode duplex patch cable LSZH



Colour	Connectors	0.25m	0.5m	1m	1.5m	2m	2.5m	3m	4m	5m	7m	10m	15m	20m	25m	30m	50m
Yellow	LC-LC	RL9952	RL9900	RL9901	RL9951	RL9902	RL9953	RL9903	RL9904	RL9905	RL9907	RL9910	RL9915	RL9920	RL9925	RL9930	RL9950
Yellow	LC-SC		RL8900	RL8901	RL8951	RL8902		RL8903		RL8905	RL8907	RL8910	RL8915	RL8920	RL8925	RL8930	RL8950
Yellow	LC-ST			RL7901	RL7951	RL7902		RL7903		RL7905		RL7910	RL7915	RL7920		RL7930	RL7950
Yellow	SC-SC		RL3900	RL3901	RL3951	RL3902		RL3903		RL3905		RL3910	RL3915	RL3920		RL3930	RL3950
Yellow	SC-ST			RL2901	RL2951	RL2902		RL2903		RL2905		RL2910	RL2915	RL2920			
Yellow	LC/APC-LC/APC		RL2600	RL2601	RL2651	RL2602		RL2603		RL2605		RL2610		RL2620			
Yellow	LC/APC-SC/APC			RL2701		RL2702		RL2703		RL2705		RL2710					
Yellow	LC/APC-LC/UPC			RL2801		RL2802		RL2803		RL2805		RL2810					
Yellow	SC/APC8-LC/PC		RL8800	RL8801	RL8851	RL8802		RL8803		RL8805		RL8810	RL8815	RL8820	RL8825	RL8830	RL8850
Yellow	SC/APC8-SC/PC		RL3800	RL3801		RL3802		RL3803		RL3805		RL3810	RL3815	RL3820	RL3825	RL3830	RL3850
Yellow	SC/APC8-SC/APC8		RL1600	RL1601		RL1602		RL1603		RL1605		RL1610	RL1615	RL1620			
Yellow	E2000/APC-SC/UPC			RL3101		RL3102		RL3103		RL3105	RL3107	RL3110					
Yellow	E2000/APC-LC/UPC			RL3201		RL3202		RL3203		RL3205	RL3207	RL3210					

## Simplex patchcords – sending and receiving over a single fiber



You can cut your need of the fibers/cables in half by using simplex patchcords. This works with fiber optic modules that enable two way communication over one fiber. These kind of patchcords are used a lot in FTTH applications for minimizing the usage of fibers. Simplex patchcords are only available in Singlemode and not in Multimode.

## ACT 9/125µm OS2 single mode simplex patch cable LSZH



Colour	Connectors	0.5m	1m	1.5m	2m	3m
Yellow	LC-LC	RL9990	RL9991	RL9999	RL9992	RL9993



## Short boot patchcords – When space is limited

When you have limited space for the connector because of a small housing or short distance between the panel and door of a 19" cabinet short boot patchcords are a great solution. Short boot differs from duplex patchcords by having a shorter boot on the connector.



### **ACT** 9/125µm OS2 Single mode duplex patch cable LSZH

Colour	Connectors	0.5m	1m	2m	3m	5m	10m	15m	20m	25m	30m	50m
Yellow	LC-LC short boot	RL1700	RL1701	RL1702	RL1703	RL1705	RL1710	RL1715	RL1720	RL1725	RL1730	RL1750
Yellow	LC short boot-SC	RL1800	RL1801	RL1802	RL1803	RL1805	RL1810	RL1815	RL1820	RL1825	RL1830	RL1850



## Polarity Twist patch cables - for high density panels and easy cable management

### Polarity Twist connectors offer several advantages:

- The polarity of the two fibers can be adjusted within seconds. You do this by twisting the outside of the connector.
- Halving the number of fanout cables by having two fibers instead of one fiber per connector.
- Thinner fanout cables, 2mm instead of 3mm thick a savings of 33%.



### ACT 50/125µm OM3 Polarity Twist patch cable LSZH

Colour	Connectors	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	12m	15m	17m	20m	22m	25m	27m	30m
Aqua	LC-LC	RL8352	RL8300	RL8301	RL8351	RL8302	RL8303	RL8305	RL8307	RL8310	RL8312	RL8315	RL8317	RL8320	RL8322	RL8325	RL8337	RL8330

### ACT 50/125µm OM4 Polarity Twist patch cable LSZH

Colour	Connectors	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	12m	15m	17m	20m	22m	25m	27m	30m
Erika Violet	LC-LC	RL8452	RL8400	RL8401	RL8451	RL8402	RL8403	RL8405	RL8407	RL8410	RL8412	RL8415	RL8417	RL8420	RL8422	RL8425	RL8427	RL8430

### ACT 9/125µm OS2 G657A Polarity Twist patch cable LSZH

Colour	Connectors	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	12m	15m	17m	20m	22m	25m	27m	30m
Yellow	LC-LC	RL8252	RL8200	RL8201	RL8251	RL8202	RL8203	RL8205	RL8207	RL8210	RL8212	RL8215	RL8217	RL8220	RL8222	RL8225	RL8227	RL8230

## Ruggedized patchcords – better mechanical protection

You can use ruggedized patchcords for longer distances, 10 meter or more. Normal patchcords are suited for short distances within a 19" cabinet. Ruggedized patchcords have an extra jacket for improved mechanical protection. They are also called Flatoval fiber optic cables because of the oval shape of the extra jacket.



### ACT 50/125µm OM3 Duplex ruggedized patch cable LSZH

Colour	Connectors	10m	20m	30m	40m	50m
Aqua	LC-LC	RL5101	RL5102	RL5103	RL5104	RL5105
Aqua	LC-SC	RL5201	RL5202	RL5203	RL5204	RL5205
Aqua	SC-SC	RL5301	RL5302	RL5303	RL5304	RL5305

### ACT 9/125µm OS2 duplex ruggedized patch cable LSZH

Colour	Connectors	10m	20m	30m	40m	50m
Yellow	LC-LC	RL5401	RL5402	RL5403	RL5404	RL5405
Yellow	LC-SC	RL5601	RL5602	RL5603	RL5604	RL5605
Yellow	SC-SC	RL5701	RL5702	RL5703	RL5704	RL5705

## Armored patchcords – the best mechanical protection

When your patchcords are exposed to extreme conditions in harsh environments you can chose armored patchcords. These are patchcords with a metal armor offering the best protection. This type of patchcord is commonly used in industrial or offshore environments.



### ACT 9/125µm OS2 duplex armored fiber patch cable

Colour	Connectors	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	25m	30m	40m	50m
Yellow	LC-LC	RL3300	RL3301	RL3351	RL3302	RL3303	RL3305	RL3307	RL3310	RL3315	RL3320	RL3325	RL3330	RL3340	RL3350

### ACT 50/125µm OM3 duplex armored fiber patch cable

Colour	Connectors	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m	20m	25m	30m	40m	50m
Aqua	LC-LC	RL3400	RL3401	RL3451	RL3402	RL3403	RL3405	RL3407	RL3410	RL3415	RL3420	RL3425	RL3430	RL3440	RL3450

## IP67 patch cable

For outside use there are patchcords with an extra housing for IP67 water- and dust resistance. These cables are commonly used for connecting antenna's in mobile base stations to ground cabling for wireless applications like wifi and mobile internet.



### ACT OM3



Colour	Connectors	1m	2m	5m	10m	15m	20m	30m	40m	50m
Black	LC(IP67)-LC	RL7101	RL7102	RL7105	RL7110	RL7115	RL7120	RL7130	RL7140	RL7150

### ACT OM3



Colour	Connectors	1m	2m	5m	10m	15m	20m	30m	40m	50m
Black	LC(IP67)-LC (IP67)	RL7201	RL7202	RL7205	RL7210	RL7215	RL7220	RL7230	RL7240	RL7250

### ACT OS2



Colour	Connectors	1m	2m	5m	10m	15m	20m	30m	40m	50m
Black	LC(IP67)-LC	RL7301	RL7302	RL7305	RL7310	RL7315	RL7320	RL7330	RL7340	RL7350

### ACT OS2



Colour	Connectors	1m	2m	5m	10m	15m	20m	30m	40m	50m
Black	LC(IP67)-LC (IP67)	RL7401	RL7402	RL7405	RL7410	RL7415	RL7420	RL7430	RL7440	RL7450

## Mode conditioning cable

- Applied by Single Mode Gigabit ethernet equipment over Multimode installed fiber optic cabling.
- Developed for Longwave (-LX) Multi Mode applications for Gigabit ethernet in accordance with IEEE-802.3Z.
- Masks Differential Mode Delay (DMD) signal quality reduction.



### ACT Mode conditioning 2x LC 50/125 μm - 1x LC 50/125 μm + 1x LC 9/125 μm patch cable



Colour	Connectors	2m
Yellow Aqua	LC-LC	RL9998

## SFP modules

Nowadays, more and more devices are equipped with a port for an SFP module. To discover what SFP module you need and what to pay attention to read the following article.

### What is an SFP module?

An SFP module is a plug-in module for in a device that provides fiber optic communication. The SFP module is equipped with both a light source, LED or laser, and a sensor that detects light.

A traditional network cable with an RJ45 connector is connected directly to the device. With fiber optics, there is an extra step, the cable connects to the SFP module, which plugs into the device as shown below:



On the right, a network cable connected directly to the media converter. On the left, a fiber optic patch cable connected to the SFP module, the SFP module is plugged into the media converter.

The SFP module serves as an interface between the cable and the equipment and is responsible for optical communication.

### 3 advantages of SFP modules

The 3 biggest advantages of using SFP fiber modules are:

1. Standardization
2. Flexibility
3. Continuity

#### 1. SFP modules are the standard for fiber optic communication

Manufacturers of network equipment support the SFP, SFP+ and QSFP standards. SFP modules are used in different devices such as switches, routers, firewalls, servers, media converters and storage devices. The equipment has a port where an SFP module can be plugged in. The abbreviation SFP stands for Small Form Factor Pluggable.

The standard for the use of SFP modules was established in cooperation with the various manufacturers. This standard is therefore called an MSA, which stands for Multi-Source Agreement.

#### 2. SFP modules ensure maximum flexibility in a fiber optic network

A fiber optic cable is connected to an SFP module, which is placed in the switch. The SFP module serves as an interface between the fiber optic cable and the equipment. This ensures maximum flexibility because the SFP can be adapted without having to modify or replace the equipment.

**Situations in which only the SFP module can be changed, instead of replacing the entire equipment:**

- Transition to a network with a different type of fiber; for example, from single-mode to multimode.
- Changing distance; for example, from 100 meters to 80 kilometers.
- Change to another speed; for example, if the speed of the switch changes from 1G to 10G.
- LC, an SC connector is placed on the cabling.

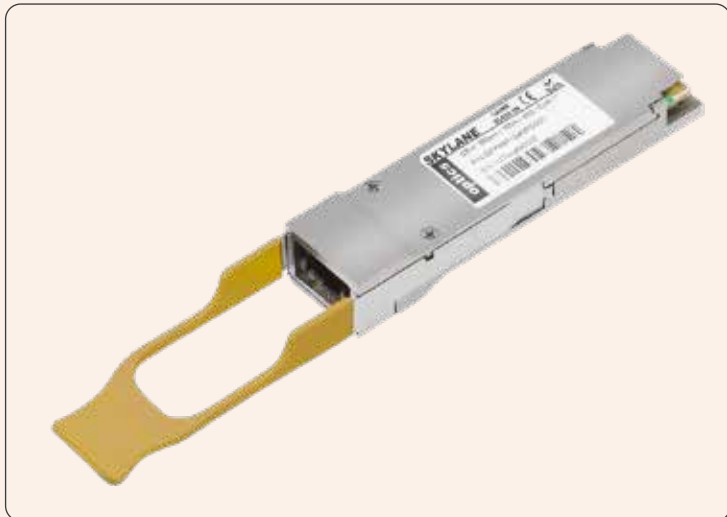
#### 3. Network continuity through the use of hot swappable SFP modules

In case of changes in fiber type, distance, speed and connector, the SFP module will be adapted. An important advantage is that the equipment does not have to be switched off or restarted when the SFP modules are installed, which ensures network continuity.

Keeping equipment operational while placing and/or replacing fiber optic (SFP) modules is called 'hot swappable'.

## What are the different types and names of SFP modules?

There are two common formats of SFP modules, these formats are also called form factor. **The SFP form factor and the QSFP form factor.**



A 100G QSFP28 module with the QSFP form factor.



A 1G SFP module with the SFP form factor.

### The SFP form factor includes:

- SFP module - 100Mb or 1Gb
- SFP+ module - 10Gb
- SFP28 module - 25Gb
- SFP56 module - 50Gb
- The QSFP form factor includes:
  - QSFP+ - 40Gb
  - QSFP28 - 100Gb
  - QSFP56- 200Gb
  - QSFP-DD - 200/400Gb

Because SFP modules are responsible for optical communication they are also called optics. Another term is transceiver, which is a combination of the words transmitter and receiver.

## What do I need to consider when buying an SFP module? / How do I choose the right SFP module?

### • Speed What about different speeds?

Just because an SFP module physically fits into a port on a device does not mean that the speed of the transceiver matches the speed of the port. Check the device specifications to see what speed is supported and choose an SFP module with the same speed.

### • Encoding Do I need another SFP module for a Cisco switch?

Well-known big brands in the field of network and telecom equipment often do require coding for an SFP module to be compatible with the brand. For 100% brand compatibility, ACT offers encoded SFP modules. Many other manufacturers including ACT work with open coding; SFP modules with open coding are interchangeable. Open coding is also called generic coding.

### • Fiber type What about SFP's and multimode/singlemode cables?

It is important to use the appropriate SFP module for the type of fiber. The ACT modules SFP SX and SFP+ SR are suitable for multimode. The SFP LX and SFP+ LR are suitable for singlemode cabling.

### • Support Where do I turn for technical support?

It is important to choose a brand with knowledge and support in the field of optics. Choose a brand with a good reputation such as ACT. If you have any questions, please contact our support team.

### • Distance What distance can I cover?

Think about how long the connection needs to be. The distance that can be covered differs per type of SFP and fiber type. With multimode the maximum distance is 550 metres, for longer distances it is better to choose single mode.

# What is the best video cable solution for my set up?

## Introduction of video cables:

- HDMI (High-Definition Multimedia Interface)
- DisplayPort
- DVI (Digital Visual Interface)
- VGA (Video Graphics Array)

## Quick summary:

HDMI is the most common video cable and supports video and audio over a single cable, including 8K video resolutions. It defines today's standard for all kind of modern Audio/Video systems. The recommended cable length for HDMI is 5 meter, with an exception for HDMI premium certified and AOC cables. DisplayPort is the latest video interface and offers a higher level than HDMI, including 8K resolutions and higher. DisplayPort is compatible with many display connections, making it the universal AV video source connection. With simple adapters it's even backward compatible with HDMI, VGA and DVI. For DisplayPort we advise a maximum cable length of 3 meter.

VGA is the oldest video interface and suitable for analogue signals, perfect for older monitor systems. The maximum length recommended for VGA cables is 15 meter. Compared to VGA, the DVI connection is more versatile. Its convertible to both VGA and HDMI when using suitable adapters. Providing a digital signal for better video quality and due to higher bandwidth, it can achieve maximum resolutions of 2560 x 1600 at 60Hz using DVI Dual Link. Cable lengths up to 5m will work for display resolutions up to 1920 x 1200.

For non UHD displays the best, cost saving, option will be an HDMI 1.4 cable with a max resolution of 2560 x 1600 at 75Hz as well as 1920 x 1080 at 144Hz. These resolutions are very popular amongst online competitive PC gamers. 4K resolutions are still supported with a max refresh rate of 30Hz.

HDMI v1.4 also supports HDMI-CEC. This protocol gives possibilities to let devices communicate with each other. For example, a complete home cinema set with speakers and TV can be powered by switching on the Blu-ray player.

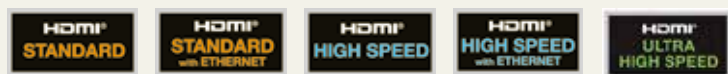
HDMI v2.0 is recommended when a 4K@60Hz resolution needs to be supported. It also supports HDR: High Dynamic Range. HDR provides higher contrast, rich colours, deep black value and more intense white tones. To ensure the highest 4K@60Hz quality a premium certified cable approved by the HDMI.org is a good option.

For certain business solutions we advise using a lockable HDMI cable to prevent signal loss from the device. Combining this feature with a HDMI premium certified cable provides the most secured business solution.

Active Optical Cables (AOC cable) are equipped with fiber and copper conductors. The cable is lighter and more flexible. Which makes it perfect for installation where space is limited and longer distances need to be covered.

Normally the maximum advised distance is around 5 meters, with an AOC cable it is possible to cover a length of 100m. With resolutions up to 8K@60Hz without any signal loss. In terms of installation this cable excels. It can be equipped with a Mini HDMI or Mini DP connector, including draw bar eye, which makes it much easier to guide the cable through holes or pipes. In the end, simply add an adapter to make it full size again. A proper solution to use for conference rooms, classrooms, displays and more.

## HDMI



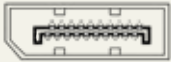
Let's start with HDMI, the most common video cable used in the market. You can find it in all modern TVs, monitors, and graphics cards. Compared to the other types of video cables, HDMI is the most common interface for TV.

HDMI is available in many versions, the most common are 1.4 and 2.0 HDMI High Speed. The latest version is v2.1, HDMI Ultra High Speed. To ensure the best quality an HDMI Premium Certified cable up to 4K @60Hz resolution or an HDMI Ultra High Speed 8K Certified cable is recommended. Both type of cables are certified and approved by the HDMI.org standard, which assures you of a high quality cable that supports all of the corresponding HDMI features.



HDMI v2.1 is the latest HDMI version and features the highest specifications. This version increases the overall data rate to 48Gb/s, supporting resolutions up to 8K@60Hz and 4K@120Hz. HDMI 2.1 is labeled as Ultra HDMI High Speed and the best option to get the most out of 8K or 4K HDMI video equipment.

## DisplayPort



You can find DisplayPort in most of the modern monitors. Just like HDMI there are different versions, the most common one is DP 1.2. The maximum supported resolution for DP 1.2 is 4K at 60Hz. This is mandatory for gaming monitors that support Nvidia G-Sync or AMD Free Sync. In case of NVIDIA G-Sync, DisplayPort is required.

One of the main advantages of DisplayPort is the ability of multiple video streams (MST) through daisy-chaining. You can recognize daisy-chaining when the monitor has both an input and output DisplayPort. Connect the first monitor to the computer and the second monitor to the first monitor. If both the monitor and the computer support MST daisy-chaining, the two screens work as separate screens.

As we mentioned earlier, on TV screens you will mostly find HDMI connections. In case you want to connect your device with a DisplayPort source to your TV, there is the possibility to connect an HDMI to DisplayPort converter cable.

DisplayPort version 1.4, adds support for HDR10 as well as 8K@60Hz and 4K@144Hz by using DSC (Display Stream Compression) encoding with 3:1 compression ratio. As mentioned before, HDMI, as well as DisplayPort support AOC, covering much longer distances than standard specified without any signal loss. DisplayPort 2.0 recently has been introduced supporting 16K @60Hz and 10K @72Hz

Displayport AOC (Active Optical Cable) features fiber and copper conductors making the cable lighter and more flexible. AOC cables are perfect for installations where space is limited and longer distances need to be covered. While normally the maximum recommended distance is 5 meters, you can easily reach up to 100 meters without any signal loss with this type of cable.

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## DVI



The DVI interface is designed to transmit uncompressed digital video and can be configured to support multiple modes such as DVI-A (analog only), DVI-D (digital only) or DVI-I (digital and analog). Dual link DVI adds six pins, at the center of the connector, increasing the bandwidth and supporting resolutions up to 2560 × 1600 at 60 Hz. A connector with these additional pins is sometimes referred to as DVI-DL (dual link)

The main advantage of the DVI port is the fact that it is quite versatile, meaning it's convertible to both VGA and HDMI by using suitable adapters.

## VGA

Compared to the other mentioned video interfaces, VGA cannot keep up, simply because it can only transmit analogue video signals. For older computer systems and monitors it's still possible to choose VGA with maximum resolutions of 1920 × 1200 at 60Hz. The maximum recommended length for VGA cables is 15 meter.





### Video cables

ACT offers a wide range of professional video cables (with full copper conductor) such as: DisplayPort, HDMI, VGA, DVI and USB adapters/converters. Below you can find an overview of the ACT video cables.



For each type of cable you can easily find the length you are looking for (including the item number). Please contact us if you can't find the cable or the length that you are looking for. We will assist you in finding the right solution.

VIDEO



## DisplayPort cables

You can find DisplayPort in most of the modern monitors. Just like HDMI there are different versions, the most common one is DP 1.2. The maximum supported resolution for DP 1.2 is 4K at 60Hz. DisplayPort version 1.4, adds support for HDR10 as well as 8K@60Hz and 4K@144Hz by using DSC (Display Stream Compression) encoding with 3:1 compression ratio.

