CopperTen™ 10 Gigabit Solutions

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4. CopperTen™ 10 Gigabit Solutions

CopperTen™ 10 Gigabit Solutions
Introduction

Speed, Performance and Reliability

ADC KRONE's CopperTen system was the world's first UTP structured cabling system with the necessary characteristics to enable 10Gbps Ethernet transmission over a full 100 metres. CopperTen meets the industry's most stringent requirements including IEEE 802.3an, TIA 568 B.2 and ISO/IEC 11801 Class E. Since March 2004, millions of metres of CopperTen have been deployed in high-performance networks worldwide.

This end-to-end system features patent-pending design elements that minimise alien crosstalk and insertion loss.

Incorporating ADC KRONE's patent pending oblique elliptical offset filler, the CopperTen Cable comprises all the necessary characteristics to enable 10 Gigabit Ethernet transmission over twisted pair cabling for structured cabling systems.

The CopperTen Module is the world's only cross-connect module that has a disconnect feature, making it the ideal product for a Patch-by-Exception solution. Patch-by-Exception, unique to ADC KRONE, reduces costs by utilising off-cuts of the horizontal cabling to hard wire the cross-connect. The patch cords are then used as the exception to make changes only.

The CopperTen Patch Panel has a modular design, featuring outlets that are offset and staggered to counter the negative effects of alien crosstalk; critical for 10 Gigabit Ethernet performance.

While market expectations grow with emerging technologies, reliability is paramount. ADC KRONE's global R&D centres in the United States, Great Britain, Germany and Australia leverage its vast and experienced resources to ensure maximum performance. It is this commitment to innovation and achievement that has allowed ADC KRONE to develop this UTP cabling system that has the characteristics to achieve truly revolutionary results.

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CopperTen™ 10 Gigabit Solutions
Cable

CopperTen Cable

CopperTen 4-pair UTP Copper