DisplayPort support AOC, covering much longer distances then standard specified without any signal loss. DisplayPort 2.0 recently has been introduced supporting 16K @60Hz and 10K @72Hz

### ACT DisplayPort cable



Colour	Description	Resolution	0.5m	1m	2m	3m	5m
Black	DP male-DP male (Power Pin 20 connected)   1.2	4k@60Hz	AK3977	AK3978	AK3980	AK3981	AK3982
Black	DP male-DP male (Power Pin 20 not connected)   1.2	4k@60Hz	AK3975	AK3976	AK3983	AK3984	AK3986
Black	DP male-DisplayPort male   1.4	8K@60Hz		AK4071	AK4073	AK4074	
Black	DP male-DisplayPort male   1.4	8K@60Hz		AC4071*	AC4073*	AC4074*	

\*Metal connector housing and retail packaged

### ACT DisplayPort, in Zip-bag



Colour	Description	1m	2m	3m
Black	DisplayPort 1.2	AC3900	AC3902	AC3903
Black	DisplayPort 1.4 (8K)	AC3910		

### ACT DisplayPort converter/adaptor/cables, Zip-bag



Colour	Description	0.15m	1.8m
Black	DP male-DVI female adapter	AC7510	
Black	DP male-DVI male cable		AC7505
Black	DP male-DVI female adapter	AC7510	
Black	DP male-VGA female adapter	AC7515	
Black	Mini DP male-HDMI female cable	AC7525	
Black	DP male-HDMI male cable		AC7550
Black	DP male-HDMI female adapter	AC7555	

### ACT DisplayPort converter/adaptor/cables



Colour	Description	Resolution	Adapter	0.15m	0.5m	1m	1.8m	2m	3m	5m
Black	DP male-HDMI-A female	4k@60Hz	AB3985							
Black	DP male-HDMI-A female	4k@30Hz		AK3994						
Black	DP male-HDMI-A male	4k@30Hz			AK3987	AK3988	AK3990		AK3991	AK3992
Black	DP male-DVI female		AB3995							
Black	DP male-DVI female			AK3985						
Black	DP male-DVI male				AK3989	AK3993	AK3995		AK3997	AK3998
Black	DP male-VGA female			AK3996						
Black	DP male-VGA male							AK3999		

## ACT Mini DisplayPort adapter / cables



Colour	Description	Resolution	0.15m	0.5m	1m	1.5m	2m	3m	5m
White	Mini DP male-HDMI-A female	1080@60Hz	AK4000						
White	Mini DP male-Mini DP male   1.2	4K@60Hz		AK3954	AK3959	AK3960	AK3961	AK3962	AK3969
White	Mini DP male-Mini DP female   1.1	4K@30Hz			AK3955	AK3956		AK3958	
White	Mini DP male-DP male   1.2	4K@60Hz		AK3968	AK3963	AK3964	AK3965	AK3966	AK3967
White	Mini DP male-DVI-D female single link	1080@30Hz	AK4001						
White	Mini DP male-VGA female	1080@30Hz	AK4002						

## ACT Conversion adapter mini DisplayPort | 1.2



Colour	Description	Resolution	Adapter
White	Mini DP male-DP female	4k@60Hz	AB3996
Black	Mini DP female-DP male	4k@60Hz	AB3997

## ACT Mini DisplayPort converter/adapter/cables, Zip-bag



Colour	Description	0.15m
Black	Mini DP male-HDMI/VGA/DVI Dual link	AC7530
Black	Mini DP male-HDMI female	AC7525

## ACT DisplayPort extender over CAT | 1.2



Colour	Description	Resolution	70m
Black	DP female - DP female v1.2, over CAT6a	4K@30Hz	AC7770

## DisplayPort AOC cables (Active Optical Cable)

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## ACT DisplayPort Active Optical Cable (AOC) 1.2



Colour	Description	Resolution	10m	15m	20m	30m	40m	50m	60m	70m	80m	90m	100m
Black	DP male-DP male	4K@60Hz	AK4030	AK4031	AK4032	AK4033	AK4034	AK4035	AK4036	AK4037	AK4038	AK4039	AK4040

DisplayPort cables, made of copper and glass, for connecting different devices over long distances of up to 100 m without loss of quality.

## ACT DisplayPort 1.4 8K AOC cable with detachable plug



Colour	Description	Resolution	10m	15m	20m	25m	30m
Black	DP male-DP male	8K@60Hz	AK4150	AK4151	AK4152	AK4153	AK4154

DisplayPort Active Optical Cable, with detachable plug for easy installation through conduits and plenum spaces

## HDMI Premium Certified/Ultra High Speed Certified

The HDMI standards are regulated by the HDMI.org. This HDMI.org also approves hdmi cables which meet and exceed their standards. ACT offers a range of approved cables by the HDMI.org.

You can recognize these cables by the official labels “HDMI Premium Certified” and “HDMI Certified Cable Ultra High Speed” Each cable comes with an official certificate which you scan to see that the cable is approved.

By using officiallycertified cables you are sure that you will get the best quality you need.



### ACT HDMI High Speed premium certified cable | 2.0



Colour	Description	Resolution	0.5m	1m	1.5m	2m	3m	5m	6,10m
Black	HDMI-A male-HDMI-A male	4k@60Hz	AK3941	AK3942	AK3943	AK3944	AK3945	AK3946	AK3947

### ACT HDMI High Speed premium certified cable | 2.0, locking cable



Colour	Description	Resolution	1m	2m	3m
Black	HDMI-A male-HDMI-A male, locking cable	4K@60Hz	AK3861	AK3862	AK3863

### ACT HDMI 8K Ultra High Speed Ultra Certified cable

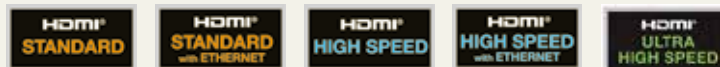


Colour	Description	Resolution	2m
Black	HDMI-A male-HDMI-A male, Ultra Certified Cable	8K@60Hz	AK3916

HDMI version	1.0	1.1	1.2-1.2a	1.3-1.3a	1.4-1.4b	2.0-2.0b	2.1
	HDMI standard	HDMI standard	HDMI standard	HDMI standard	HDMI High speed with ethernet	HDMI High speed with ethernet	HDMI Ultra High Speed
SD-video	✓	✓	✓	✓	✓	✓	✓
720p / 1080i	✓	✓	✓	✓	✓	✓	✓
1080p	✓	✓	✓	✓	✓	✓	✓
Dolby Digital	✓	✓	✓	✓	✓	✓	✓
DTS	✓	✓	✓	✓	✓	✓	✓
8-canal-PCM, 192kHz / 24 bit	✓	✓	✓	✓	✓	✓	✓
Consumer Electronics Control ( CEC )	✓	✓	✓	✓	✓	✓	✓
DVD-audio	-	✓	✓	✓	✓	✓	✓
SACD ( DSD )	-	-	✓	✓	✓	✓	✓
Deep colour	-	-	-	✓	✓	✓	✓
Enhanced Colour Space	-	-	-	✓	✓	✓	✓
Dolby True-HD	-	-	-	✓	✓	✓	✓
DTS-HD Master Audio	-	-	-	✓	✓	✓	✓
Auto Lip-Sync	-	-	-	✓	✓	✓	✓
HDMI Mini connector ( Type-C )	-	-	-	✓	✓	✓	✓
3D ( Frame Packing )	-	-	-	-	✓	✓	✓
4K @ 24/30Hz	-	-	-	-	✓	✓	✓
HDMI Micro Connector ( Type D )	-	-	-	-	✓	✓	✓
Ethernet-channel ( 100 Mbit/s )	-	-	-	-	✓	✓	✓
Audio Return Channel ( ARC )	-	-	-	-	✓	✓	✓
Static HDR ( HDR10/HLG )	-	-	-	-	-	✓	✓
Updated list of CEC commands ( CEC Extensions )	-	-	-	-	-	✓	✓
1080p @ 120Hz	-	-	-	-	-	✓	✓
4K @ 50/60Hz	-	-	-	-	-	✓	✓
4K @ 144Hz	-	-	-	-	-	-	✓
8K	-	-	-	-	-	-	✓
Dynamic HDR-format ( Dolby Vision )	-	-	-	-	-	-	✓
Enhanced Audio Return Channel ( eARC )	-	-	-	-	-	-	✓
Variable Refreshrate ( VRR )	-	-	-	-	-	-	✓
Quick Media switch ( QMS )	-	-	-	-	-	-	✓
Quick Frame Transport ( QFT )	-	-	-	-	-	-	✓
Automatic Low-latency-Mode ( ALLM )	-	-	-	-	-	-	✓
VESA DSC 1.2a	-	-	-	-	-	-	✓

## HDMI cables

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### ACT HDMI Ultra high speed cable | 2.1



Colour	Description	Resolution	1m	1.5m	2m	3m
Black	HDMI-A male-HDMI-A male	8K@60Hz	AK3907	AK3908	AK3909	AK3910
Black	HDMI-A male-HDMI-A male	8K@60Hz			AC3810 Zip-bag	
Black	HDMI-A male-HDMI-A male	8K@60Hz			AC3909*	

\* Metal connector housing and retail packaged

### ACT HDMI high speed cable | 2.0



Colour	Description	Resolution	0.5m	1m	1.5m	2m	3m	5m	7m
Black	HDMI-A male-HDMI-A male	4k@60Hz	AK3900	AK3901		AK3902	AK3903	AK3904	AK3905
Black	HDMI-A male-HDMI-A male	4k@60Hz	AK3749	AK3755		AK3750	AK3751	AK3752	
Black	HDMI-A male-HDMI-A male angled	4k@60Hz	AK3675	AK3676		AK3678	AK3679		
Black	HDMI-A male-HDMI-A male Zip-bag	4k@60Hz			AC3800				

### ACT HDMI high speed cable | 1.4



Colour	Description	Resolution	0.5m	1m	1.5m	2m	2.5 m	3m	5m
Black	HDMI-A male-HDMI-A male	4K@30Hz	AK3789	AK3790	AK3791	AK3792		AK3793	
Black	HDMI-A male-HDMI-C male	4K@30Hz				AK3757			
Black	HDMI-A male-HDMI-A male	4K@60Hz					AC3802		AC3805

### ACT HDMI high speed cable fully shielded | 1.4



Colour	Description	Resolution	0.5m	1m	1.5m	2m	3m	5m
Black	HDMI-A male-HDMI-A male	4K@30Hz	AK3813	AK3814	AK3815	AK3816	AK3817	AK3818
Black	HDMI-A male-HDMI-D male	4K@30Hz				AK3798		

### ACT HDMI high speed slimline cable | 1.4



Colour	Description	Resolution	0.5m	1m	2m
Black	HDMI-A male-HDMI-C male	4K@30Hz	AK3670		AK3671
					AK3673

### ACT HDMI adapter



Colour	Description	Fully shielded	Unshielded
Black	HDMI-A male-female flex		AB3769
Black	HDMI-A female-female flex		AB3770
Black	HDMI-A male-female down		AB3771
Black	HDMI-A male-female left		AB3775
Black	HDMI female female straight	AB3768	AP1005

### ACT HDMI cable SLAC (super low attenuation cable) | 1.4



Colour	Description	Resolution	7m	10m	15m	20m
Black	HDMI-A male-HDMI-A male	4k@30Hz	AK3753			
Black	HDMI-A male-HDMI-A male	4k@30Hz		AK3754	AK3756	
Blue	HDMI-A male-HDMI-A male	4k@30Hz		AK3804	AK3805	AK3806

## HDMI AOC cables (Active Optical Cable)

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### **ACT** HDMI High Speed AOC Active Optical Cable with detachable plug

Colour	Description	Resolution	10m	15m	20m	25m	30m	40m	50m	60m	70m	80m	90m	100m
Black	HDMI-A male-HDMI-A male   2.0	4k@60Hz	AK4100	AK4101	AK4102	AK4103	AK4104	AK4105	AK4106	AK4107	AK4108	AK4109	AK4110	AK4111

*HDMI Active Optical Cable, with detachable plug and protector with pulling eye for easy installation through conduits and plenum spaces. USB power cable included for optionally connect an external 5V power supply. Only required in cases when the HDMI port of the transmitter delivers insufficient power.*

### **ACT** HDMI cable AOC Active Optical Cable

Colour	Description	Resolution	10m	15m	20m
Black	HDMI-A male-HDMI-A male   2.0	4K@60Hz	AK4117	AK4118	AK4119

*HDMI Premium Active Optical Cable, made of copper and glass, for connecting different devices over long distances of up to 100 m without loss of quality.*

### **ACT** HDMI Premium AOC Active Optical Cable

Colour	Description	Resolution	10m	15m	20m	25m	30m	40m	50m	60m	70m	80m	90m	100m
Black	HDMI-A male-HDMI-A male   2.0	4k@60Hz	AK3930	AK3931	AK3932	AK3929	AK3933	AK3934	AK3935	AK3936	AK3937	AK3938	AK3939	AK3940
Black	HDMI-A male-HDMI-A male   2.1	8k@60Hz	AK4120	AK4121	AK4122	AK4123	AK4124	AK4125	AK4126	AK4127	AK4128	AK4129	AK4130	AK4131

*HDMI Premium Active Optical Cable, made of copper and glass, for connecting different devices over long distances of up to 100 m without loss of quality.*

## DVI

### ACT HDMI, DVI and VGA adapter cable, SQ



Colour	Description	1m	1.8m	2m	3m	5m	10m	15m
Black	HDMI-A male-DVI-D male single link	AK3739		AK3740	AK3741	AK3742		
Black	DVI-A male-VGA male			AK3850				
Ivory	DVI-A male-VGA male		AK3650		AK3651	AK3652	AK3654	
Grey	VGA male-5x BNC male		AK8116					

### Adapter cable, SLAC (Super Low Attenuation cable)



Black	HDMI-A male-DVI-D male single link						AK3744	AK3746
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### ACT HDMI and DVI adapter



Colour	Description	HQ Adapter fully shielded	SQ Adapter
White	HDMI-A female-DVI-D 18+1 male single link	AB3760	AP1004
White	HDMI-A male-DVI-D 24+5 female single link	AB3765	AP1006
White	HDMI-A male-DVI-D female links	AB3766	
White	DVI-I 24+5 female-DVI-I 24+5 female	AB3730	
White	DVI-I 24+5 female-DVI-D 18+1 male	AB3740	AP1001
White	DVI-A 12+5 female-VGA female	AB3750	AP1002
White	DVI-I 24+5 female-VGA male	AB3755	AP1003

### ACT DVI cable



Colour	Description	0.5m	1m	1.5m	1.8m	2m	3m	5m	10m	15m
<b>DVI-D cable, HQ</b>										
Ivory	Dual link male-male				AK3630		AK3631	AK3632	AK3634	
Ivory	Single link male-male				AK3620		AK3621	AK3622	AK3624	
Ivory	Single link male-female					AK3760				
<b>DVI-I cable, HQ</b>										
Ivory	Dual link male-male					AK3720	AK3721	AK3722	AK3724	
<b>DVI-D cable, SQ</b>										
Black	Dual link male-male	AK3829	AK3833	AK3834	AK3829	AK3830	AK3831	AK3832		
Black	Dual link male-female					AK3970	AK3971			
Black	Single link male-male	AK3819	AK3823	AK3824		AK3820	AK3821	AK3822		
<b>DVI-I cable, SQ</b>										
Black	Dual link male-male			AK3953		AK3950				
<b>DVI-D cable, SLAC (super low attenuation cable)</b>										
Black	Single link male-male								AK3625	AK3626


## COAX

### ACT Coax cable RG58/RG59



Colour	Description	0.25m	0.5m	1m	1.5m	2m	3m	5m	7m	10m	15m
Black	RG58	Q70025	Q70050	Q70100	Q70150	Q70200	Q70300	Q70500	Q70700	Q7010M	Q7015M
Black	RG59	Q71025	Q71050	Q71100	Q71150	Q71200	Q71300	Q71500	Q71700	Q7110M	Q7115M

## VGA

**ACT** VGA cable 

Colour	Description	0.25m	0.5m	1m	1.8m	3m	5m	7m	10m	15m	20m	25m	30m
<b>Molded hoods</b>													
Black	male-female		AK4210	AK4211	AK4220	AK4223	AK4225	AK4227	AK4229	AK4231	AK4233	AK4235	AK4237
Black	male-male		AK4250	AK4251	AK4260	AK4263	AK4265	AK4267	AK4269	AK4271	AK4273	AK4275	AK4277
<b>Metal hoods</b>													
Black	male-female				AK9020	AK9023	AK9025	AK9027	AK9029	AK9031			AK9037
Black	male-male				AK9060	AK9063	AK9065	AK9067	AK9069	AK9071	AK9073	AK9075	AK9077
<b>Molded hoods, ultra high performance</b>													
Black	male-female		AK4918	AK4919	AK4920	AK4923	AK4925		AK4929				
Black	male-male		AK4958	AK4959	AK4960	AK4963	AK4965	AK4967	AK4969	AK4971	AK4973		AK4977
<b>Metal hoods, ultra high performance</b>													
Black	male-male				AK9360	AK9363	AK9365	AK9367	AK9369	AK9371	AK9373	AK9375	AK9377
<b>VGA cable, SQ</b>													
Ivory	male-female				AK3220								
Ivory	male-male				AK3225								
Black	1x male-2x female, split cable	AK3187											

**ACT** VGA + audio cable 

Colour	Description	2m	3m	5m	7m	10m	15m	20m
Black	male-female	AK4980	AK4981	AK4982		AK4984		
Black	male-male	AK4990	AK4991	AK4992	AK4993	AK4994	AK4995	AK4996

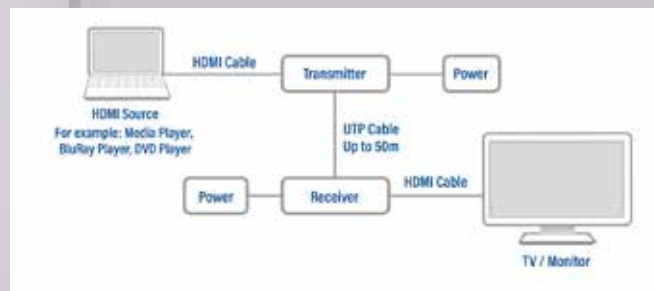
## Video adapter cables - High lights

Type no.	AC7515	AC7535	AC7545	AC7555	AC7550	AC7565	AC7505
							
Description	DisplayPort to VGA adapter	HDMI to VGA adapter with audio	VGA to HDMI adapter with audio	DisplayPort to HDMI adapter	DisplayPort to HDMI adapter cable, 1.8 m	Adapter DVI-D male - HDMI A female	DisplayPort to DVI adapter cable, 1.8m
Input	DisplayPort male (x1)	HDMI A (full-size) male (x1)	VGA male (x1)	DisplayPort male (x1)	DisplayPort male (x1)	DVI-D male	DisplayPort male (x1)
Output	VGA HD D-sub 15-pin female (x1)	VGA female (x1)	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x1)	HDMI A female	DVI 24+1-pin male (x1)
Cable part length (cm)	15	23	25	15	180	-	180
4K compatible	No	No	No	Yes	Yes		
Max. resolution	1920 x 1080 @ 60Hz	1920 x 1200	1920 x 1080	3840 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	3840 x 2160 @ 30Hz 1920 x 1080 @ 60Hz		1920 x 1080 @ 60Hz
Video signal	DisplayPort, VGA	HDMI, VGA	HDMI	DisplayPort, HDMI	HDMI		DVI, DisplayPort
Video specifications	DisplayPort 1.1, VGA	VGA, HDMI standard	VGA	DisplayPort 1.2	DisplayPort 1.2, HDMI High Speed with Ethernet		DisplayPort 1.1
Material housing	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic





ACT extenders extend the signal by using a network cable (also called UTP, CAT or patch cable). Extenders use a direct connection or via an existing IP network.



Type no.	AC7820	AC7800	AC7810	AC7850
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Description	HDMI Repeater via HDMI cable	HDMI extender set via UTP cable, max. 50m	HDMI extender set via UTP cable, max. 60m, with IR set	HDMI over IP Extender - set
Extension over	HDMI	CATx	CATx	CATx
Extension cable	HDMI	CAT6 (x1)	CAT6 (x1)	CAT6 (x1)
Extension connector	HDMI	RJ45	RJ45	RJ45
Extension protocol	-	Own	Own	IP
4K Compatible	Yes	No	No	No
Max. resolution	3840 x 2160 @ 60 Hz	1920 x 1080 @ 60 Hz	1920 x 1080 @ 60 Hz	1920 x 1080 @ 60 Hz
Audio Pass-through	DTS-HD MA Dolby True-HD Dolby Digital	DTS-HD MA Dolby True-HD Dolby Digital	DTS-HD MA Dolby True-HD Dolby Digital	2.0 CH Stereo
Power	Bus powered	5.0V - 1.0A	5.0V - 1.0A	5.0V - 1.0A
Included	-	Power adapter (x2)	Power adapter (x2) IR-RX cable, IR-TX cable	Power adapter (x2) IR-RX cable, IR-TX cable
Connections	HDMI	HDMI, RJ45	HDMI, RJ45, IR-RX, IR-TX	HDMI, RJ45
Connections in	HDMI female (x1)	HDMI female (x1)	HDMI female (x1)	HDMI female (x1) RJ45 female (x1)
Connections out	HDMI female (x1)	HDMI female (x1)	HDMI female (x1)	HDMI female (x1) RJ45 female (x1)
Max. extension distance	40m 1920x1080 @60Hz 25m 3840x2160 @60Hz	50 m	60 m	100 m
Video signal	HDMI	HDMI	HDMI	HDMI
Video support	EDID – CEC passthrough – HDCP 2.2 & 1.4 compliant	EDID	EDID	EDID
HDMI/ DisplayPort spec.	HDMI High Speed	HDMI High Speed	HDMI High Speed	HDMI High Speed



AC7851	AC7770	AC7870	AC7871
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HDMI over IP Receiver (for AC7850)	4K DisplayPort over CATx extender	HDMI extender set via UTP cable, up to 100 meter	Receiver unit for AC7870
CATx	DisplayPort	CATx	CATx
CAT6 (x1)	CAT6a (x1)	CAT5e (x1)	CAT5e (x1)
RJ45	RJ45	RJ45	RJ45
IP	Own	Own	Own
No	Yes	Yes	Yes
1920 x 1080 @ 60 Hz	1920 x 1080 @ 60 Hz 3840 x 2160 @ 30Hz	3840 x 2160 @ 30 Hz	3840 x 2160 @ 30 Hz
2.0 CH Stereo	2.0 CH Stereo	2.0 CH Stereo	2.0 CH Stereo
5.0V - 1.0A	5.0V - 2.0A	5.0V - 2.0A	5.0V - 2.0A
Power adapter IR-RX cable	Power adapter (x2)	Power adapter (x2)	Power adapter
HDMI, RJ45	DisplayPort, RJ45	HDMI, RJ45	HDMI, RJ45
RJ45 female (x1)	DisplayPort female (x1) RJ45 female (x1)	HDMI A female (x1) RJ45 female (x1)	RJ45 female (x1)
HDMI female (x1)	DisplayPort female (x1) RJ45 female (x1)	HDMI A female (x1) RJ45 female (x1)	HDMI A female (x1) RJ45 female (x2)
100 m	70 m (1080p @ 60 Hz) 40 m (3840x2160 @ 30 Hz)	100 m*	100 m
HDMI	DisplayPort	HDMI	HDMI
EDID	HDCP	EDID, HDCP 1.4	EDID, HDCP 1.4
HDMI High Speed	DisplayPort 1.2	HDMI High speed	HDMI High speed

ACT AV solutions are used in meeting rooms, waiting rooms and in companies to show presentations and information on screens.  
 With a splitter it is possible to show the same information on several screens. With these ACT products you choose for reliability in daily use.

Type no.	AC7830	AC7840	AC7860	AC7900 AC7910	AC7702 AC7704
					
Description	HDMI Splitter via HDMI cable	5x1 HDMI Switch	HDMI 4K Matrix Switch 4x4 with 4K @ 60Hz support	KVM Switch	400MHz Videosplitter AC7702: 2-Ports AC7704: 4-Ports
Extension cable/connector	HDMI	HDMI	HDMI	AC7900: DisplayPort AC7910: HDMI	VGA HD D-Sub
4K compatible	Yes	Yes	Yes	Yes	No
Max. resolution	3840 x 2160 @ 30 Hz	3840 x 2160 @ 30 Hz	3840 x 2160 @ 60 Hz	4096 x 2160 @ 30Hz/60Hz	2048 x 1536 @ 60Hz
3D support	1080p @ 30/60 Hz	1080p @ 60 Hz	-	-	-
Audio Passthrough	DTS-HD MA, Dolby True-HD, Dolby Digital	DTS-HD MA, Dolby True-HD, Dolby Digital	DTS-HD MA, Dolby True-HD, Dolby Digital	Analog audio	-
Power	5.0V - 1.0A	5.0V - 1.0A	5.0V - 3.0A	Bus powered	12.0V - 1.0A
Included	Power adapter	Power adapter, remote control	Power adapter, Remote control, IR-RX cable, Phoenix plug for RS-232 cable, Montage kit + screws	-	Power adapter
Connections	HDMI	HDMI	HDMI, RJ45, IR, SPDIF, RS-232	3.5 mm Jack, USB, DisplayPort or HDMI	VGA HD D-sub
Connections in	HDMI female 1x	HDMI female 5x	HDMI female 4x	3.5 mm Jack male (x4), DisplayPort or HDMI male (x2), USB A male (x2)	VGA HD D-sub 15-pin female (x1)
Connections out	HDMI female 4x	HDMI female 1x	HDMI female 4x, SPDIF 4x, RJ45 1x, RS232, IR-RX Jack	3.5 mm Jack female (x2), DisplayPort or HDMI female (x1), USB A female (x2)	VGA HD D-sub 15-pin female (x2) AC7702 (x4) AC7704
Video signal	HDMI	HDMI	HDMI	DisplayPort or HDMI	VGA
Video support	EDID, HDCP 1.4 compliant	EDID – CEC passthrough - HDCP 1.4 compliant	EDID, HDCP 2.2/1.4	-	VGA/SVGA/XGA/QXGA/UXGA/MultiSync
HDMI/ DisplayPorts spec.	HDMI High Speed	HDMI High Speed	HDMI High Speed	AC7900: DisplayPort 1.2 AC7910: HDMI High Speed	-
Management method	-	-	-	Remote control (wired), Hot-key, Software	Remote control (wired), Hot-key, Software

The AC7845 4K HDMI Switch 3x1 enables you to display 3 HDMI sources on one TV/screen. The ACT AC7835 4K HDMI Splitter splits a single HDMI signal to two separate TVs/screens.



Type no.

AC7845

AC7835



Description	4K HDMI Switch 3 ports	4K HDMI Splitter 1x2
Connectors (in)	HDMI A (full-size) female (x3)	HDMI A (full-size) female (x1)
Connectors (uit)	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x2)
4K Compatible	Yes	Yes
Max. resolution @ 30Hz	3840 x 2160	3840 x 2160
Max. resolution @ 60Hz	3840 x 2160	1080p
Video signal	HDMI	HDMI
Supported functions	EDID, HDCP 1.4	EDID, HDCP 1.4
HDMI specifications	HDMI High Speed	HDMI High Speed
Other signals	HD audio, IR	HD audio
Power	USB powered	USB powered
Included	Remote control + battery, IR-RX cable, USB power cable	USB power cable

### Audio cables


The ACT range consists of the professional audio cables listed below:

- Microphone cables
- DMX cables
- Standard audio cables
- High quality transparent oxygen-free copper cable with gold-plated connectors




AUDIO




**ACT** High quality audio cable, Zip-bag 


Colour	Description	0.15m	1.5m	2m	3m	5m	10m	15m
Black	3,5mm stereo jack male - 2x RCA male		AC3605			AC3607		
Black	3,5mm stereo jack male - male		AC3610		AC3611	AC3612	AC3613	AC3614
Black	3,5mm stereo jack male - female			AC3615		AC3617		
Black	2x RCA male - 2x RCA male		AC3601					
Black	3,5mm split cable male- 2x female	AC3620						

**ACT** Audio cable 


Colour	Description	0.15m	0.20m	1.20m	1.5m	2.5m	3m	5m	10m	15m
Black	3,5mm stereo jack male - male				AK2035	AK2036		AK2037	AK2038	AK2039
Black	3,5mm stereo jack male - female						AK2030	AK2031		
Black	1x 3,5mm stereo jack male - 2x RCA female	AK2026								
Black	1x 3,5mm stereo jack female - 2x RCA male	AK2027								
Black	1x 3,5mm stereo jack male - 2x RCA male			AK2075		AK2076		AK2077	AK2078	
Black	2x RCA male - male			AK2014		AK2015				
Black	1x RCA male - 2x RCA female		AK2025							

**ACT** High quality audio cable 

Colour	Description	2m	3m	5m	10m	15m
White	2x tulp male - 1x 3,5mm stereo jack male	AK2230	AK2232	AK2234	AK2236	AK2237
White	3,5mm stereo jack male - male	AK2240	AK2242	AK2244	AK2246	AK2247
White	3,5mm stereo jack male - female	AK2250	AK2252	AK2254	AK2256	
White	Audio video 1x tulp male - male	AK2270	AK2272			
White	Audio 2x tulp male - male	AK2220				

**ACT** POF audio cable 

Colour	Description	1.20m	2m	3m
Black	Optical audio TOS to TOS		AK2462	AK2463
Black	SPDIF optical audio TOS to TOS	AC3690		

**ACT** USB-C male - 3.5mm audio jack female PD-passthrough, retail package 

Colour	Description	Cable length	Type no.
Space grey	USB-C male - 3.5mm audio jack female PD-passthrough 65W	15cm	AC7005

Power cables

Power cables provide power to your devices. ACT supplies many types of different power cables. All of these cables stand for excellent performance (quality) and durability.



Types

ACT has many types of power cables: CEE7/7, IEC60320 C5, C7, C13, C14, C15, C19, C20, IEC60309 CEE1. ACT also provides different types of power split cables.

Power cables in different colours

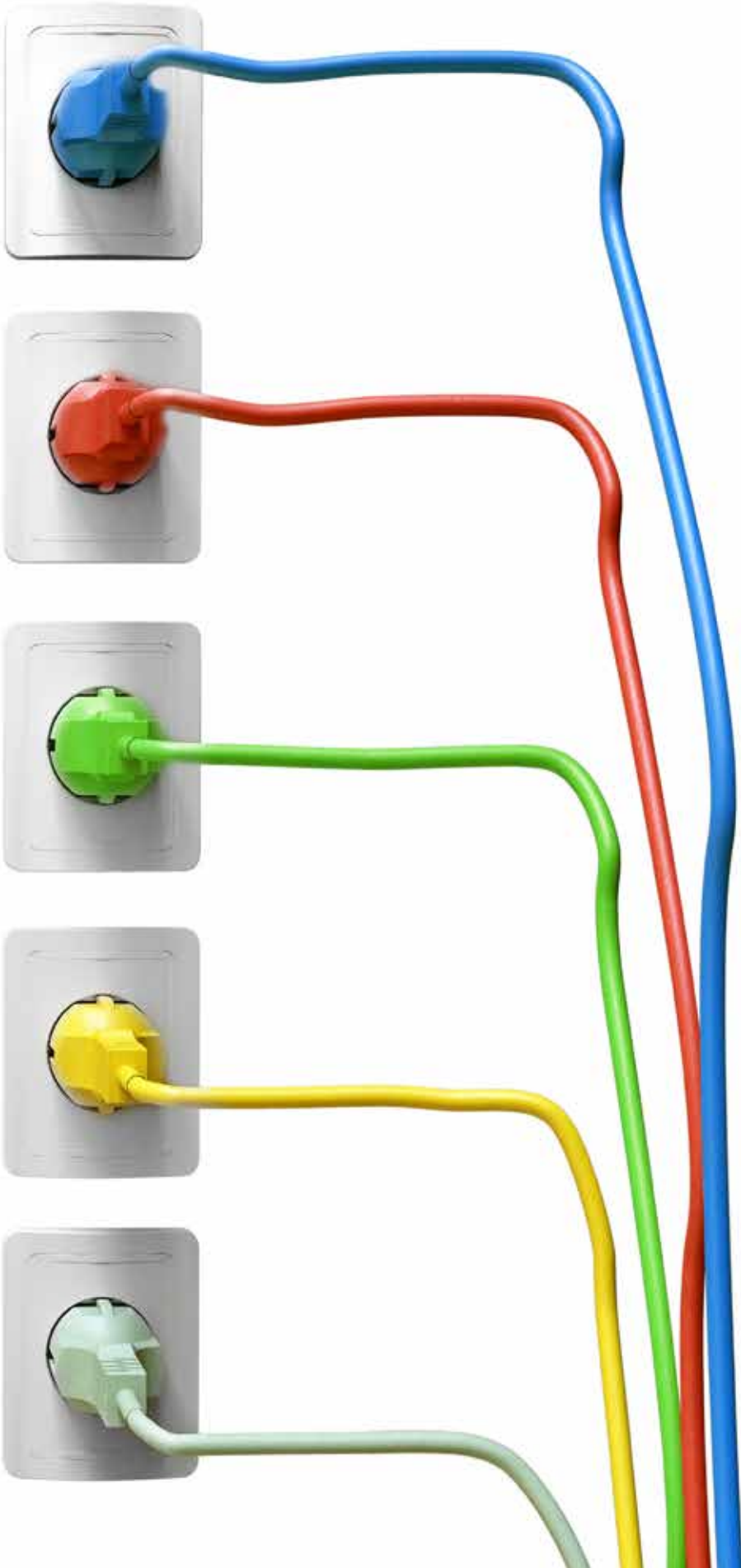
In addition to the traditional Black power cables, we supply the IEC60320 C13, C14, C19 and C20 cables in different Colours to make your power network more organized.

ACT offers a wide range of high quality power cables:

- 230 V power ables
- Euro power cables
- IEC 60320 power cables
- International power cables
- 230 V splitter cables

Male	Female	Form	Max. power	Max. temp.
C6	C5		2.5 A	70 °C
C8	C7		2.5 A	70 °C
C14	C13		10 A	70 °C
C16	C15		10 A	120 °C
C20	C19		16 A	70 °C
C22	C21		16 A	155 °C
CEE1			16 A	
CEE7/7			16 A	









**ACT** 230V power cables



Colour	Description	0.5m	0.6m	1m	1.2m	1.5m	1.8m	2m	2.5m	3m	4m	5m	7m	10m
Black	CEE 7/7 male angled - C13	AK5145		AK5146		AK5012		AK5015	AK5010	AK5124	AK5125	AK5016	AK5126	AK5127
White	CEE 7/7 male angled - C13	AK5401		AK5402		AK5235		AK5236	AK5237	AK5238		AK5239		
Ivory	CEE 7/7 male - C13					AK5013			AK5009					
Black	CEE 7/7 male - C13					AK5014			AK5017					
Black	CEE 7/7 male angled - C13, Zip-bag							AC3305						
Black	CEE 7/7 male angled - C13 angled							AK5018						
Red	CEE 7/7 male angled - C13		AK5128		AK5129		AK5130			AK5131		AK5403		
Blue	CEE 7/7 male angled - C13		AK5132		AK5133		AK5134			AK5135		AK5404		
Green	CEE 7/7 male angled - C13		AK5136		AK5137		AK5138			AK5139		AK5405		
Yellow	CEE 7/7 male angled - C13		AK5140		AK5141		AK5142			AK5143		AK5406		
Black	CEE 7/7 male angled - C15					AK5001								
Black	CEE 7/7 male angled - C5, Zip-bag							AC3310						
Black	CEE 7/7 male angled - C5	AK5407		AK5162		AK5408		AK5144		AK5024		AK5163	AK5188	AK5189
Black	CEE 7/7 male angled - C5 angled			AK5409			AK5005			AK5006		AK5007		
Black	CEE 7/7 male recht - C19	AK5410		AK5147		AK5411		AK5412		AK5022		AK5148		
Red	CEE 7/7 male angled - C19		AK5167		AK5168		AK5169			AK5170				
Blue	CEE 7/7 male angled - C19		AK5171		AK5172		AK5173			AK5174				
Green	CEE 7/7 male angled - C19		AK5175		AK5176		AK5177			AK5178				
Yellow	CEE 7/7 male angled - C19		AK5179		AK5180		AK5181			AK5182				
Black	CEE 7/7 male angled - C19		AK5183		AK5184		AK5185			AK5186				
White	CEE 7/7 male angled - C19		AK5413		AK5414		AK5415			AK5416				

**ACT** 230 V power cables LSZH



Colour	Description	1m	1.5m	2m	2.5m	5m
Black	CEE 7/7 male angled - C13	AK5209	AK5210	AK5211	AK5212	AK5213

**ACT** Euro power cable



Colour	Description	1m	1.5m	2m	3m	5m
Black	Euro male - C7 female in Zip-bag			AC3300		
Black	Euro male - C7 female	AK5417	AK5020	AK5418	AK5242	AK5419
Wit	Euro male - C7 female		AK5240		AK5241	
Black	Euro male - C7 female (angled down)			AK5008		
Black	Euro male - C7 female (angled left/right)	AK5420		AK5019	AK5421	

**ACT** IEC 60320 power cable



Colour	Description	0.3m	0.5m	0.6m	0.9m	1m	1.2m	1.8m	2m	2.5m	3m	4m	5m	7m	10m
Black	C13-C14, Zip-bag							AC3315							
Black	C13-C14	AK5164		AK5029	AK5165		AK5120	AK5030			AK5031	AK5149	AK5032	AK5121	AK5122
White	C13-C14	AK5422		AK5243			AK5244	AK5245			AK5427		AK5428		
Red	C13-C14	AK5423		AK5104			AK5105	AK5106			AK5107		AK5429		
Blue	C13-C14	AK5424		AK5108			AK5109	AK5110			AK5111		AK5430		
Green	C13-C14	AK5425		AK5112			AK5113	AK5114			AK5115		AK5431		
Yellow	C13-C14	AK5426		AK5116			AK5117	AK5118			AK5119		AK5432		
Black	C13 - C20					AK5440			AK5026						
Black	C19 - C20			AK5085			AK5086		AK5023		AK5087				
Red	C19 - C20			AK5088			AK5089	AK5090			AK5091				
Blue	C19 - C20			AK5092			AK5093	AK5094			AK5095				
Green	C19 - C20			AK5096			AK5097	AK5098			AK5099				
Yellow	C19 - C20			AK5100			AK5101	AK5102			AK5103				
Black	CEE1 - C19									AK5021					
Black	C14 - C5		AK5218			AK5433			AK5028		AK5434				
Black	C14 - C15			AK5232			AK5233		AK5003	AK5234					
White	C14 - C15			AK5435			AK5436		AK5437						
Black	C14-C19		AK5438			AK5439			AK5025						
Black	C14 - Type F female (max.10 A)			AK5219											

## IEC 60320 cable LSZH



Colour	Description	1.2m	1.8m	3m	5m
Black	C13-C14	AK5214	AK5215	AK5216	AK5217

## ACT 230 V Split cable



Colour	Description	1m	1.2m	1.8m
Black	CEE 7/7 male - 2x C13	AK5050	AK5055	
Black	CEE 7/7 male - C5+C13			AK5166
Black	CEE 7/7 male - 2x C5			AK5208
Black	C14 - 2x C13			AK5052

## ACT 230 V UK power cable






Colour	Description	1m	1.8m	2.5m
Black	UK power connector - C5		AK5072	
Black	UK power connector - C7		AK5070	
Black	UK power connector - C13	AK5441	AK5442	AK5060

## ACT 120 V USA power cable




Black	USA power connector - C5		AK5076	
Black	USA power connector - C7		AK5074	
Black	USA power connector - C13	AK5443	AK5444	AK5062
Black	USA power connector - C19		AK5445	

## ACT 230 V international power cable

Black	Danish power cable - C13			AK5064
Black	Italian power cable - C13		AK5446	AK5066
Black	Swiss power cable - C13			AK5068
Black	India/SA-C13			AK5447

Type no.	AC2450	AC2455	AC2460
			
Description	<b>Power strip 6x</b>	<b>Power strip 5x</b>	<b>Power strip 6x</b>
Input connector	CEE 7/7 angled male	CEE 7/7 angled male	CEE 7/7 angled male
Socket type	Type F female	Type F female	Type F female
Cable type	H05VV-F3G 1.5	H05VV-F3G 1.5	H05VV-F3G 1.5
Max. load	230V AC / 16 A	230V AC / 16 A	250V AC / 16 A
Number of sockets	6	5	6
USB charging ports	-	-	-
USB output	-	-	-
Cable length (m)	1.5	1.5	3
Switching	Illuminated switch	Illuminated switch	-
Surge protection	Yes	No	No
Child protection	Yes	Yes	Yes
Extra	Outlets with 45 degree angle Suited for wall and table mount	Outlets with 45 degree angle, with flat plug	Outlets with 45 degree angle
Colour	Black	White	Black

A UPS supplies the connected equipment with an uninterrupted voltage so that a server, router or computer continues to function for a while in the event of a power failure. This allows the equipment to be securely closed. A UPS provides a more stable voltage and frequency, and offers better protection against voltage drop, short circuit, overload, voltage fluctuations and voltage peaks.

Type no.	AC2300	AC2305	AC2310
			
Description	UPS 600VA - 360W with 6 earthed sockets	UPS 600VA - 360W	UPS 1000VA - 600W
Input voltage	230V~50/60Hz	230V~50/60Hz	230V~50/60Hz
Capacity	600VA (360W)	600VA (360W)	1000VA/ (600W)
Mounting	Wall	-	-
Back-up time in minutes @ 120W load	10	10	50
Sound alarm	Yes	Yes	Yes
Led indicator	Yes	Yes	Yes
LCD display	No	No	No
Type F female earthed socket	6x	1x	2x
IEC C13	-	1x	2x
RS232	-	-	1x
USB incl. software	-	-	Yes
IEC C14	1x	1x	1x
Cable	Detachable	Detachable	Fixed power cable
AVR-function	Yes	Yes	Yes
4-fold protection: over temperature protection, over voltage protection, over current protection and short circuit protection	Yes	Yes	Yes
Dimensions (LxWxH) mm.	360x240x130	298x101x142	353x149x162



All ACT laptop chargers come with a quadruple safety system that protects against overheating, over voltage, over current and short circuit. If the battery of your netbook or notebook is full, the ACT charger automatically stops charging.

**Free tip service!**

Always the right tip for your laptop! ACT offers several tips with the charger. Is your tip missing? You can easily apply through: <https://support.com/hc/requests/new>. The tip will be sent for free. Due to a different loading technology, it is not possible to provide traditional laptop chargers with a USB-C tip.

Type no.	AC2000	AC2005	AC2050	AC2055	AC2060
Description	USB-C Laptop charger 15.6 inch with PD	USB-C Laptop charger 15.6 inch with PD	Slim Size notebook charger 15.6 inch	Slim Size notebook charger 15.6 inch	Slim Size notebook charger 17.3 inch
Max. power	45W	65W	45W	65W	90W
Input	100V-240V AC 1.0A 50/60 Hz	100V-240V AC 1.5A 50/60 Hz	100V-240V AC 1.0A 50/60 Hz	100V-240V AC 1.5A 50/60 Hz	100V-240V AC 1.2A 50/60 Hz
Output	PD (Power Delivery) profiles: 5.0V up to 3.0A 9.0V up to 3.0A 12.0V up to 3.0A 15.0V up to 3.0A 20.0V up to 2.25A	PD (Power Delivery) profiles: 5.0V up to 3.0A 9.0V up to 3.0A 12.0V up to 3.0A 15.0V up to 3.0A 20.0V up to 3.25A	18.5V-2.43A 19.0V-2.37A 19.5V-2.31A 20.0V-2.25A	18.5V-3.5A 19.0V-3.42A 19.5V-3.33A 20.0V-3.25A	18.5V-4.87A 19.0V-4.74A 19.5V-4.62A 20V-4.5A
Number of included tips	-	-	8	8	8
USB-C compatible	Yes	Yes	No	No	No
Fourfold protection	Yes	Yes	Yes	Yes	Yes
Cable length input (m)	1.50	1.50	1.20	1.20	1.20
Cable length output (m)	1.25	1.25	1.80	1.80	1.80
Dimensions in mm (BxHxD)	51x24x91	55x25x95	51x24x91	55x25x95	70x25x116
Extra	Smartphone/tablet without PD support are charged @ 5.0V-3.0A	Smartphone/tablet without PD support are charged @ 5.0V-3.0A	Free tip service	Free tip service	Free tip service

USB cables

ACT offers a wide range of USB cables (USB 3.2, USB C, USB 2.0) and USB adapters. For each type of cable you can quickly and easily find the length you are looking for (including the item number).

Please contact us if you cannot find the cable or the length you are looking for. We will help you find the right solution.



# What is USB-C?



Many people associate USB-C or USB Type-C directly with USB 3.2. However, USB-C is much more! Below we will explain USB-C / USB Type-C and the advantages and applications of this standard.

## USB generations

First, we want to explain all USB generations. As mentioned above, many people think that USB 3.2 (a.k.a. USB3.1) is the same as USB-C. The main reason for this association is that USB 3.1 (nowadays known as USB3.2) was equally released with the USB-C standard. Could it be more confusing? Yes it can!

USB 3.2 has three versions: USB 3.2 Gen1, USB 3.2 Gen2 and USB 3.2 Gen2x2. Gen1 has a maximum speed of 5Gbit/s, Gen2 a maximum speed of 10Gbit/s and Gen2x2 a maximum speed of 20Gbit/s. USB 3.2 Gen1 is also called USB 3.1 Gen1, USB 3.0 or SuperSpeed. SuperSpeed+ is the name of USB 3.2 Gen2 and USB 3.1 Gen2.

## USB 4

USB 4 is the most recent version of USB supporting dataspeed up to 40Gbps. USB 4 is based on the Thunderbolt™ protocol. USB 4 support DisplayPort 2.0 over DP-Alt Mode supporting 8K resolutions @60Hz.

### On this page a short overview of how the USB 3.2 is categorized:

- USB 3.2 Gen1: originally known as USB 3.0, and previously renamed to USB 3.1 Gen1. It's the original USB 3.0 specification, and it can transfer data at up to 5Gbps.
- USB 3.2 Gen2: Previously known as USB 3.1, and then later as USB 3.1 Gen2. It offers speeds at up to 10Gbps.
- USB 3.2 Gen2x2: formally known as USB 3.2 speeds at up to 20Gbps (by using two lanes of 10Gbps at once therefor it is called Gen2x2 instead of Gen3).
- USB 4.0 is the latest version and offers a speed of 20Gbps or 40Gbps. USB 4.0 only uses USB-C connectors.

Version	Name	Other name	Current	Voltage	Power	Bandwidth
USB 1.0	LowSpeed		0.15A	5V	0.75W	1.5 Mbit/s
USB 1.1	FullSpeed	Universal	0.15A	5V	0.75W	12 Mbit/s
USB 2.0	Highspeed	Enhanced	0.5A	5V	2.5W	480 Mbit/s
USB 3.2 Gen1	Superspeed 5Gbps	USB 3.0 USB 3.1 Gen1	2A	5V	10W	5 Gbit/s
			3A	9V	27W	
			3A	12V	36W	
USB 3.2 Gen2	Superspeed 10Gbps	USB 3.1 USB 3.1 Gen2	2A	5V	10W	10 Gbit/s
			3A	9V	27W	
			3A	12V	36W	
			3A	15V	45W	
			5A	20V	100W	
USB 3.2 Gen2x2	SuperSpeed 20Gbps	USB 3.2	2A	5V	10W	20 Gbit/s
			3A	9V	27W	
			3A	12V	36W	
			3A	15V	45W	
			5A	20V	100W	
			5A	28V	140W	
			5A	36V	180W	
			5A	48V	240W	
USB 4.0	SuperSpeed 20Gbps or 40Gbps	USB 4.0	2A	5V	10W	20 Gbit/s or 40 Gbit/s
			3A	9V	27W	
			3A	12V	36W	
			3A	15V	45W	
			5A	20V	100W	
			5A	28V	140W	
			5A	36V	180W	
			5A	48V	240W	



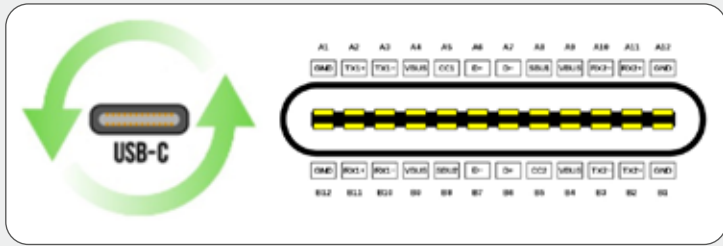
# The advantages of USB-C:

## The advantages of USB-C:

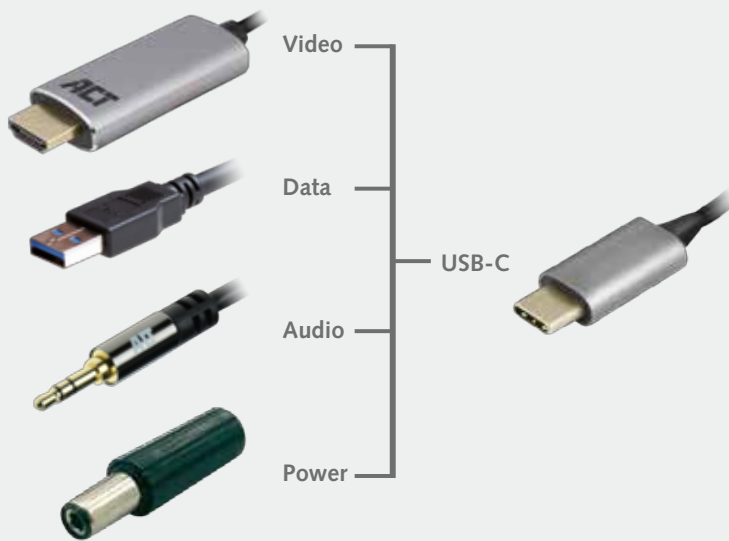
- Symmetrical reversible connection
- Small connector
- Charge faster and more safe with Power Delivery (PD)
- Thunderbolt™ 3 support: one cable for both images and power
- Support for DisplayPort Alternate Mode

## A compact reversible connection

Are you always struggling with USB-A cables? When connecting a USB-A plugin into your computer, you always try the wrong side first. Always! This struggle belongs to the past with this USB-C connector. The USB-C connector doesn't have a top or bottom side. You can plug the connector either way into your device. The other big advantage of this connector is its compact size. This makes new laptops, smartphones and other devices with USB-C smaller and more light-weight.



4 in 1: Video, Data, Audio and Power are combined in one cable:



## Additional Protocols using USB-C

Attention: the protocols below aren't supported by every device. Please check the manual of the device for more information about the supported protocols.

### USB-C: intelligent chip (e-marker)

An intelligent chip takes care of the fast charging possibilities. A DFP (Downstream Facing Port) determines via the e-marker chip which features are supported. Like: fast charging via Power Delivery (PD), Thunderbolt™ 3 or DisplayPort Alternate Mode (DP Alt mode). Active cables and converters: each cable end can have a different active function. All active USB-C cables need an e-marker chip to restore the USB signals. This is the case with USB booster cables.

DisplayPort Alternate Mode (DP Alt mode) for connecting (4K) monitors  
USB Type-C supports DisplayPort Alternate Mode (DP Alt mode). This makes it possible to transfer (4K) videos simultaneously with data and power.

Port Configuration	DisplayPort 1.4a	DisplayPort 2.0
4 Lanes, max link rate	5k (5120x2800)@60fps 24bpp	10k (10240x4320)@60fps 24bpp
2 Lanes, max link rate	4k (3840x2160)@60fps 24bpp	8k (7680x4320)@30fps 30bpp
With Compression (DSC)		
4 Lanes, max link rate	8k (7680x4320)@60fps 30bpp	16k (15360x8460)@60fps 30bpp
2 Lanes, max link rate	5k (5120x2800)@60fps 24bpp	10k (10240x4320)@72fps 30bpp
Notes:		Key:
-2 Lanes configuration is common for USB-C DP Alt mode -All above modes assume full 4:4:4 colour encoding -30bpp is required for DisplayHDR operation		- DSC = Display Stream Compression - fps = frames per second - bpp = bits per pixel

## DP 2.0 Mandates Support for Display Signal Compression (DSC)

- VESA released DSC 1.2a in January 2017.
- DSC is now the industry standard data compression across the display interface.
- DSC was purposely designed to offer low latency, low complexity codec for visually lossless image compression to increase the amount of data carried by a display interface data rate, saving power.
- Key features include
- Native 4:2:0 and 4:2:2 coding, Up to 16 bits per colour, High Dynamic Range (HDR)
- DSC is mandated in DP 2.0 specification and is a powerful feature to allow designers to optimize BW, performance and power for Native DP, DP Alt mode products and tunneled DP over USB4.

## USB-C: Video output over USB-C for tablets and phones

In the past, some Android phones were supported by MHL "Mobile High-definition Link". To be able to use MHL, you still had to have a special MHL cable and your TV / monitor / beamer also needed MHL support to view the images of your phone on a TV / monitor / beamer.

Now more and more phones are released that use "Display over USB" instead of MHL support. Giving you the opportunity to easily convert images via your USB-C to your TV / monitor / beamer without having to use MHL support.



## DSC for better compression

Next generation video products need a higher level of compression to be able to deliver for example 8K output or dual/triple display support at 4K. Therefore in USB-C there has been the introduction of Display Stream Compression (DSC). DSC was the first to offer a low latency, low complexity codec expressly designed for this purpose.

For mobile applications, DSC 1.1 mainly serves to reduce the video interface data rate, which reduces system power, prolongs battery life and reduces interconnects to enable sleeker designs. For external display interfaces, DSC 1.2a extends resolution across existing connectors and cables, enabling 8K video and legacy support from the same connection.

DSC 1.2a is an additional standard to DP 1.4. So if you buy A USB-C device that needs DSC you will need to check if your PC or Notebook supports both DP 1.4 and DSC 1.2a to get the maximum out of your device. Since DP 2.0 DSC is supported by default.

DSC was purposely designed to offer low latency, low complexity codec for visually lossless image compression to increase the amount of data carried by a display interface data rate, saving power.

Native 4:2:0 and 4:2:2 coding, Up to 16 bits per colour, High Dynamic Range (HDR) DSC is mandated in DP 2.0 specification and is a powerful feature to allow designers to optimize BW, performance and power.

### Thunderbolt™ 3 support

It is possible to name Thunderbolt™ 3 in the same line with USB-C. Other Thunderbolt™ versions are using their own interface. The third Thunderbolt™ generation is using USB-C. Only one connection is used for multiple protocols: USB-C. Convenient right?!

The biggest advantage of Thunderbolt™ 3 is the throughput speed of up to 40Gbit/s. This is four times faster than the throughput of USB 3.2 Gen2: 10Gbits/s. Besides, Thunderbolt™ 3 can provide power and images to two 4K screens of max. 60Hz. All used peripherals, like a laptop, screens and cables, must support Thunderbolt™ 3. Devices that require the protocols mentioned before (Power Delivery and/or DP Alt mode) will also work on Thunderbolt™ 3 devices.

### USB 4

USB 4 is the most recent version of USB supporting dataspeed up to 40Gbps. USB 4 is based on the Thunderbolt™ protocol. USB 4 support DisplayPort 2.0 over DP-Alt Mode supporting 8K resolutions @60Hz.

### Thunderbolt™ 4

The specifications of USB 4 are part of the Thunderbolt™ 4 protocol. The video capacity compared to Thunderbolt™ 3 has doubled to 1x 8K @ 60Hz or 2x 4K @60Hz

### Charge faster and safer with Power Delivery

USB-C additionally can support Power Delivery (PD). This protocol enables your smartphone to charge up to 70% faster than by using a normal charger. One footnote: both the charger and the connected device must support Power Delivery. They both have built-in chips that communicate with each other to decide the best PD profile. Did you connect a USB-C accessory with PD support between the charger and the device? This USB-C accessory will communicate as well with the charger and the device. Besides this all, USB-C with PD enables charging in two directions. For example, you can charge your smartphone with your tablet but also your tablet with your smartphone. Which Power Delivery profiles are available? 5V, 9V, 12V, 15V and 20V.

With USB Power Delivery it is possible to charge your device with a high power output up to 100W therefore you will be able to Power/charge even Notebooks/Ultrabooks/Displays All these Chips together will determine which Power profile is safe to use for the entire setup. For example if you have a USB-C charger that can supply 100W (20V 5A) and your laptop needs to be powered at 60W (20V 3A) the USB-C charger will provide a 60W (20V 3A) output. Now for example you will use a USB-C cable that has an e-marker chip of a max power throughput up to 45W in the same setup the USB-C charger will provide a max power output of 45W. If the USB-C cable or one of the attached products do not have a PD chip the USB-C charger will no longer provide a PD profile and will power the entire setup at 5V default USB power profile

### ERP technology

Recently there has been an update from the USB Implementers forum. It has been announced that there will be an addition to the PD protocol: Extended Power Range. This is also known as EPR.

EPR will add two new PD profiles. Namely 28.0V, 36.0V and 48.0V as voltage which both can go up to a maximum current of 5.0A. This also increases the maximum power that can go over a USB-C cable to 240.0W. This power is not needed for most applications. Gaming laptops, however, will require more than 100.0W. For EPR, all devices will have to support EPR to be able to pass this maximum 240.0W. This will be indicated via the E-marker chips and will also be made optically recognisable on the cables. How exactly this will happen is not yet clear.

With the advent of EPR, the previous version that went up to 60.0W and 3.0A has been renamed SPR (Standard Power Range).

### Which technology or protocol does my USB-C laptop support?

Each technology/protocol has its own logo. In the best case these logos are visible next to the USB-C port on your laptop. The only thing is that suppliers aren't obligated to put the logos on the laptop. No symbol next to the USB-C port on your laptop? Please consult the manual of the laptop's supplier to check which technology/protocol this Type-C port supports.

### USB-C cables, one cable for all applications, right?

You can use a cable with USB-C connector for every purpose (charging/data transfer), right? Nothing could be further from the truth. The quality of a USB-C cable can be completely different than the quality of another USB-C cable. It is of great importance to use qualified cables to prevent irreparable damage to your valuable equipment.

### What are the qualities of a good cable:

The most important factor is the connector. This connector must have a seamless design. Some manufactures are recommending some cables that can be safely used. Charging your laptop requires a more powerful cable than a plain data cable. Please pay attention to this!

### What is MST (Multi Stream Transport)?

MST is part of the DisplayPort 1.2 standard, with which monitors and computers can support "daisy-chaining". You usually recognize daisy-chaining when the monitor has both an input and output DisplayPort, so that you can connect the first monitor to the computer and the second monitor to the first monitor. If both the monitor and the computer support MST daisy-chaining, the two screens work as separate screens. Exactly as if they were connected directly to the computer.

### USB-C and MST

Within the USB-C it is possible that the DP-alt mode (DisplayPort alternate mode) is supported by your laptop / PC. If this is the case it will also support MST, and you can choose to use a USB-C to MST adapter, this adapter has multiple video outputs that you can use to have multiple monitors (even if they don't support MST ) to connect to an MST (daisy chain). The connected screens can now be recognized as separate screens on your laptop / PC and be used as an extended desktop.

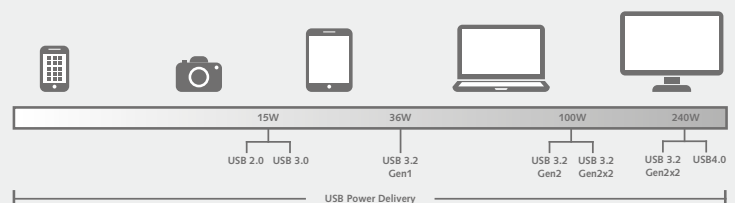


### MST on macOS

Please note!!! macOS does not support MST Daisy chaining. macOS only supports Daisy-chaining with the Thunderbolt™ 3 standard. So the MST adapters will not provide the desired result for macOS devices, the connected screens in this case only show a clone (copy) of your main screen on the connected screens also called SST (Single Stream Transport).

### USB-C summarized for you

- New standard for compact connector
- Supports transfer speed up to a maximum of 20 Gbps (40Gbps when used with Thunderbolt™ 3)
- Compatible with all other USB devices
- Faster charging by PD, with power supply in two directions
- Possibility to send video up to a 8K resolution through a USB cable
- Alternate Mode (DP Mode) for simultaneous image, audio and data
- Thunderbolt™ 3 for even faster data transfer
- USB 4 is the latest development using only USB-C connectors and USB 4 devices





## ACT USB 3.0 cable (USB 3.2 Gen1)



Colour	Description	0.5m	1m	1.5m	2m	3m	5m
Black	USB 3.2 Gen1 A male - A male Double shielded				SB3002	SB3003	SB3005
Black	USB 3.2 Gen1 A male - A male	SB3010	SB3011		SB3013	SB0001	SB0002
Black	USB 3.2 Gen1 A male - A female	SB3040	SB3041	SB3042	SB3043		
Black	USB 3.2 Gen1 A male - B male	SB3016	SB3017		SB3019	SB0003	SB0004
Black	USB 3.2 Gen1 A male - USB 3.0 micro B male	SB3028	SB3029		SB3031		

## ACT USB 2.0 cable



Colour	Description	0.5m	1m	1.8m	2m	3m	5m
Black	USB 2.0 A male - USB 2.0 A male, Zip-bag		AC3030	AC3032		AC3033	AC3045
Black	USB 2.0 A male - USB 2.0 A female, Zip-bag			AC3040		AC3043	
Black	USB 2.0 A male - USB 2.0 A female	SB2218		SB2220		SB2230	SB2250
Black	USB 2.0 A male - USB 2.0 A female (AWG20)					SB0036	
Yvory	USB 2.0 A male - USB 2.0 A female	SB2198	SB2199	SB2200		SB2203	SB2205
Yvory	USB 2.0 A male - USB 2.0 A male				SB2502	SB2503	
Black	USB 2.0 A male - USB 2.0 A male			SB2520		SB2530	SB2550
Black	USB 2.0 A male - USB 2.0 B male	SB2398	SB2401	SB2402		SB2403	SB2405
Black	USB 2.0 A male - USB 2.0 B male angled			SB2408			
Black	USB 2.0 A male - USB 2.0 mini B male			AC3050			
Black	USB 2.0 A male - USB 2.0 mini B male			SB2412		SB2413	SB2415
Black	USB 2.0 A male - USB 2.0 mini B male			SB2432			
Black	USB 2.0 A male - USB 2.0 micro B male	SB0005	SB0006		SB2498	SB0007	SB0008
Black	USB 2.0 micro B male - USB 3.0 micro B male				SB2602		
Black	USB 2.0 mini A male - USB 2.0 B male			SB2482			
Black	USB 2.0 mini A male - USB 2.0 mini B male			SB2452			

## ACT USB Extender over CAT cable



Colour	Description	Max. cable length 50m
Grey	USB A 1.1 male - USB A 1.1 female, RJ45 (x2)	AC6060
Black	USB A 2.0 male - USB A 2.0 female, RJ45 (x2)	AC6063

## ACT USB booster cable



Colour	Description	Bandwidth	Cascadable	5m	10m
Black	USB 2.0 A male - USB 2.0 A female	480Mbps	4x	AC6005	AC6010
Black	USB 3.2 Gen1 A male - USB 3.2 Gen1 A female	5Gbps	2x	AC6105	AC6110
Black	USB 3.2 Gen1 C male - USB 3.2 Gen1 C female	5Gbps	3x	AC7060	

## ACT USB 3.2 Gen1 booster cable



Colour	Description	5m	10m
Black	USB 3.2 A male - USB 3.2 A female, cascadable 2x	AC6105	AC6110
Black	USB 3.2 C male - USB 3.2 C female, cascadable 2x	AC7060	

## ACT USB adapters



Colour	Description	Type no.
Black	USB 2.0 A female - USB 2.0 mini B male	SB4040
Black	USB 3.2 Gen1 C male - USB A female adapter	SB0037

# Thunderbolt™2

## ACT Thunderbolt™2



Colour	Description	1m
Black	Thunderbolt™2 male - Thunderbolt™2 male	SB0010
Yvory	Thunderbolt™2 male - Thunderbolt™2 male	SB0009

## ACT USB-C cable



Colour	Description	USB 2.0	USB 3.2 Gen1	USB 3.2 Gen2	Length	Type no.
Black	USB 3.2 Gen2 connection cable C male - C male 1.00m (Thunderbolt™ 3)	X	X	✓	1m	SB0028

## ACT USB-C cable



Colour	Description	USB 2.0	USB 3.2 Gen1	USB 3.2 Gen2	Length	Type no.
Black	USB 3.2 Gen1 connection cable C male - C male 1.00 m	X	✓	X	1m	SB0011
Black	USB 3.2 Gen1 connection cable C male - C male 1.00 m	X	✓	X	1m	AC7345 Zip-bag
Black	USB 3.2 Gen1 connection cable C male - C male 2.00 m	X	✓	X	2m	SA7360 Zip-bag
Black	USB 2.0 connection cable C male - C male 1.00 m	✓	X	X	1m	AC3096
Black	USB 2.0 connection cable C male - A male 1.00 m in Zip-bag	✓	X	X	1m	AC7350 Zip-bag
Black	USB 2.0 connection cable C male - A male 1.00 m	✓	X	X	1m	SB0014
Black	USB 3.2 Gen1 connection cable C male - A male 1.00 m	X	✓	X	1m	AC7370 Zip-bag
Black	USB 3.2 Gen1 connection cable C male - A male 1.00 m	X	✓	X	1m	SB0012
Black	USB 3.2 Gen2 connection cable C male - C male 1.00m (Thunderbolt™ 3)	X	X	✓	1m	AC7365 Zip-bag
Black	USB 3.2 Gen2 connection cable C male - C male 1.00m (Thunderbolt™ 3)	X	X	✓	1m	SB0028
Black	USB 3.2 Gen1 connection cable C male - C male 2.00 m	X	✓	X	2m	SB0029

## ACT USB-C adapters, Zip-bag



Colour	Description	USB 2.0	USB 3.2 Gen1	USB 3.2 Gen2	Length	Type no.
Black	USB-C to USB-A female OTG adapter USB 3.2	X	✓	X	20 cm	AC7340
Black	USB-C to USB-A Adapter	X	✓	X	-	AC7355

## ACT USB-C video adapters



Colour	Description	1080@60Hz	4K@30Hz	4K@60Hz	MST	Type no.
Space grey	USB C male - VGA female	✓	X	X	X	AC7000
Black	USB C male - VGA female, Zip-bag	✓	X	X	X	AC7300
Space grey	USB C male - HDMI female	✓	✓	✓	X	AC7010
Space grey	USB C male - 2x HDMI male	✓	✓	✓	✓	AC7012
Black	USB-C to HDMI female adapter, 15cm - 4K @ 30Hz, Zip-bag	✓	✓			AC7305
Black	USB-C to HDMI female adapter, 15cm - 4K @ 60Hz, Zip-bag			✓		AC7310
Space grey	USB C male - DisplayPort female	✓	✓	✓	X	AC7030
Black	USB-C to DisplayPort female adapter, 15cm - 4K @ 60Hz, Zip-bag		✓	✓		AC7320
White	USB-C to DisplayPort female adapter, 15cm - 4K @ 60Hz		✓	✓		SB0020
White	USB C male - Mini DisplayPort female, 15cm - 4K @ 60Hz		✓	✓		SB0021
Black	USB C male - DVI male, 2m		✓			SB0033
Black	USB C male - VGA male, 2m	✓				SB0032

The USB C port must support DisplayPort alternate mode or Thunderbolt™ 3 and can be identified by the DP or Thunderbolt™ 3 logo near the USB C port (as e.g. a MacBook).

## ACT USB-C video adapter cable



Colour	Description	4K@60Hz	Length	Type no.
Space grey	USB C male - HDMI male	✓	1.8m	AC7015
Black	USB C male - HDMI male	✓	2.0m	SB0030
Black	USB-C to HDMI male adapter cable, 2m - 4K @ 60Hz, Zip-bag	✓	2.0m	AC7315
Space grey	USB C male - DisplayPort male	✓	1.8m	AC7035
Black	USB C male - DisplayPort male	✓	2.0m	SB0031
Black	USB-C to DisplayPort male adapter cable, 2m - 4K @ 60Hz, Zip-bag	✓	2.0m	AC7325

The USB C port must support DisplayPort alternate mode or Thunderbolt™ 3 and can be identified by the DP or Thunderbolt™ 3 logo near the USB C port (as e.g. a MacBook).



## ACT USB-C 3.2 Gen1 hubs, retail package



Colour	Description	USB-A	USB-C	PD	Ethernet	Card reader	Type no.
Space grey	USB-C Hub with card reader and PD Pass-Through	3	0	65W	X	✓	AC7050
Space grey	USB-C Hub with card reader	3	0	X	X	✓	AC7051
Space grey	USB-C Hub with card reader and PD Pass-Through	3	0	65W	X	✓	AC7052
Space grey	USB-C Hub with PD Pass-Through	4	0	65W	X	X	AC7053
Space grey	USB-C Hub with Gigabit ethernet port	3	0	X	✓	X	AC7055

## ACT USB-C 3.2 Gen2 hubs, retail package



Colour	Description	USB-A	USB-C	Type no.
Space grey	USB-C Hub with USB-C en USB-A	2	2	AC7070

## ACT USB-C male - 3.5mm audio jack female PD-passthrough, retail package



Colour	Description	Cable length	Type no.
Space grey	USB-C male - 3.5mm audio jack female PD-passthrough 65W	15cm	AC7005

## ACT USB-C Gigabit network adapter, retail package



Colour	Description	Cable length	Type no.
Space grey	USB-C Gigabit network adapter	15cm	AC7080

## ACT USB-C hub with HDMI, retail package



Colour	Description	USB-A	USB-C	4K@30Hz	Card reader	PD	Type no.
Space grey	USB-C to HDMI 4K@30Hz adapter with hub and card reader	2	1	✓	✓	60W	AC7021
Space grey	USB-C to HDMI 4K@30Hz adapter with USB-A port	1	0	✓	X	60W	AC7022
Space grey	USB-C to HDMI 4K@30Hz adapter with USB Hub and card reader	2	0	✓	✓	60W	AC7023
Space grey	USB-C to HDMI 4K@30Hz adapter with USB Hub	4	1	✓	X	85W	AC7024
Space grey	USB-C Thunderbolt™ 3 to HDMI 4K@30Hz adapter	2	2	✓	✓	100W	AC7025

The USB C port must support DisplayPort alternate mode or Thunderbolt™ 3 and can be identified by the DP or Thunderbolt™ 3 logo near the USB C port (as e.g. a MacBook).

## ACT USB-C multiport video adapters and laptop docking, retail package




Colour	Description	USB-A	USB-C	Card reader	PD	MST	Type no.
Space grey	USB-C Multiport video adapter	1	0	X	✓	X	AC7040
Space grey	USB-C Multiport video adapter with cardreader	2	0	✓	✓	X	AC7041
Space grey	USB-C Multiport video adapter	3	0	X	✓	X	AC7042
Space grey	USB-C Multiport video adapter with cardreader and 3.5mm audio jack	3	0	✓	✓	X	AC7043
Space grey	USB-C 4K Multiport docking station MST	3	1	✓	✓	✓	AC7046
Black	USB-C 4K Multiport Dock - 4K @ 30Hz, Zip-bag	1	0	X	X	X	AC7330

The USB C port must support DisplayPort alternate mode or Thunderbolt™ 3 and can be identified by the DP or Thunderbolt™ 3 logo near the USB C port (as e.g. a MacBook).



Turn your laptop into a complete workstation with just one USB-C cable? It's possible with the USB-C docking stations from ACT. The ACT Multiport Docks offer you the possibility to connect a 4K monitor. You can also connect various devices via a Gigabit Ethernet port, USB-A port and a USB-C pass-through charging port with Power Delivery support. Besides the docking stations with USB-C connection, ACT also offers docking stations with USB-A connection.

Type no.	AC7046
	
Description	USB-C Docking station 3 monitors HDMI, DisplayPort, with ethernet, USB hub, cardreader and audio
Input	USB-C male
Output	3.5 mm jack female (x1) DisplayPort female (x2) HDMI A female (x1) RJ45 female (x1) SD card slot (x1), Micro SD card slot (x1) USB A female (x3) USB C female (x1)
USB Standard	USB 3.2 Gen1 (SuperSpeed USB)
USB port specification	USB 3.2 Gen1 - SuperSpeed (USB 3.0) (x4)
Data transfer rate	5 Gbps
USB-C	
Power Delivery ports*	1
Max PD power	100 W
Supported PD profiles	12.0V 3.0A, 15.0V 3.0A, 20.0V 5.0A, 5.0V 3.0A, 9.0V 3.0A
Video signal	DisplayPort, HDMI
Video specification	HDMI Ultra Highspeed, DisplayPort 1.4
Resolution	4096 x 2160 @ 30Hz, 4096 x 2160 @ 60Hz
4K compatible	Yes
Cable length cm.	100
System requirements**	USB-C PD charger for PD charging, USB-C port with DisplayPort Alternate Mode (DP Alt Mode)**
Ethernet	1x Gigabit
Cardreader	Yes
Material enclosure	Aluminium
Extra	External power supply, MST support Dual and Triple display support, Micro SD card reader, SD card reader

MST => Multiple monitors with each monitor having its own view  
 A docking station offers the possibility of connecting several monitors.  
 MST is used for this purpose. In most cases, you connect one extra monitor via HDMI and a second and sometimes third extra monitor via DisplayPort. These extra monitors should all show a different view, so that you can work on Word on one screen and read your e-mail on another.








MST is not supported by Mac. To connect an additional monitor to your Macbook, use a video adapter with Thunderbolt™ 3 support or connect the AC7049 or AC6150 USB docking station with DisplayLink to your Macbook. Thanks to DisplayLink technology it is possible to connect multiple monitors via the USB port.

AC7049	AC6150
USB Dual Docking station with DisplayLink, 2x HDMI, 2x USB 3.2 Gen 1 (USB 3.0) , 4x USB 2.0, Ethernet and 2x 3.5mm	USB Dual Docking station with DisplayLink, HDMI, DVI, 2x USB 3.2 Gen 1 (USB 3.0) , 4x USB 2.0, Ethernet and 2x 3.5mm
USB-C/ USB-A male	USB-A male
HDMI female x2 USB-A 2.0 x4 USB-A 3.2 Gen1 x2 RJ45 x1 3.5mm jack x2	HDMI female x1 DVI x1 USB-A 2.0 x4 USB-A 3.2 Gen1 x2 RJ45 x1 3.5mm jack x2
USB 3.2 Gen1 (SuperSpeed USB)	USB 3.2 Gen1 (SuperSpeed USB)
USB 2.0 - HighSpeed (Enhanced) (x4) USB 3.2 Gen 1 - SuperSpeed (USB 3.0) (x2)	USB 2.0 - HighSpeed (Enhanced) (x4) USB 3.2 Gen 1 - SuperSpeed (USB 3.0) (x2)
5 Gbps (USB 3.2 Gen 1)	5 Gbps (USB 3.2 Gen 1)
Yes	No
-	-
-	-
HDMI	HDMI, DVI
HDMI Highspeed	HDMI Highspeed
2560 x 1440 @ 30Hz	2560 x 1440 @ 30Hz
No	No
100	100
DisplayLink	DisplayLink
1x Gigabit	1x Gigabit
No	No
ABS	ABS
USB-C and USB-C cable included	DVI to VGA adapter included

The ACT USB-C Multiport Adapters turn your laptop into a complete workstation by connecting just one flexible USB-C cable. USB-C allows video at 4K resolution or more to be transmitted through the USB cable, allowing it to also function as a monitor connection. One monitor with 4K resolution or several monitors with a lower resolution can be connected. This is done using the Display Alternate Mode (DP mode) technology. Make sure your laptop or PC supports this.

The Alternate Mode ensures that multiple signals are sent simultaneously via the USB-C cable. For example power, data, image and audio.

Type no.	AC7021	AC7022	AC7023	AC7024	AC7025
					
Description	USB-C to HDMI adapter with PD, 4K @ 60Hz, USB-A, USB-C, Card Reader	USB-C to HDMI adapter with PD, 4K @ 60Hz, USB-A	USB-C to HDMI multiport adapter 4K, USB hub, card reader, PD pass through	USB-C to HDMI multiport adapter 4K, USB hub, PD pass through	USB-C Thunderbolt™ 3 to HDMI multiport adapter 4K, USB hub, card reader and PD pass through
Input	USB C male	USB C male	USB C male	USB C male	USB C male (x2)
Output	HDMI A (full-size) female (x1) USB-C female (x1) USB-A female (x2) SD slot (x1), microSD slot (x1)	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x1) USB-A female (x2) SD slot (x1), microSD slot (x1)	HDMI A (full-size) female (x1) USB-A female (x4)	HDMI A (full-size) female (x1) USB-C female (x1) USB-A female (x2) SD slot (x1), microSD slot (x1)
Cable part length (cm)	12	12	13	13	-
Power Delivery ports*	1	1	1	1	1
Max. PD power	60 W	60 W	60 W	85 W	100 W
4K compatible	Yes	Yes	Yes	Yes	Yes
Max. resolution	4096 x 2160 @ 30 Hz 1920 x 1080 @ 60Hz	3840 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	3840 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	3840 x 2160 @ 30Hz 1920 x 1080 @ 60Hz
Video signal	HDMI	HDMI	HDMI	HDMI	HDMI
Video specifications	HDMI High Speed	HDMI High Speed	HDMI High Speed	HDMI High Speed	HDMI High Speed
Video support	HDCP	-	HDCP	-	Thunderbolt™ 3
USB compatibility	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 2 - SuperSpeed 10Gbit/s
Data transfer rate	5 Gbps	5 Gbps	5 Gbps	5 Gbps	10 Gbps
Ethernet	No	No	No	No	No
Card reader	Yes	No	Yes	No	Yes
System requirements**	DP Alt mode	DP Alt mode	DP Alt mode	DP Alt mode	MacBook with two Thunderbolt™ 3 ports
Material housing	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Extra	Foldable cable	-	-	-	-

\* USB-C pass through charging port with PD (Power Delivery) support. Max. 60W (for charging USB-C devices only)

\*\* The USB-C port of your laptop needs to support DisplayPort alternate mode (or Thunderbolt™3) which can be recognized by the DP logo near the USB-C port. (like MacBook)



AC7040	AC7041	AC7042	AC7043	AC7330	AC7044
USB-C to HDMI multiport adapter with ethernet, USB hub and cardreader	USB-C to HDMI multiport adapter with ethernet, USB hub, cardreader and PD pass through	USB-C to HDMI multiport adapter with ethernet and USB hub	USB-C to HDMI or VGA multiport adapter with ethernet, USB hub, card reader, audio and PD pass through	USB-C to HDMI/VGA adapter 4K with ethernet and hub	USB-C Thunderbolt™ 3 to Multiport Adapter 4K
USB-C male	USB-C male	USB-C male	USB-C male	USB C male	USB C male (x2)
HDMI female x1 USB-A female x1 USB-C female x1 RJ45 x1	HDMI female x1 USB-A female x2 USB-C female x1 RJ45 x1 SD + Micro SD slot	HDMI A female (x1) RJ45 female (x1) USB 3 A female (x3) USB C female (x1)	3,5 mm jack female (x1), HDMI A (full-size) female (x1), Micro SD card slot (x1), RJ45 female (x1), SD card slot (x1), USB A female (x3), USB C female (x1), VGA HD D-sub 15-pin female (x1)	HDMI A (full-size) female (x1) VGA, RJ45, USB	HDMI A (full-size) female (x1) USB-C female (x2) USB-A female (x1) SD slot (x1) microSD slot (x1) RJ45 (x1)
15	15	12	12	15	-
1	1	1	1	No	1
60 W	60 W	60 W	60 W	-	100 W
Yes	Yes	Yes	Yes	Yes	Yes
4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz
HDMI	HDMI	HDMI	HDMI, VGA	HDMI, VGA	HDMI
HDMI High Speed	HDMI High Speed	HDMI High Speed	HDMI High Speed, VGA	HDMI High Speed, VGA	HDMI High Speed
HDCP 2.2	HDCP 2.2	HDCP 2.2	-	-	Thunderbolt™ 3
USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 2 - SuperSpeed 10Gbit/s
5 Gbps	5 Gbps	5 Gbps	5 Gbps	5 Gbps	10 Gbps
1x Gigabit	1x Gigabit	1x Gigabit	1x Gigabit	1x Gigabit	1x Gigabit
No	Yes	-	Yes	No	Yes
DP Alt mode**	DP Alt mode**	DP Alt mode**	DP Alt mode**	DP Alt mode**	MacBook Pro 016/2017/2018/2019 with two free USB C ports
Aluminium	Aluminium	Aluminium	Aluminium	Plastic	Aluminium
-	-	Foldable cable	Foldable cable	-	-



With USB-C, it is possible to transmit video at 4K resolution or more through the USB cable, allowing it to also function as a monitor connection. One monitor with 4K resolution or several monitors with a lower resolution can be connected. This is done using the Display Alternate Mode (DP mode) technology. Check whether your laptop or PC supports this. The Alternate Mode ensures that multiple signals are sent simultaneously via the USB-C cable. For example, power, data, image and audio.

### USB-C and MST

Within USB-C it is possible that the DP-alt mode (DisplayPort alternate mode) is supported by the laptop/PC. If this is the case, it will also support MST, and you can use a USB-C to MST adapter. This adapter has multiple video outputs that you can use to connect multiple monitors (even if they do not support MST) in a MST (daisy-chain). Now the connected displays can be recognised as separate displays on a laptop/PC and used as an extended desktop.

### MST on macOS

**ATTENTION:** macOS does not support MST daisy-chaining. So the MST adapters will not provide the desired result for macOS devices. In this case, the connected screens only show a clone (copy) of the main screen on the connected screens also called SST (Single Stream Transport).

Type no.	AC7000	AC7010	AC7012
			
Description	USB-C to VGA adapter	USB-C to HDMI adapter, 4K @ 60Hz	USB-C to HDMI Dual monitor MST adapter, 4K @ 60Hz ***
Input	USB C male	USB C male	USB C male
Output	VGA HD D-sub female 15-pin female (x1)	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x2)
Cable part length (cm)	12	15	12
4K compatible	No	Yes	Yes
Max. resolution	1920 x 1080 @ 60Hz	4096 x 2160 @ 60Hz	4096 x 2160 @ 60Hz
Video signal	VGA	HDMI	HDMI
Video specifications	VGA	HDMI High Speed	HDMI High Speed
Video support	-	HDCP	HDCP
USB compatibility	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
Data transfer rate	5 Gbps	5 Gbps	5 Gbps
Chipset	VL100+IT6516BFN	VL100+PS176	VL100+LT8712EXI
System requirements**	DP Alt mode	DP Alt mode	DP Alt mode
Material housing	Space grey	Aluminium	Aluminium

\* USB-C pass through charging port with PD (Power Delivery) support. Max. 60W (for charging USB-C devices only)

\*\* The USB-C port of your laptop needs to support DisplayPort alternate mode or Thunderbolt™ 3 which can be recognized by the DP logo near the USB-C port. (like MacBook)


\*\*\* AC7012 This video adapter can't be use on a MacBook©



Mirror your content



Extend your content

AC7015	AC7030	AC7035
		
USB-C to HDMI connection cable 1.8m, 4K @ 60Hz	USB-C to DisplayPort adapter, 4K @ 60Hz	USB-C to DisplayPort connection cable 1.8m, 4K @ 60Hz
USB C male	USB C male	USB C male
HDMI A (full-size) male (x1)	DisplayPort female (x1)	DisplayPort male (x1)
180	15	180
Yes	Yes	Yes
4096 x 2160 @ 60Hz	4096 x 2160 @ 60Hz	4096 x 2160 @ 60Hz
HDMI	DisplayPort	DisplayPort
HDMI High Speed	DisplayPort 1.2	DisplayPort 1.2
HDCP	-	-
USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
5 Gbps	5 Gbps	5 Gbps
VL100+PS176	VL100	VL100+IT6516BFN
DP Alt mode	DP Alt mode	DP Alt mode
Aluminium	Aluminium	Aluminium

# USB-C Video adapters



With Type-C it's possible to send video with a 4K resolution or higher through the USB cable (Type-C can function as a display connection).

You can connect one monitor with 4K resolution or multiple monitors with a lower resolution with our USB-C video adapters (your laptop or PC need to support Alternate Mode technology).

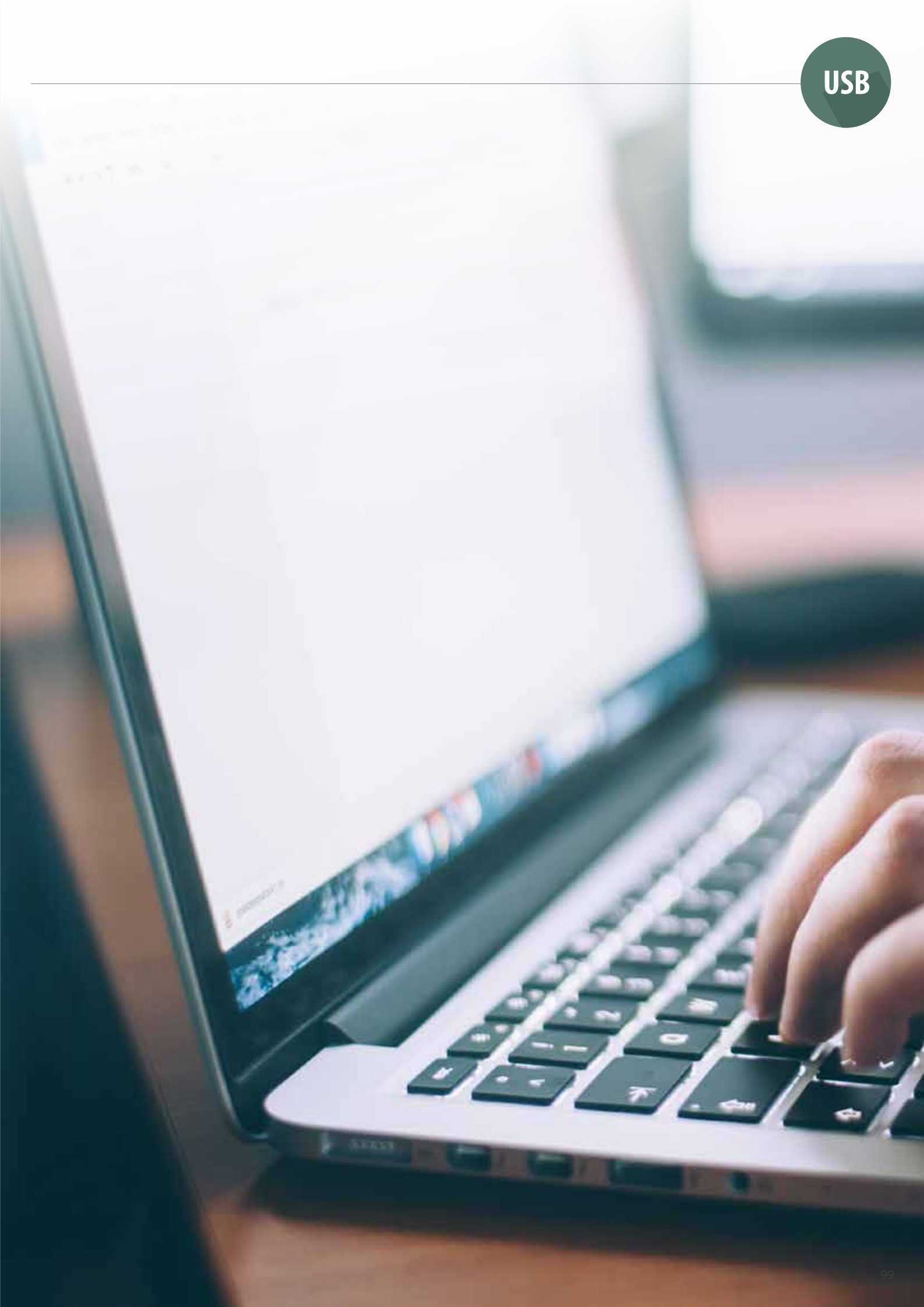
The Alternate Mode ensures that multiple signals are sent simultaneously via the USB-C cable. For example, power, data, image and audio.

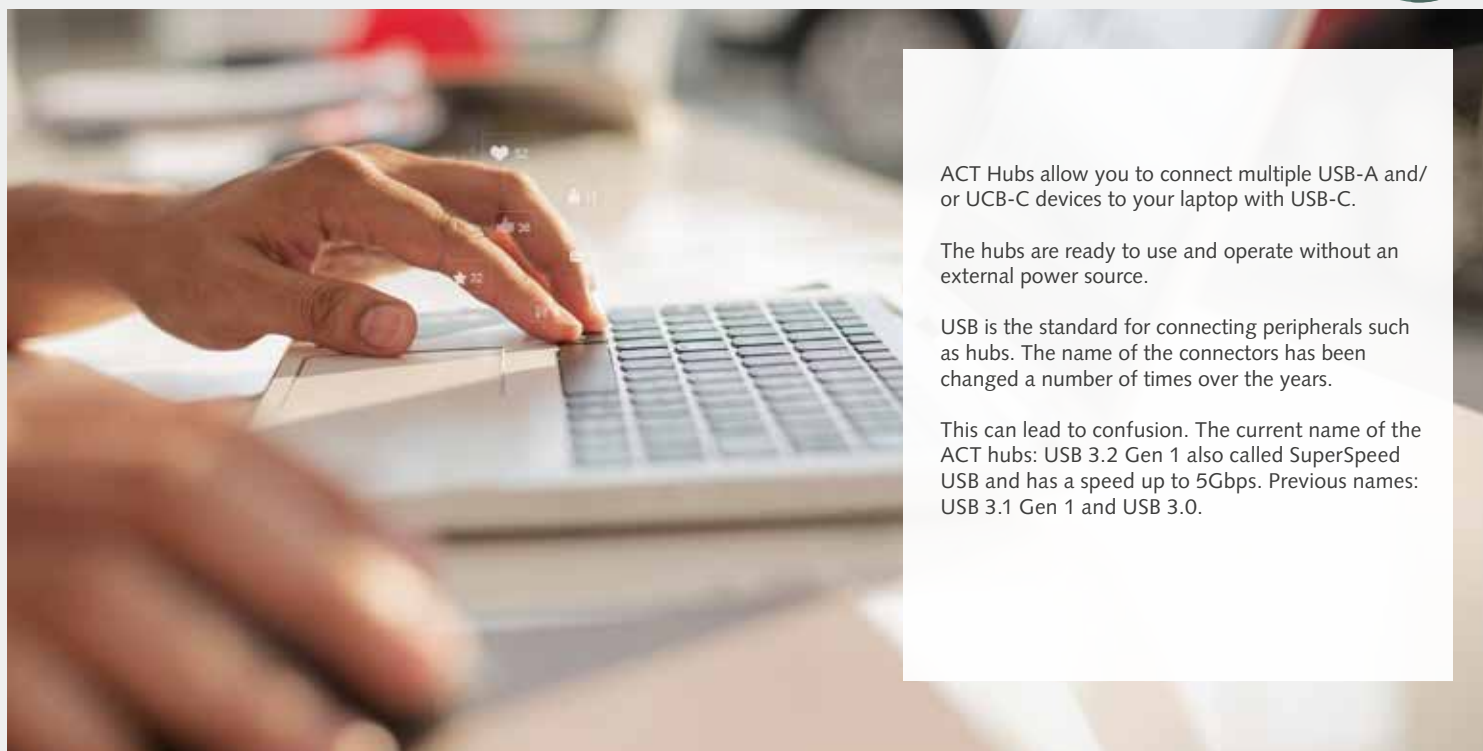


Type no.	AC7305	AC7310	AC7315	AC7320	AC7325
Description	USB-C to 4K HDMI Adapter 4K @ 30Hz	USB-C to 4K HDMI Adapter 4K @ 60Hz	USB-C to HDMI cable 2.0 meter	USB-C to DisplayPort Adapter 4K @ 60Hz	USB-C to DisplayPort Adapter cable 2.0 meter
Input	USB C male	USB C male	USB C male	USB C male	USB C male
Output	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x1)	HDMI A (full-size) female (x1)	DisplayPort female (x1)	DisplayPort male (x1)
Cable part length (cm)	15	15	200	15	200
4K compatible	Yes	Yes	Yes	Yes	Yes
Max. resolution	4096 x 2160 @ 30Hz 1920 x 1080 @ 60Hz	4096 x 2160 @ 60Hz	4096 x 2160 @ 30/60Hz	4096 x 2160 @ 30/60Hz	4096 x 2160 @ 30/60Hz
Video signal	HDMI	HDMI	HDMI	DisplayPort	DisplayPort
Video specifications	HDMI High Speed	HDMI High Speed	HDMI High Speed	DisplayPort 1.2	DisplayPort 1.2
Video support	HDCP	HDCP	HDCP	HDCP	-
USB compatibility	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
Data transfer rate	5 Gbps	5 Gbps	5 Gbps	5 Gbps	5 Gbps
Chipset	RTD2171	RTD2171	RTD2172U	FL7102	WGE19FN
System requirements**	DP Alt mode	DP Alt mode	DP Alt mode	DP Alt mode	DP Alt mode
Material housing	Plastic	Plastic	Plastic	Plastic	Plastic

\* USB-C pass through charging port with PD (Power Delivery) support. Max. 60W (for charging USB-C devices only)

\*\* The USB-C port of your laptop needs to support DisplayPort alternate mode or Thunderbolt™ 3 which can be recognized by the DP logo near the USB-C port. (like MacBook)





ACT Hubs allow you to connect multiple USB-A and/or UCB-C devices to your laptop with USB-C.

The hubs are ready to use and operate without an external power source.

USB is the standard for connecting peripherals such as hubs. The name of the connectors has been changed a number of times over the years.

This can lead to confusion. The current name of the ACT hubs: USB 3.2 Gen 1 also called SuperSpeed USB and has a speed up to 5Gbps. Previous names: USB 3.1 Gen 1 and USB 3.0.

Type no.	AC6405	AC6410	AC6415	AC7050	AC7051
Description	USB-C Hub 3 port with Card Reader	4 Port-C Hub with power supply	4 Port-C Hub	USB-C Hub 3 port with card reader, PD Pass-Through	USB-C Hub 3 port with card reader
Input	USB-C male	USB-C male	USB-C male	USB-C male	USB-C male
Output	USB-A female x3 SD + Micro SD slot	USB-A female x4	USB-A female x4	USB-A female x3 USB-C female (PD pass-through only) SD + Micro SD slot	USB-A female x3 SD + Micro SD slot
USB Standard	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
Data transfer rate	5 Gbps	5 Gbps	5 Gbps	5 Gbps	5 Gbps
Type-C	Yes	Yes	Yes	Yes	Yes
Cable part length (cm)	12	50	30	15	15
PD Pass-through port*	No	No	No	Yes (60W)	No
Ethernet	-	-	-	-	-
Card reader	Yes	No	No	Yes	Yes
Material housing	Plastic	Plastic	Plastic	Aluminium	Aluminium
Extra	-	External power supply	-	-	-

\* Power delivery Pass-Through port, max. 60W, for charging your connected USB-C device







AC7051

AC7052	AC7053	AC7055	AC7070	AC6400	AC6120
					
USB-C Hub 3x USB-A, card reader, PD pass through	USB-C Hub 4x USB-A, PD pass through	USB-C Hub with Gigabit ethernet port	USB-C Hub with USB-C & USB-A	3 Port-Hub with Gigabit LAN port	USB-A hub
USB-C male	USB-C male	USB-C male	USB-C male	USB-C male	USB-A male
Micro SD slot (x1) SD slot (x1) USB-A female (x3) USB-C female (PD pass-through only)	USB-A female (x4) USB-C female (PD pass-through only)	USB-A female x3 RJ45 x1	USB-A female x2 USB-C female x2 (data only)	USB-A female x3	USB-A female x4
USB 3.2 Gen1 (SuperSpeed USB)	USB 3.2 Gen1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 2 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
5 Gbps	5 Gbps	5 Gbps	10 Gbps	5 Gbps	5 Gbps
Yes	Yes	Yes	Yes	Yes	No
13	12	15	15	15	50
Yes (60W)	Yes(60W)	No	No	No	No
-	-	1x Gigabit	-	-	-
Yes	No	No	No	No	No
Aluminium	Aluminium	Aluminium	Aluminium	Plastic	Aluminium
Foldable cable	-	-	-	1x Gigabit LAN	-

Transfer your files and photos quickly with the ACT USB card readers. Thanks to the compact design, you can easily take the card reader with you.

Get transfer speeds up to 5Gbit/s with the SuperSpeed USB 3.1 Gen1 (USB 3.0).



Type no.	AC6300	AC6310	AC6215	AC6200 AC6205
				
Description	4 Port-Hub	3 Port-Hub with Gigabit LAN port	7-Port Hub	4-Port Hub
Input	USB-A male	USB-A male	USB-A male	USB-A male
Output	USB-A female x4	USB-A female x3	USB-A female x7	USB-A female x4
USB Standard	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 2.0	USB 2.0
Data transfer rate	5 Gbps	5 Gbps	480 Mbps	480 Mbps
Type-C	No	No	No	No
Cable part length (cm)	50	15	65	12
PD Pass-through port*	No	No	No	No
Ethernet	-	-	-	-
Card reader	No	No	No	No
Material housing	Plastic	Plastic	Plastic	Plastic
Extra	Led-lighting	1x Gigabit LAN	With on/off switch	AC6200: White AC6205: Black

## Smartcard ID readers

Do you need a card reader for your eID or Smart Card? The compact ACT Smart Card Readers allow you to read your eID or Smart Card easily and safely anywhere! The Smart Card Readers are easy to install and to use.

### Support all common Smart Cards

Designed to meet all major Smart Card standards and specifications in ID-1 card format, including personal identification cards. The Card Readers are convenient for e-Commerce, e-Business, digital signatures, authentication and access protection. The card readers are CAC approved and compliant with PC/SC as well as WHQL.

### No additional power needed

You do not need additional power adapters or extra cables. The card reader is bus powered, just plug in the 1m USB cable to your computer and use it instantly.

- Read your EID or Smart Card anywhere
- Compatible with Belgium eID cards
- Supports ISO 7816, T=0 or T=1 protocols
- Complies with PC/SC 1.0/2.0, EMV 4.1 and WHQL
- Suitable for Windows and Macintosh






Type no.	AC6370	AC6025	AC6015 AC6020
Description	Card Reader	Card Reader	Smartcard reader
Input	USB-A/USB-C	USB-A male	AC6015: USB-A AC6020: USB-C
USB Standard	USB 3.2 Gen1 (SuperSpeed USB)	USB 2.0	USB 2.0 - HighSpeed (Enhanced)
Data transfer rate	5 Gbps	480 Mbps	480 Mbps
Type-C	Yes	No	AC6015: No AC6020: Yes
Cable part length (cm)	-	-	100 cm
PD Pass-through port*	-	-	No
Material housing	Plastic	Plastic	Plastic
Extra	Supports the most common used memory cards	Supports the most common used memory cards	Reads your EID or Smart Card anywhere Compatible with Belgium eID cards





The ACT **AC7080** and **AC7335** USB-C to RJ45 Gigabit Ethernet adapters are the solution when the network port of your device (e.g. a notebook) is broken or your device has no network port at all. Upgrade your notebook with a physical Gigabit network connection. The ethernet adapter is a plug and play device and it can be used on every USB-C port.

The **AC7005** 3.5mm Audio Adapter lets you connect your 3.5mm headset to your laptop/tablet/smartphone with USB-C.

Type no.	AC7080	AC7335	AC7005	AC6000 EM1016	AC6030
					
Description	USB-C Gigabit network adapter	USB-C Gigabit network adapter	Audio adapter USB-C to 3.5mm jack	USB to Serial converter	Micro USB Bluetooth Receiver Class 1 v4.0
Input	USB-C male	USB-C male	USB-C male	USB-A male	USB-A male
Output	RJ45	RJ45	3.5 mm jack	D-sub 9-pin male	-
USB Standard	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	-	AC6000: USB 1.1 EM1016: USB 2.0	
Data transfer rate	5 Gbps	5 Gbps	-	250Kbps	
Type-C	Yes	Yes	Yes	No	No
Cable part length	15 cm	15 cm	15 cm	AC6000: 1.5 m EM1016: 0.6 M	-
Ethernet	1x Gigabit	1x Gigabit	-	-	-
Card reader	No	No	No	No	No
Material housing	Aluminium	Plastic	Aluminium	Plastic	Plastic
Extra	-	-	Power Delivery Pass-Through-port 65W Built-in DAC 16/24-bit High res audio up to 24-bit/96Hz	Connect a serial device to your USB port	Data transfer speed up to 3 Mbps Max. range 10 m



Is your USB cable too short? Extend the USB signal over a distance of 5 or 10 meters with the ACT Signal Booster Cables.

With the active USB Extender sets over UTP you easily extend your USB equipment over a distance of 60 (AC6060) or 50 (AC6063) meters. These extender sets include a transmitter and receiver.

The AC6060 has a compact design and is equipped with a DC jack for connecting an optional power adapter. The AC6063 comes with an external supply.

Type no.	AC7060	AC6005 AC6010	AC6105 AC6110	AC6060	AC6063
					
Description	USB-C Booster (USB 3.2 Gen 1)	USB-A Booster (USB 2.0)	USB-A Booster (USB 3.2 Gen 1)	USB Extender set over UTP up to 60 meter	USB Extender set over UTP, up to 50 meter
Input	USB-C male	USB-A male	USB-A male	USB A male (x1) RJ45 (x1)	USB A male (x1) RJ45 (x1)
Output	USB-C female	USB-A female	USB-A female	USB A female (x1) RJ45 (x1)	USB A female (x1) RJ45 (x1)
USB Standard	USB 3.2 Gen 1 - SuperSpeed (USB 3.0)	USB 2.0	USB 3.2 Gen 1 - SuperSpeed (USB 3.0)	USB 1.1	USB 2.0
Data transfer rate	5 Gbps	480 Mbps	5 Gbps	12 Mbps	480 Mbps
Type-C	Yes	No	No	No	No
Cable part length	5 meter	5 meter: AC6005 10 meter: AC6010	5 meter: AC6105 10 meter: AC6110	30 cm	14 cm
Material housing	Aluminium	Plastic	Plastic	Plastic	Plastic
Extra	Possibility to cascade the USB Signal Booster up to 3 times (max. 15m)	Possibility to cascade the USB Signal Booster up to 2 times	Possibility to cascade the USB Signal Booster up to 2 times	1x DC jack for connecting an optional power supply Extend the USB connection via UTP cable with a max. of 60 meters	External power supply included Extend the USB connection via UTP cable with a max. of 50 meters

## Choose cable management to:

1. Organise and guide bundled cables
2. Separate cables per application
3. Identify individual ports

## Tips cable management:

Below we will explain how these three goals can be reached and we will give you tips how to apply this in real life business applications. Cabling is a broad term, in this article we focused on network cabling (like UTP cables and CAT5E/CAT6/CAT6A/CAT8 cables) fiber optic cables and power cords.



## Separate cables per application

Within a network you will find cables suitable for different applications. In a data network this can be telephony, data and backup cabling. In the power supply different cabling is used for the main data source and the backup supply which typically come from the UPS.

To make a clear distinction between these applications it's best to use coloured cabling. By using coloured cables it is possible to distinguish different applications at once.

## Identify individual ports

In a data network you want to know which port of the switch is connected to which desk. This can be achieved by labeling individual cables and record what cable is used by what connection. Most common is usage of alphanumeric series with the same label on both sides.

## There are different solutions for this:

### A) Pre-printed labels

Labels with a pre-printed text are easy in use. We offer an assortment with pre-printed labels with letters, numbers and colour. Click here for our assortment.

### B) Order cables including labels

ACT you can have your cables labeled. This is possible for nearly all of our cabling like network cables (CAT5E/CAT6/CAT6A/CAT8), fiber optic cables, power cords etc. Advantages of labeled cables: No investment in printers or other equipment Freedom to specify what should be labeled and which place on the cable. Saving on labour time and costs because the cables are already labeled.

### C) Print and attach your own labels

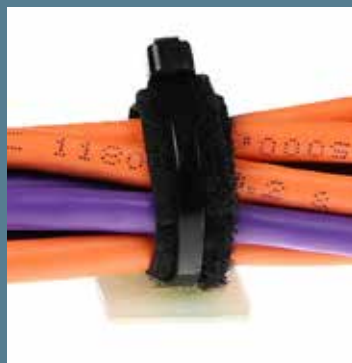
For printing your own labeling we offer a professional printer of Phoenix.

## Organise and guide cables in bundles

Network cables and fiber cables from a switch or server are often bundled before bridging a distance of a few meters. This could be in a network cabinet or server room within an office network or datacenter. Cables in a server cabinet or networking cabinet are bundled by cable management panels and cable ties (also called zip tie and zap strap).

## Cable management panel

In a 19" cabinet, it is wise that every third panel consist a cable management panel/shunting panel. In this way you will create optimum cable management. Velcro and cable ties, combined with tie wrap, can be used for vertical guidance.



## ACT Cable tie transparent

Colour	Description	Packaging	Width	Length	Type no.
Transparent	Cable tie	Bag 100 pieces	2.5 mm	100 mm	CT1010
Transparent	Cable tie	Bag 100 pieces	3.6 mm	150 mm	CT1030
Transparent	Cable tie	Bag 100 pieces	3.6 mm	203 mm	CT1040
Transparent	Cable tie	Bag 100 pieces	4.6 mm	203 mm	CT1050
Transparent	Cable tie	Bag 100 pieces	4.8 mm	280 mm	CT1060
Transparent	Cable tie	Bag 100 pieces	4.8 mm	385 mm	CT1070
Transparent	Cable tie	Bag 100 pieces	7.6 mm	38 mm	CT1080

## ACT Cable tie black

Colour	Description	Packaging	Width	Length	Type no.
Black	Cable tie	Bag 100 pieces	2.5 mm	100 mm	CT1015
Black	Cable tie	Bag 100 pieces	3.6 mm	150 mm	CT1035
Black	Cable tie	Bag 100 pieces	3.6 mm	203 mm	CT1045
Black	Cable tie	Bag 100 pieces	4.6 mm	203 mm	CT1055
Black	Cable tie	Bag 100 pieces	4.8 mm	385 mm	CT1075
Black	Cable tie	Bag 100 pieces	8 mm	450 mm	CT1090

## ACT Cable tie with label, transparent

Colour	Description	Packaging	Width	Length	Type no.
Transparent	Cable tie with label	Bag 100 pieces	2.5 mm	100 mm	CT1300
Transparent	Cable tie with label	Bag 100 pieces	2.5 mm	200 mm	CT1310

## ACT Cable tie cable mount adhesive, transparent

Colour	Description	Packaging	Width	Length	Type no.
Transparent	Cable tie mount adhesive	Bag 100 pieces	4.6 mm	-	CT1260
Transparent	Cable tie mount adhesive	Bag 100 pieces	5.5 mm	-	CT1270

## ACT Cable tie mount screw, transparent

Colour	Description	Packaging	Size	Type no.
Transparent	Cable tie mount screw	Bag 100 pieces	16x23x9 mm	CT1200

## ACT Cable tie gun

Colour	Description	Packaging	Size	Type no.
Transparent	Cable tie gun, Economy	Bag 100 pieces	For cables of 2.5 - 5.0 mm	CT3000
Transparent	Cable tie gun, Professional	Bag 100 pieces	For cables of 2.5 - 5.0 mm	CT3010

## ACT Cable tie

Colour	Description	Packaging	Width	Length	Type no.
Black	Cable tie	Bag 20 pieces	12 mm	125 mm	CT4003
Black	Cable tie	Bag 20 pieces	12 mm	150 mm	CT4004
Black	Cable tie	Bag 20 pieces	12 mm	180 mm	CT4005
Black	Cable tie	Bag 20 pieces	16 mm	210 mm	CT4006
Black	Cable tie	Bag 20 pieces	16 mm	240 mm	CT4007
Black	Cable tie	Bag 20 pieces	16 mm	310 mm	CT4008

## ACT Cable management panels



Colour	Description	Type no.
Black	Cable pass-through with brush 1U	FA2070
Black	Cable pass-through with brush 1U, including management bar	FA2071
Black	DUCT Cable management panel with cover 1U	FA2072
Black	DUCT Cable management panel with cover 2U	FA2073
Black	Cable management panel 5 plastic rings 1U	FA2074
Black	Cable management panel 5 metal rings 1U	FA2075
Black	Shunting eye horizontal / vertical 1U	FA2076
Black	Cable pass-through with brush and 5 plastic rings 1U	FA2077

## ACT Cable tie on reel



Colour	Description	Packaging	Width	Length	Type no.
Black	Cable tie	Reel 10 meter	15 mm	10 m	CT4009
Black	Cable tie	Reel 10 meter	20 mm	10 m	CT4010
Black	Cable tie	Reel 25 meter	12 mm (extra strong)	25 m	CT4041
Black	Cable tie	Reel 25 meter	20 mm (extra strong)	25 m	CT4043
Black	Cable tie	Reel 25 meter	10 mm	25 m	KL10
Black	Cable tie	Reel 25 meter	12 mm	25 m	KL12
Black	Cable tie	Reel 25 meter	16 mm	25 m	KL16
Black	Cable tie	Reel 25 meter	20 mm	25 m	KL20
Black	Cable tie	Reel 25 meter	25 mm	25 m	KL25

## ACT Knot cable tie, transparent



Colour	Description	Packaging	Size	Type no.
Transparent	Knot cable tie	bag 100 pieces	150 mm	CT4013

## ACT Twist cable tie, transparent



Colour	Description	Packaging	Diameter	Type no.
Transparent	Twist cable tie	bag 100 pieces	11 mm	CT4014
Transparent	Twist cable tie	bag 100 pieces	22 mm	CT4015
Transparent	Twist cable tie	bag 100 pieces	28 mm	CT4016

## ACT Spiral cord on reel, black



Colour	Description	Width	Length	Type no.
Black	Spiral cord	15 mm	50 m	CT4029
Black	Spiral cord	20 mm	30 m	CT4030
Black	Spiral cord	25 mm	20 m	CT4031

## ACT Tool for spiral cord



Colour	Description	Width	Type no.
Orange	Tool for spiral cord	15 mm	CT4032
Orange	Tool for spiral cord	20 mm	CT4033
Orange	Tool for spiral cord	25 mm	CT4034

## ACT Markers



Colour	Description	Description	Width	Length	Type no.
Colour	Cable markers	Set of 10x10 cable markers (number 0 to 9)			FA1500
Colour	Cable markers 0~9	One set of 0~9	5.6 mm	33 mm	CT4011
Colour	Cable markers self-adhesive A~Z,/,+,-,0~15	Cable markers self-adhesive A~Z,/,+,-,0~15	5.6 mm	33 mm	CT4012



# ACT cables and accessories in Zip-bag

## Zip-bag

ACT offers a selection of the high runners in Zip-bag. The ACT items in Zip-bags are designed for an easy sell in your shop, showroom or online. Integrate the Zip-bag items into your store concept for an easy choice by your customers.

The products are always visible and the packaging can be opened and closed. Use the integrated euro lock in the Zip-bag to create an attractive store presentation.



## ACT USB-C accessories in Zip-bag

Colour	Description	Length	Type no.
Black	USB-C to VGA female adapter, 15cm	0.15 m	AC7300
Black	USB-C to HDMI female adapter, 15cm - 4K @ 30Hz	0.15 m	AC7305
Black	USB-C to HDMI female adapter, 15cm - 4K @ 60Hz	0.15 m	AC7310
Black	USB-C to HDMI male adapter cable, 2m - 4K @ 60Hz	2.00 m	AC7315
Black	USB-C to DisplayPort female adapter, 15cm - 4K @ 60Hz	0.15 m	AC7320
Black	USB-C to DisplayPort male adapter cable, 2m - 4K @ 60Hz	2.00 m	AC7325
Black	USB-C 4K Multiport Dock - 4K @ 30Hz	0.15 m	AC7330
Black	USB-C Gigabit network adapter	0.15 m	AC7335
Black	USB-C to USB-A female OTG adapter, 20cm	0.20 m	AC7340
Black	USB-C to USB-A male Connection Cable, 1m	1.00 m	AC7350
Black	USB-C to USB-A Adapter	-	AC7355
Black	USB-C to USB-C Connection Cable, 2m	2.00 m	AC7360
Black	USB-C to USB-C male Connection Cable, 1m, Thunderbolt™ 3, USB 3.2 Gen2	1.00 m	AC7365
Black	USB-A to USB-C male Connection Cable, 1m, USB 3.2	1.00 m	AC7370

## ACT Video adapters in Zip-bag

Colour	Description	Length	Type no.
Black	DisplayPort male to DVI male cable, 1.8m - 1080p @60Hz	1.80 m	AC7505
Black	DisplayPort male to DVI female adapter, 15cm - 1080p @60Hz	0.15 m	AC7510
Black	DisplayPort male to VGA female adapter, 15cm - 1080p @60Hz	0.15 m	AC7515
Black	Adapter cable Mini DisplayPort male to HDMI female	0.15 m	AC7525
Black	Adapter VGA male to HDMI female with audio	0.34 m	AC7545
Black	DisplayPort to HDMI Adapter cable, 1.8m - 4K@30Hz	1.80 m	AC7550
Black	DisplayPort male to HDMI female adapter, 15cm - 4K@30Hz	0.15 m	AC7555
Black	DVI-D to HDMI-A female adapter - 1080p @60Hz	-	AC7565

## ACT DisplayPort cables in Zip-bag

Colour	Description	Length	Type no.
Black	DisplayPort cable	1.00 m	AC3900
Black	DisplayPort cable	2.00 m	AC3902
Black	DisplayPort 1.4 Connection Cable 8K, 2.0 Meter	1.00 m	AC3910

**ACT** Audio cables in Zip-bag

Colour	Description	Length	Type no.
Black	Audio Connection Cable 3.5mm to 2x RCA, 1.5m	1.5 m	AC3605
Black	3.5mm Audio Connection Cable, 1.5m	1.5 m	AC3610
Black	3.5mm Audio Connection Cable, 5m	5 m	AC3612
Black	SPDIF Optical audio cable TOSlink male / TOSlink male 1.2 Meter Black	1.2 m	AC3690

**ACT** Data cables in Zip-bag

Colour	Description	Length	Type no.
Black	USB 2.0 Connection Cable	1 m	AC3030
Black	USB 2.0 Extension Cable	1.8 m	AC3040
Black	USB 2.0 Connection Cable	5 m	AC3045

**ACT** Networking Cables CAT6 U/UTP in Zip-bag

Colour	Description	Length	Type no.
Black	CAT6 Networking Cable copper 0.9 Meter Black	0.9 m	AC4000
Black	CAT6 Networking Cable copper 2 Meter Black	2 m	AC4002
Black	CAT6 Networking Cable copper 5 Meter Black	5 m	AC4005
Black	CAT6 Networking Cable copper 10 Meter Black	10 m	AC4010

**ACT** Networking accessories in Zip-bag

Description	package	Type no.
Modular Connector RJ45, Round Stranded	10 pcs	AC4110
Modular CAT6 Connector RJ45, Round Stranded or Round Solid	10 pcs	AC4115

**ACT** Power cables in Zip-bag

Colour	Description	Length	Type no.
Black	Power Cord Connection Cable C7, 1.5m	1.5 m	AC3300
Black	Power Connection Cable C5, 2m	2 m	AC3310
Black	Power Extension Cable C13 - C14, 1.8m	1.8 m	AC3315
Black	Power CEE 7/7 male (angled) - C13	2 m	AC3305

**ACT** Smartphone cables

Colour	Description	Length	Type no.
Black	Micro USB Cable - Sync & Charge, Zip-bag	1 m	AC3000
Black	USB-A to USB-C Cable - Sync & Charge, Zip-bag	1 m	AC3020
White	USB Lightning cable for Apple, giftbox	1 m	AC3011
White	USB Lightning cable for Apple, giftbox	2 m	AC3012
White	USB Lightning cable for Apple, Zip-bag	1 m	AC3014
White	USB Lightning cable for Apple, Zip-bag	2 m	AC3015
Black	Apple Lightning USB cable 1.0m with MFI official Apple license for Jar display	1 m	AC3092
Black	USB-C to USB-A cable 1.0m for Jar display	1 m	AC3094

**ACT** Various in Zip-bag

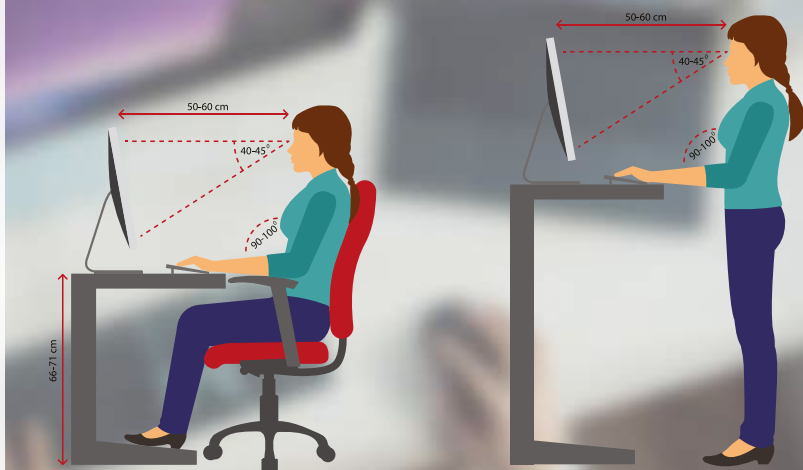
Colour	Description	Length	Type no.
Black	HDMI High Speed Cable, 2.5m 4K @60Hz, Zip-bag	2.5 m	AC3800
Black	USB 2.0 - serial	0.6 m	EM1016



Create an ergonomic and space-saving work environment by using the ACT Desk Mounts. Place your monitor to your ideal height and viewing angle for a better posture and thus avoid back, neck and shoulder complaints.

The ACT desk mounts are easy attachable to your desk with the enclosed clamp or grommet mount. The desk mounts can easily be adjusted in height and depth without tools. Tilt, swivel and rotate the screens to create an ideal ergonomic work environment. All cables are kept out of sight thanks to the cable management system.





The AC8311 and AC8312 desk mounts are equipped with a convenient gas spring system to adjust your monitor to your ideal height and viewing angle with just one hand. Ideal for flexible workspaces! Furthermore, they have integrated extension ports for USB 3.2 Gen1 (USB 3.0), microphone and speaker jack.



Type no.	AC8301	AC8302	AC8303	AC8304
Description	Desk Mount for 1 screen	Desk Mount for 2 screens	Desk Mount for 3 screens	Desk Mount for 4 screens
Type of mount	Desk mount	Desk mount	Desk mount	Desk mount
Number of screens	1	2	3	4
Screen size min./max.	10-32 inch	10-32 inch	10-27 inch	10-32 inch
Mounting	Desk clamp and grommet mount			
Max. weight	8 kg	8 kg	7 kg	8 kg
Pivot points	3	3	3	3
Tilt	180 °	180 °	180 °	180 °
Rotation	360 °	360 °	360 °	360 °
Swivel	360 °	360 °	360 °	360 °
Adjustable height cm	0 - 45	0 - 45	0 - 45	0 - 88
Adjustable depth cm	10 - 44	10 - 44	15 - 66	10 - 40
VESA min./max.	75x75 100x100	75x75 100x100	75x75 100x100	75x75 100x100
Extra	-	-	-	-



AC8320

AC8315	AC8311	AC8312	AC8320
			
Desk Mount for 2 screens - crossbar	Desk Mount with gas spring for 1 screen	Desk Mount with gas spring for 2 screens	Dual monitor desk stand
Desk mount	Desk mount	Desk mount	Desk mount
2	1	2	2
13-27 inch	13-27 inch	13-27 inch	13-32 inch
Desk clamp and grommet mount	Desk clamp and grommet mount	Desk clamp and grommet mount	Desk stand
10 kg	6,5 kg	6,5 kg	8 kg
2	3	3	3
60 °	135 °	135 °	90 °
360 °	360 °	360 °	360 °
30 °	360 °	360 °	180 °
0 - 45	0 - 48	0 - 48	2 - 46
-	11 - 45	11 - 45	-
75x75 100x100	75x75 100x100	75x75 100x100	75x75 100x100
Crossbar: create more working space on your desk	Adjustable in height by its gas spring system Extension ports for USB 3.2 Gen1, microphone + speaker jack	Adjustable in height by its gas spring system Extension ports for USB 3.2 Gen1, microphone + speaker jack	-

The ergonomic design and adjustable position of the Notebook Stands help you to reduce wrist injuries. Adjust your monitor position to prevent yourself from back and neck injuries. The ACT AC8105 and AC8110 notebook stands with cooling protect your notebook from overheating thanks to the metal surface and powerful fans. The stands are powered by USB and have adjustable viewing angles.

The ACT Notebook Lock protects your notebook and your desktop from theft. Just roll the steel cable of 1.5 meters around an immovable object such as a wall, radiator or desk. The AC9015 has a notebook lock with number combination.

Type no.	AC5700	AC5480	AC9015
			
Description	Wireless keyboard with wireless mouse set	Numeric Keypad	laptop lock with number combination
Connection	Wireless (USB nano)	Wired (USB)	
Layout	QWERTY		
Cable length (m)	-	1.35	1.50
LED indicators	Numlock, Capslock, Power status	-	
Dimensions BxHxD mm	447x140x22	91x140x18	
Additional	12 media keys and wireless optical mouse 1600 dpi. Necessary batteries included	-	

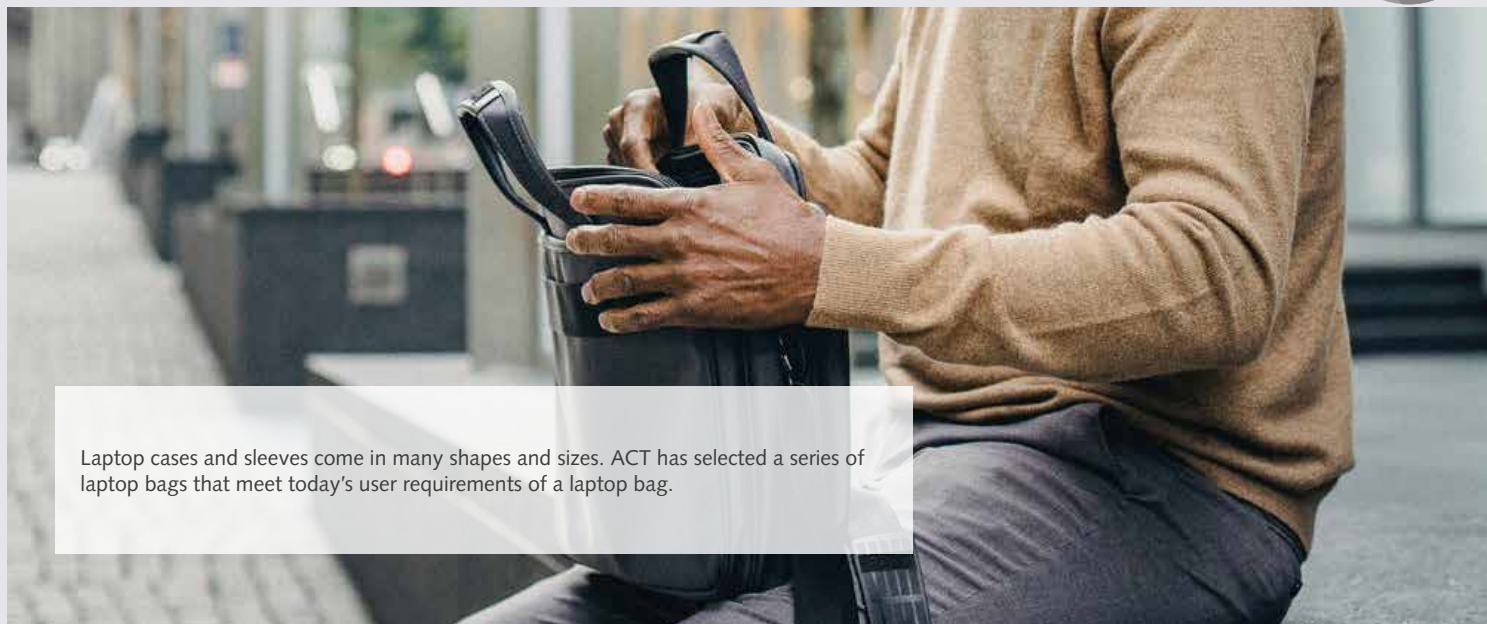
Type no.	AC8100	AC8105	AC8110
			
Description	Notebook Stand DeLuxe	Notebook Cooling Stand with USB	Notebook Cooling Stand with USB
Type	Laptop standard	Laptop stand	Laptop stand
Scherm/ monitor up to	14-19 inch	17 inch	17 inch
Fan	No	Yes 2x 125mm Ø	Yes 1x 125mm Ø
USB-ports	4x USB 2.0	4 x USB 2.0	2x USB 2.0
Adjustable viewing angle	Yes	Yes	Yes
Power	-	via USB	via USB
Extra	Six gears adjustable setting position	Protective pads prevents your notebook from sliding	ON/OFF button to enable and disable the fan Non-slip rubber feet

Enjoy working on your computer with the optical mice of ACT!

The optical precision of these mice ensures everything you need to continue working. The ACT mice are equipped with a scroll wheel and work on almost every surface. The wireless optical mice come with a Nano USB receiver and feature intelligent energy-saving mode to extend the battery life.

Type no.	AC5010	AC5005	AC5150	AC5100	AC5105	AC5110 AC5115 AC5120	AC5125 AC5135 AC5140
							
Description	Vertical Ergonomic Mouse USB	Optical Mouse USB	Dual-Connect Mouse Wireless	Ergonomic Mouse Wireless	Wireless Mouse	Wireless Mouse	Wireless Mouse
Type	Vertical optical mouse with scroll wheel	Optical mouse with scroll wheel	Optical wireless mouse USB-C/USB-A combi dongel	Optical wireless vertical mouse with scroll wheel	Optical mouse	Optical mouse	Optical mouse
Interface	Wired USB	Wired USB	Wireless	Wireless	Wireless	Wireless	Wireless
DPI optical sensor max.	1000	1000	2400	1600	1000	1200	1600
DPI selectable	No	No	Yes	Yes	No	Yes	Yes
Number of buttons	5	2	7	5	3	4	4
Scroll wheel	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cable length (m)	1.25	1.60	N/A	1.5	-	-	-
Ergonomic, for improved hand, wrist and arm comfort	Yes	-	Yes	Yes	-	-	-
Intelligent stand-by power saving function	-	-	Yes	Yes	Yes	Yes	Yes
Included	-	USB	Batteries 1x AA, 2 receivers	Battery USB charging cable	2x AAA batterijen	1x AA battery	2x AAA battery
For right and left handers	-	-	-	-	Yes	Yes	Yes
Extra	-	-	Switch between 2 different devices Connect via USB-C or USB-A	Built-in rechargeable Li-ion battery	-	Also available: AC5115   Red AC5120   Blue	Also available: AC5135   Red AC5140   Blue




Type no.	AC9000	
		
Description	Smartphone car holder	
Connection	placement in the air vent, metal clip	
Viewing angle	Instelbaar	
Adjustable Width	5 - 8 cm	
Extra	Packed per 25 pieces in a counter display	



Laptop cases and sleeves come in many shapes and sizes. ACT has selected a series of laptop bags that meet today's user requirements of a laptop bag.

Type	AC8500	AC8505	AC8525	AC8550 AC8555
Description	City Office Case 16"	City Slim laptop case 16"	Urban Bailhandle 16"	Metro Bailhandle 15.6"
Type of bag	Shoulder bag	Shoulder bag	Shoulder bag	Shoulderbag
Protection	***	**	***	***
Material	Nylon 600D	Polyester	Polyester mix	Polyester
Laptop size	16 inch	16 inch	16 inch	15.6 inch
Tablet size	-	-	10.1 inch	10.1 inch
Compartments	2	2	3	3
Additional storage	No	Yes	Yes	Yes
Weight (kg.)	0.7	0.4	0.6	0.48
Volume (litre)	11	10	10	10
Adjustable shoulder strap	Yes	Yes	Yes	Yes
USB charging port	-	-	-	-
Extra	Hard frame for optimum protection	Water repellent material With trolley strap	Water repellent material With trolley strap	Water repellent material With trolley strap
Colour	Black	Black/red	Black	Black : AC8550 Blue: AC8555



AC8530	AC8535	AC8510 AC8515 AC8520	AC8540 AC8545
			
Global Backpack 15.6"	Urban Backpack 17.3"	City laptop Sleeve	Urban laptop Sleeve
Backpack	Backpack	Sleeve	Sleeve
****	***	**	**
Polyester mix	Polyester mix	Polyester	Polyester
15.6 inch	17.3 inch	AC8510: 13.3 inch AC8515: 14.1 inch AC8520: 15.6 inch	AC8540: 14.1 inch AC8545: 15.6 inch
10.1 inch	10.1 inch	-	-
3	6	2	3
Yes	Yes	No	No
0.8	0.98	AC8510: 0.2 AC8515: 0.24 AC8520: 0.24	AC8540: 0.17 AC8545: 0.24
26	30	AC8510/AC8515: 3 AC8520: 4	AC8540: 3 AC8545: 4
Yes	Yes	No	No
Yes	-	-	-
Many internal storage options With compression belt for more stability and flexibility Water repellent material	Padded back for better comfort Water repellent material	-	-
Black	Black	Black	Black/grey

Are you going to replace your internal hard drive with a SSD or a new hard drive? The ACT external hard drive enclosures are the ideal solution to give your old internal hard drive a new life. You will have quick and easy additional storage space that you can easily take along with you. ACT offers a solution for every type of hard drive. The 2.5 inch enclosures are suitable for HDDs and SSDs with a SATA or M.2 interface. They are connected to your laptop or PC via the supplied connection cable.

**USB specifications:**

- USB 2.0 HighSpeed (incl. USB 1.0 and 1.1) speed up to 480Mbit/s
- USB 3.2 Gen 1 (SuperSpeed USB) speed up to 5Gbit/s
- USB 3.2 Gen 2 (SuperSpeed USB 10Gbps) speed up to 10 Gbit/s



Type	AC7090	AC1605	AC1600	AC1225	AC1220	AC1525
Description	M.2 NVMe USB-C SSD external enclosure	USB-C M.2 SATA and NVMe SSD Enclosure	M.2 SATA SSD Enclosure	2.5" SATA HDD/SSD Enclosure USB-C (Screwless)	USB-C 3.2 Gen2 2.5 inch HDD/SSD Enclosure	USB-C to 2.5 inch SATA Adapter cable SSD/HDD
Input	USB-C male	USB-C male	USB-A male	USB-C/ USB-A	USB-C male	USB-A male
HDD/SSD interface	M.2 NVMe/PCIe	M.2 SATA/NVMe/PCIe	M.2 SATA	SATA	SATA	SATA
USB Standard	USB 3.2 Gen 2 - SuperSpeed 10Gbit/s (USB 3.1)	USB 3.2 Gen 2 - SuperSpeed 10Gbit/s (USB 3.1)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen2	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
Data transfer rate	10 Gbps	10 Gbps	5Gbps	10Gbit/s	5Gbps	5Gbps
Type-C	Yes	Yes	No	Yes	Yes	Yes
UASP-support	Yes	Yes	Yes	Yes	Yes	Yes
Cable part length	25 cm	45 cm	45 cm		40 cm	
Material housing	Aluminium	Aluminium	Aluminium	Plastic	Aluminium	Plastic
Extra/ included	For a M.2 NVMe/PCIe SSD up to 80mm with M or B+M key with UASP support for higher data transfer	For a M.2 SATA/NVMe/PCIe SSD up to 80mm with M key or B+M key with UASP support for higher data transfer	Blue LED indicator Light weight and compact USB-A-cable Screws, screwdriver	Screwless design Can also be connected to the USB-A port of the laptop USB-C to USB-C, USB-C to USB-A cables included	USB-C to C cable, USB-C to A cable, screw and screwdriver	UASP support for higher data transfer

### Hard disk adapter for easy cloning

When you replace a hard drive, you usually need to transfer the data from the existing hard disk to the new SSD or hard drive. The easiest way to do this is to use a hard disk adapter for cloning. The ACT HDD adapter cables are perfect for data migration, hard drive cloning and data backup applications.

Simply connect the hard drive to a PC or laptop with the SATA adapter cable and then transferring data, cloning disks or making a backup is easy. When the HDD adapter cable supports USAP (USB Attached SCSI Protocol), you will also enjoy fast data transfer. Use special software for cloning your old disk. In some cases this is included or you can search for special software on Internet. Some are free, some you have to pay for.



AC1200	AC1215	AC1205	AC1510	AC1515	AC1520
					
2.5" SATA HDD/SSD Enclosure	2.5" SATA HDD/SSD Enclosure (screwless)	2.5" SATA HDD/SSD Enclosure (screwless + keylock encrypted)	2.5" SATA Adapter cable	USB 3.1 Gen1 to 2.5/3.5 inch SATA Adapter cable SSD/HDD	2.5" + 3.5" IDE/ SATA Adapter
USB-A	USB-A male	USB-A male	USB-A	USB-A male	USB-A
SATA	SATA	SATA	SATA	SATA	SATA
USB 3.2 Gen1	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen1	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen1
5Gbit/s	5Gbps	5Gbps	5Gbit/s	5Gbps	5Gbit/s
No	No	No	No	No	No
Yes	Yes	Yes	Yes	No	No
60 cm	60 cm	50 cm	15 cm	45 cm	45 cm
Aluminium	Plastic	Plastic	Plastic	Plastic	Plastic
USB-A cable 60cm	USB-A-cable	256-bit AES (Advanced Encryption Standard) encryption USB-A to Micro-B USB cable		UASP support for higher data transfer	SATA- and IDE cables, power adapter





Create backups and bring your files, photos and movies everywhere with the ACT Portable Hard disk Enclosure SATA. Keep your backup and files safe and cool with this aluminum case and enjoy high speed data transfers.



Type	AC1405	AC1410	AC1400	AC1500	AC1504
Description	3.5" SATA HDD Enclosure (screwless)	3.5" SATA IDE USB 2.0 HDD Enclosure	3.5" SATA HDD Enclosure	2.5" and 3.5" SATA Docking station	2.5 + 3.5" SATA Dual Docking Station
Input	USB-A male	USB-A male	USB-A male	USB-A male	USB-A male
HDD/SSD interface	SATA	SATA + IDE	SATA	SATA	SATA
USB Standard	USB 3.2 Gen 1 (SuperSpeed USB)	USB 2.0	USB 3.2 Gen1	USB 3.2 Gen 1 (SuperSpeed USB)	USB 3.2 Gen 1 (SuperSpeed USB)
Data transfer rate	5Gbps	480Mbps	5Gbps	5Gbps	5Gbps
Type-C	No	No	No	No	No
UASP-support	Yes	No	Yes	Yes	Yes
Cable part length	60 cm	75 cm		80 cm	
Material housing	Plastic	Aluminium	Aluminium	Plastic	Plastic
Extra/ included	USB-A-cable 12V adapter	Supports HDD up to 8TB USB-A-cable Power adapter	USB-A cable Power adapter	Led indicator ON/OFF button USB-A-cable 12V 2A power adapter	Dual bay LED indicator ON/OFF button Clone-function USB-A-cable 12V 3A power adapter

## AC7990 | Full HD camera with microphone, pan, tilt and zoom

- Full HD camera with 2 Megapixel Sony CMOS sensor, EPTZ and USB-C interface
- Solid full metal camera with wall mounting kit, prepared for tripod mount
- Wide viewing angle of 105 degrees
- Image optimization: auto white balance, gain control and backlight compensation
- Two integrated microphones with a 360 degrees audio pickup range of 5 meters
- Noise reduction, echo cancellation and gain control
- Controllable via Remote Control: Zoom, OSD Menu, Picture in Picture (PIP), Mic Mute, Increase/Decrease Brightness, Turn ON/OFF camera
- Works with video / chat programs like Zoom, Teams and Google Meet
- Including USB-C to USB-A cable 3m.





Expand your available network connection with the ACT PoE (Power over Ethernet) Switches.

Power your network equipment such as: an access point or VOIP telephone via a single network cable with the AC4438 Gigabit PoE+ Injector.

Type	AC4430	AC4434	AC4438	AC4450
Description	6-Ports 10/100Mbps Switch 4x PoE+ ports	24-ports switch, 10/100Mbps 24x PoE+ (30W) ports, 2 Gigabit combo/uplink ports for 2 uncoded SFP modules	Gigabit PoE+ Injector 30W	Gigabit SFP Media Converter
LAN speed	10/100Mbps	10/100Mbps	10/100/1000Mbps	10/100/1000 Mbps
Standard	IEEE802.3af and IEEE802.3at compliant Powered Device	IEEE802.3af and IEEE802.3at compliant Powered Device	IEEE802.3af and IEEE802.3at compliant Powered Device	802.3ab 1000Base-T, 802.3z 1000Base SX/LX
Layer function	Layer 2 (unmanaged)	Layer 2 (unmanaged)	-	-
Power max.	60 W	390 W	30 W	-
Power over Ethernet (PoE) max.	30 W per port	30 W per port	30 W	-
Dimensions (LxBxH) cm	16.8 x 9.4 x 3.2	44 x 20.6 x 4.2	11.7 x 3.4 x 5.8	7 x 2.5 x 5.3
Power	Build in power supply	Build in power supply	Build in power supply	External power adapter (5.0V - 1.0A)
Input voltage	230V AC	230V AC	230V AC	100 - 240V ~ 50/60Hz, 0.2A Max.
Included	Power cable CEE7/7 male to C13	Power cable CEE7/7 male to C13, mounting brackets and screws	Power cable CEE7/7 male to C5	Power cable and power adapter
RJ45 ports	6	26	2	1
SFP slots	-	2x SPF (uncoded)	-	1x SPF (uncoded)
PoE+ ports	4	24	1	-
10/100 Mbps Ports	6	24	-	-
10/100/1000 Mbps ports	-	2	2	1
Combo ports	-	2	-	-
Status LED indicator	Power, link, activity, PoE	Power, link, activity, PoE	Power, PoE	FX, power, speed/ activity
Montage	-	19 inch rack	Integrated wall mount	-

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AC1215.....	119	AC4010.....	13	AC7041.....	95	AC7770.....	66	AK3632.....	70	AK3940.....	69	AK4124.....	69
AC1220.....	118	AC4010.....	111	AC7042.....	90	AC7770.....	73	AK3634.....	70	AK3941.....	67	AK4125.....	69
AC1225.....	118	AC4071.....	65	AC7042.....	95	AC7800.....	72	AK3650.....	70	AK3942.....	67	AK4126.....	69
AC1400.....	120	AC4073.....	65	AC7043.....	90	AC7810.....	72	AK3651.....	70	AK3943.....	67	AK4127.....	69
AC1405.....	120	AC4074.....	65	AC7043.....	95	AC7820.....	72	AK3652.....	70	AK3944.....	67	AK4128.....	69
AC1410.....	120	AC4105.....	31	AC7044.....	95	AC7830.....	74	AK3654.....	70	AK3945.....	67	AK4129.....	69
AC1500.....	120	AC4110.....	111	AC7046.....	90	AC7835.....	75	AK3670.....	68	AK3946.....	67	AK4130.....	69
AC1504.....	120	AC4115.....	111	AC7046.....	92	AC7840.....	74	AK3671.....	68	AK3947.....	67	AK4131.....	69
AC1510.....	119	AC4430.....	27	AC7049.....	93	AC7845.....	75	AK3673.....	68	AK3950.....	70	AK4150.....	66
AC1515.....	119	AC4430.....	122	AC7050.....	90	AC7850.....	72	AK3675.....	68	AK3953.....	70	AK4151.....	66
AC1520.....	119	AC4434.....	27	AC7050.....	100	AC7851.....	73	AK3676.....	68	AK3954.....	66	AK4152.....	66
AC1525.....	118	AC4434.....	122	AC7051.....	90	AC7860.....	74	AK3678.....	68	AK3955.....	66	AK4153.....	66
AC1600.....	118	AC4438.....	27	AC7051.....	100	AC7870.....	73	AK3679.....	68	AK3956.....	66	AK4154.....	66
AC1605.....	118	AC4438.....	122	AC7052.....	90	AC7871.....	73	AK3720.....	70	AK3958.....	66	AK4210.....	71
AC2000.....	83	AC4450.....	122	AC7052.....	101	AC7900.....	74	AK3721.....	70	AK3959.....	66	AK4211.....	71
AC2005.....	83	AC5005.....	115	AC7053.....	90	AC7910.....	74	AK3722.....	70	AK3960.....	66	AK4220.....	71
AC2050.....	83	AC5010.....	115	AC7053.....	101	AC8100.....	114	AK3724.....	70	AK3961.....	66	AK4223.....	71
AC2055.....	83	AC5100.....	115	AC7055.....	90	AC8105.....	114	AK3739.....	70	AK3962.....	66	AK4225.....	71
AC2060.....	83	AC5105.....	115	AC7055.....	101	AC8110.....	114	AK3740.....	70	AK3963.....	66	AK4227.....	71
AC2300.....	82	AC5110.....	115	AC7060.....	88	AC8301.....	112	AK3741.....	70	AK3964.....	66	AK4229.....	71
AC2305.....	82	AC5115.....	115	AC7060.....	88	AC8302.....	112	AK3742.....	70	AK3965.....	66	AK4231.....	71
AC2310.....	82	AC5120.....	115	AC7060.....	105	AC8303.....	112	AK3744.....	70	AK3966.....	66	AK4233.....	71
AC2450.....	81	AC5125.....	115	AC7070.....	90	AC8304.....	112	AK3746.....	70	AK3967.....	66	AK4235.....	71
AC2455.....	81	AC5135.....	115	AC7070.....	101	AC8311.....	113	AK3749.....	68	AK3968.....	66	AK4237.....	71
AC2460.....	81	AC5140.....	115	AC7080.....	90	AC8312.....	113	AK3750.....	68	AK3969.....	66	AK4250.....	71
AC3000.....	111	AC5150.....	115	AC7080.....	104	AC8315.....	113	AK3751.....	68	AK3970.....	70	AK4251.....	71
AC3011.....	111	AC5480.....	114	AC7090.....	118	AC8320.....	113	AK3752.....	68	AK3971.....	70	AK4260.....	71
AC3012.....	111	AC5700.....	114	AC7300.....	89	AC8500.....	116	AK3753.....	68	AK3975.....	65	AK4263.....	71
AC3014.....	111	AC6000.....	104	AC7300.....	110	AC8505.....	116	AK3754.....	68	AK3976.....	65	AK4265.....	71
AC3015.....	111	AC6005.....	88	AC7305.....	89	AC8510.....	117	AK3755.....	68	AK3977.....	65	AK4267.....	71
AC3020.....	111	AC6005.....	105	AC7305.....	98	AC8515.....	117	AK3756.....	68	AK3978.....	65	AK4269.....	71
AC3030.....	88	AC6010.....	88	AC7305.....	110	AC8520.....	117	AK3757.....	68	AK3980.....	65	AK4271.....	71
AC3030.....	111	AC6010.....	105	AC7310.....	89	AC8525.....	116	AK3760.....	70	AK3981.....	65	AK4273.....	71
AC3032.....	88	AC6015.....	103	AC7310.....	98	AC8530.....	117	AK3789.....	68	AK3982.....	65	AK4275.....	71
AC3033.....	88	AC6020.....	103	AC7310.....	110	AC8535.....	117	AK3790.....	68	AK3983.....	65	AK4277.....	71
AC3040.....	88	AC6025.....	103	AC7315.....	89	AC8540.....	117	AK3791.....	68	AK3984.....	65	AK4918.....	71
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AC3043.....	88	AC6060.....	88	AC7315.....	110	AC8550.....	116	AK3793.....	68	AK3986.....	65	AK4920.....	71
AC3045.....	88	AC6060.....	105	AC7320.....	89	AC8555.....	116	AK3798.....	68	AK3987.....	65	AK4923.....	71
AC3045.....	111	AC6063.....	88	AC7320.....	98	AC9000.....	115	AK3804.....	68	AK3988.....	65	AK4925.....	71
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AC3092.....	111	AC6105.....	88	AC7325.....	89	AK2014.....	77	AK3806.....	68	AK3990.....	65	AK4958.....	71
AC3094.....	111	AC6105.....	88	AC7325.....	98	AK2015.....	77	AK3813.....	68	AK3991.....	65	AK4959.....	71
AC3096.....	89	AC6105.....	105	AC7325.....	110	AK2025.....	77	AK3814.....	68	AK3992.....	65	AK4960.....	71
AC3300.....	80	AC6110.....	88	AC7330.....	90	AK2026.....	77	AK3815.....	68	AK3993.....	65	AK4963.....	71
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AC3310.....	80	AC6150.....	93	AC7335.....	110	AK2035.....	77	AK3819.....	70	AK3997.....	65	AK4971.....	71
AC3310.....	111	AC6200.....	102	AC7340.....	89	AK2036.....	77	AK3820.....	70	AK3998.....	65	AK4973.....	71
AC3315.....	80	AC6205.....	102	AC7340.....	110	AK2037.....	77	AK3821.....	70	AK3999.....	65	AK4977.....	71
AC3315.....	111	AC6215.....	102	AC7345.....	89	AK2038.....	77	AK3822.....	70	AK4000.....	66	AK4980.....	71
AC3601.....	77	AC6300.....	102	AC7350.....	110	AK2039.....	77	AK3823.....	70	AK4001.....	66	AK4981.....	71
AC3605.....	77	AC6310.....	102	AC7350.....	89	AK2075.....	77	AK3824.....	70	AK4002.....	66	AK4982.....	71
AC3605.....	111	AC6370.....	103	AC7355.....	89	AK2076.....	77	AK3829.....	70	AK4030.....	66	AK4984.....	71
AC3607.....	77	AC6400.....	101	AC7355.....	110	AK2077.....	77	AK3829.....	70	AK4031.....	66	AK4990.....	71
AC3610.....	77	AC6405.....	100	AC7360.....	110	AK2078.....	77	AK3830.....	70	AK4032.....	66	AK4991.....	71
AC3610.....	111	AC6410.....	100	AC7365.....	110	AK2220.....	77	AK3831.....	70	AK4033.....	66	AK4992.....	71
AC3611.....	77	AC6415.....	100	AC7365.....	89	AK2230.....	77	AK3832.....	70	AK4034.....	66	AK4993.....	71
AC3612.....	77	AC7000.....	89	AC7370.....	110	AK2232.....	77	AK3833.....	70	AK4035.....	66	AK4994.....	71
AC3612.....	111	AC7000.....	96	AC7370.....	89	AK2234.....	77	AK3834.....	70	AK4036.....	66	AK4995.....	71
AC3613.....	77	AC7005.....	77	AC7505.....	65	AK2236.....	77	AK3850.....	70	AK4037.....	66	AK4996.....	71
AC3614.....	77	AC7005.....	90	AC7505.....	71	AK2237.....	77	AK3861.....	67	AK4038.....	66	AK5001.....	80

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AK5005	80	AK5135	80	AK5420	80	CT4010	108	DC5414	43	DC7900	15	EA2002	48
AK5006	80	AK5136	80	AK5421	80	CT4011	108	DC5415	43	DC7901	15	EA2002	48
AK5007	80	AK5137	80	AK5422	80	CT4012	108	DC5416	43	DC7902	15	EA2002	48
AK5008	80	AK5138	80	AK5423	80	CT4013	108	DC5450	43	DC7903	15	EA2002	48
AK5009	80	AK5139	80	AK5424	80	CT4014	108	DC5451	43	DC7905	15	EA2002	48
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AK5014	80	AK5143	80	AK5428	80	CT4030	108	DC5455	43	DC9001	25	EA3004	48
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AK5017	80	AK5146	80	AK5431	80	CT4033	108	DC5458	43	DC9005	25	EA4002	51
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AK5021	80	AK5162	80	AK5435	80	CX1007	51	DC5462	43	DC9501	25	EA4010	51
AK5022	80	AK5163	80	AK5436	80	CX1008	51	DC5463	43	DC9502	25	EA4015	51
AK5023	80	AK5164	80	AK5437	80	DC5000	43	DC5464	43	DC9503	25	EA4021	51
AK5024	80	AK5165	80	AK5438	80	DC5001	43	DC5465	43	DC9505	25	EA4022	51
AK5025	80	AK5166	81	AK5439	80	DC5002	43	DC5466	43	DC9551	25	EA4023	51
AK5026	80	AK5167	80	AK5440	80	DC5003	43	DC5500	43	DC9552	25	EA4025	51
AK5028	80	AK5168	80	AK5441	81	DC5004	43	DC5501	43	DC9600	25	EA4027	51
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AK5108	80	AK5239	80	CT1015	107	DC5255	43	DC7502	15	EA1023	48	EM1016	111
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AK5110	80	AK5241	80	CT1035	107	DC5257	43	DC7505	15	EA1024	48	EP305B	29
AK5111	80	AK5242	80	CT1040	107	DC5258	43	DC7551	15	EA1025	48	EP355B	29
AK5112	80	AK5243	80	CT1045	107	DC5259	43	DC7552	15	EA1026	48	EP356B	29
AK5113	80	AK5244	80	CT1050	107	DC5260	43	DC7600	15	EA1027	48	EP357B	29
AK5114	80	AK5245	80	CT1055	107	DC5261	43	DC7601	15	EA1028	48	EP358B	29
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AK5117	80	AK5403	80	CT1075	107	DC5264	43	DC7605	15	EA1036	48	EP380B	21
AK5118	80	AK5404	80	CT1080	107	DC5265	43	DC7651	15	EA1036	48	EP384B	21
AK5119	80	AK5405	80	CT1090	107	DC5266	43	DC7652	15	EA1036	48	EP385B	21
AK5120	80	AK5406	80	CT1200	107	DC5400	43	DC7700	15	EA1036	48	EP386B	21
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AK5122	80	AK5408	80	CT1270	107	DC5402	43	DC7702	15	EA1041	48	EP388B	21
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AK5125	80	AK5410	80	CT1310	107	DC5404	43	DC7705	15	EA1041	48	EP400B	11
AK5126	80	AK5411	80	CT3000	107	DC5405	43	DC7751	15	EA1041	48	EP455B	11
AK5127	80	AK5412	80	CT3010	107	DC5406	43	DC7752	15	EA1041	48	EP456B	11
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AK5131	80	AK5416	80	CT4006	107	DC5410	43	DC7803	15	EA1042	48	EP500A	29
AK5132	80	AK5417	80	CT4007	107	DC5411	43	DC7805	15	EA1042	48	EP550H	29
AK5133	80	AK5418	80	CT4008	107	DC5412	43	DC7851	15	EA1042	48	EP560H	29

EP570H	29	FA6010	12	FB5015	14	FB6951	14	FB7815	14	FB9720	24	IB1202	13
EP580H	29	FA6010	22	FB5020	14	FB7000	14	FB7820	14	FB9725	24	IB1203	13
EP590H	29	FA6010	30	FB5051	14	FB7001	14	FB7830	14	FB9730	24	IB1205	13
EP600H	29	FA6011	30	FB6000	14	FB7002	14	FB7851	14	FB9751	24	IB1207	13
EP800H	21	FA6012	30	FB6001	14	FB7003	14	FB7900	14	FB9800	24	IB1210	13
EP840H	21	FA7001	12	FB6002	14	FB7005	14	FB7901	14	FB9801	24	IB1251	13
EP845A	21	FA7001	12	FB6003	14	FB7007	14	FB7902	14	FB9802	24	IB1300	13
EP850H	21	FA7004	12	FB6005	14	FB7010	14	FB7903	14	FB9803	24	IB1301	13
EP860H	21	FA7005	12	FB6007	14	FB7015	14	FB7905	14	FB9805	24	IB1302	13
EP870H	21	FB2000	32	FB6010	14	FB7020	14	FB7907	14	FB9807	24	IB1303	13
EP880H	21	FB2001	32	FB6015	14	FB7030	14	FB7910	14	FB9810	24	IB1305	13
EP890H	21	FB2002	32	FB6020	14	FB7051	14	FB7915	14	FB9815	24	IB1307	13
ES100H	29	FB2003	32	FB6025	14	FB7052	14	FB7920	14	FB9820	24	IB1310	13
ES305B	29	FB2005	32	FB6030	14	FB7100	14	FB7930	14	FB9825	24	IB1351	13
ES356B	29	FB2007	32	FB6051	14	FB7101	14	FB7951	14	FB9830	24	IB1400	13
ES500A	29	FB2010	32	FB6052	14	FB7102	14	FB8001	9	FB9851	24	IB1401	13
FA1500	108	FB2015	32	FB6400	14	FB7103	14	FB8002	9	FB9900	24	IB1402	13
FA2000	12	FB2020	32	FB6401	14	FB7105	14	FB8003	9	FB9901	24	IB1403	13
FA2001	12	FB2051	32	FB6402	14	FB7107	14	FB8005	9	FB9902	24	IB1405	13
FA2028	49	FB2100	14	FB6403	14	FB7110	14	FB8051	9	FB9903	24	IB1407	13
FA2032	48	FB2101	14	FB6405	14	FB7115	14	FB8700	14	FB9905	24	IB1410	13
FA2033	48	FB2102	14	FB6407	14	FB7120	14	FB8701	14	FB9907	24	IB1451	13
FA2034	48	FB2103	14	FB6410	14	FB7130	14	FB8702	14	FB9910	24	IB1500	24
FA2036	46	FB2105	14	FB6415	14	FB7151	14	FB8703	14	FB9915	24	IB1501	24
FA2037	46	FB2107	14	FB6420	14	FB7300	14	FB8705	14	FB9920	24	IB1502	24
FA2038	46	FB2110	14	FB6425	14	FB7301	14	FB8707	14	FB9925	24	IB1503	24
FA2039	46	FB2115	14	FB6430	14	FB7302	14	FB8710	14	FB9930	24	IB1505	24
FA2040	46	FB2120	14	FB6451	14	FB7303	14	FB8715	14	FB9951	24	IB1507	24
FA2041	49	FB2125	14	FB6500	14	FB7305	14	FB8720	14	FHT501	9	IB1510	24
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IB9601	24	IK8500	25	IS8010	24	PP1030	23	RL2302	42	RL2810	55	RL3715	54
IB9602	24	IK8501	25	IS8015	24	PP1030	31	RL2303	42	RL2901	55	RL3720	54
IB9603	24	IK8502	25	IS8020	24	PP1033	31	RL2304	42	RL2902	55	RL3730	54
IB9605	24	IK8503	25	IS8030	24	Q7010M	70	RL2305	42	RL2903	55	RL3750	54
IB9607	24	IK8505	25	IS8051	24	Q7015M	70	RL2306	42	RL2905	55	RL3751	54
IB9610	24	IK8507	25	IS8052	24	Q7110M	70	RL2307	42	RL2910	55	RL3780	39
IB9651	24	IK8510	25	IS8053	24	Q7115M	70	RL2308	42	RL2915	55	RL3780	49
IB9700	24	IK8551	25	IS8400	24	Q70025	70	RL2309	42	RL2920	55	RL3800	55
IB9701	24	IK8600	25	IS8401	24	Q70050	70	RL2310	42	RL2951	55	RL3801	55
IB9702	24	IK8601	25	IS8402	24	Q70100	70	RL2311	42	RL3000	55	RL3802	55
IB9703	24	IK8602	25	IS8403	24	Q70150	70	RL2312	42	RL3001	55	RL3803	55
IB9705	24	IK8603	25	IS8405	24	Q70200	70	RL2313	42	RL3002	55	RL3805	55
IB9707	24	IK8605	25	IS8407	24	Q70300	70	RL2314	42	RL3003	55	RL3810	55
IB9710	24	IK8607	25	IS8410	24	Q70500	70	RL2315	42	RL3005	55	RL3815	55
IB9751	24	IK8610	25	IS8415	24	Q70700	70	RL2316	42	RL3010	55	RL3820	55
IB9800	24	IK8651	25	IS8420	24	Q71025	70	RL2317	42	RL3015	55	RL3825	55
IB9801	24	IK8700	25	IS8430	24	Q71050	70	RL2318	42	RL3020	55	RL3830	55
IB9802	24	IK8701	25	IS8451	24	Q71100	70	RL2319	42	RL3050	55	RL3850	55
IB9803	24	IK8702	25	IS8452	24	Q71150	70	RL2320	42	RL3051	55	RL3900	55
IB9805	24	IK8703	25	IS8500	24	Q71200	70	RL2321	42	RL3101	55	RL3901	55
IB9807	24	IK8705	25	IS8501	24	Q71300	70	RL2322	42	RL3102	55	RL3902	55
IB9810	24	IK8707	25	IS8502	24	Q71500	70	RL2323	42	RL3103	55	RL3903	55
IB9851	24	IK8710	25	IS8503	24	Q71700	70	RL2324	42	RL3105	55	RL3905	55
IB9900	24	IK8751	25	IS8505	24	RL1000	55	RL2325	42	RL3107	55	RL3910	55
IB9901	24	IK8800	25	IS8507	24	RL1001	55	RL2326	42	RL3110	55	RL3915	55
IB9902	24	IK8801	25	IS8510	24	RL1002	55	RL2327	42	RL3201	55	RL3920	55
IB9903	24	IK8802	25	IS8515	24	RL1003	55	RL2328	42	RL3202	55	RL3930	55
IB9905	24	IK8803	25	IS8520	24	RL1005	55	RL2329	42	RL3203	55	RL3950	55
IB9907	24	IK8805	25	IS8551	24	RL1010	55	RL2330	42	RL3205	55	RL3951	55
IB9910	24	IK8807	25	IS8552	24	RL1015	55	RL2401	42	RL3207	55	RL4011	39
IB9951	24	IK8810	25	IS8600	24	RL1020	55	RL2402	42	RL3210	55	RL4012	39
IK5400	33	IK8851	25	IS8601	24	RL1030	55	RL2403	42	RL3300	58	RL4013	39
IK5401	33	IK8900	25	IS8602	24	RL1050	55	RL2404	42	RL3301	58	RL4051	39
IK5402	33	IK8901	25	IS8603	24	RL1051	55	RL2405	42	RL3302	58	RL4052	39
IK5403	33	IK8902	25	IS8605	24	RL1500	55	RL2406	42	RL3303	58	RL4053	39
IK5405	33	IK8903	25	IS8607	24	RL1501	55	RL2407	42	RL3305	58	RL4101	42
IK5407	33	IK8905	25	IS8610	24	RL1502	55	RL2408	42	RL3307	58	RL4102	42
IK5410	33	IK8907	25	IS8615	24	RL1503	55	RL2409	42	RL3310	58	RL4103	42
IK5451	33	IK8910	25	IS8620	24	RL1505	55	RL2410	42	RL3315	58	RL4104	42
IK5500	33	IK8951	25	IS8651	24	RL1510	55	RL2411	42	RL3320	58	RL4105	42
IK5501	33	IS1500	24	IS8652	24	RL1515	55	RL2412	42	RL3325	58	RL4106	42



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RL4111.....	42	RL5901.....	54	RL7781.....	54	RL8415.....	57	RL9051.....	55	SB0011.....	89	TD4102.....	23
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RL4117.....	42	RL7002.....	55	RL7792.....	54	RL8430.....	57	RL9510.....	55	SB0028.....	89	TD4103.....	51
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RL4127.....	42	RL7102.....	59	RL7855.....	54	RL8520.....	55	RL9603.....	54	SB2200.....	88	TD5011.....	30
RL4128.....	42	RL7105.....	59	RL7861.....	54	RL8530.....	55	RL9604.....	54	SB2203.....	88	TD5012.....	30
RL4129.....	42	RL7110.....	59	RL7862.....	54	RL8550.....	55	RL9605.....	54	SB2205.....	88	TD5012.....	51
RL4130.....	42	RL7115.....	59	RL7863.....	54	RL8551.....	55	RL9607.....	54	SB2218.....	88	TD5014.....	30
RL4201.....	42	RL7120.....	59	RL7865.....	54	RL8600.....	54	RL9610.....	54	SB2220.....	88	TD5015.....	30
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RL4203.....	42	RL7140.....	59	RL7872.....	54	RL8602.....	54	RL9620.....	54	SB2250.....	88	TD5021.....	30
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RL4205.....	42	RL7201.....	59	RL7875.....	54	RL8605.....	54	RL9630.....	54	SB2401.....	88	TD6010.....	22
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RL4214.....	42	RL7301.....	59	RL7950.....	55	RL8695.....	49	RL9700.....	54	SB2452.....	88	TD6017.....	12
RL4215.....	42	RL7302.....	59	RL7951.....	55	RL8701.....	54	RL9701.....	54	SB2482.....	88	TD6020.....	22
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RL4218.....	42	RL7315.....	59	RL8002.....	55	RL8705.....	54	RL9705.....	54	SB2503.....	88	TD6023.....	12
RL4219.....	42	RL7320.....	59	RL8003.....	55	RL8710.....	54	RL9710.....	54	SB2520.....	88	TD6510.....	12
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RL5101.....	58	RL7450.....	59	RL8207.....	57	RL8801.....	55	RL9904.....	55	SB3019.....	88	XS6113.....	11
RL5102.....	58	RL7501.....	55	RL8210.....	57	RL8802.....	55	RL9905.....	55	SB3028.....	88	XS6115.....	11
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RL5404.....	58	RL7651.....	54	RL8310.....	57	RL8915.....	55	RL9992.....	55	SD6519.....	51		
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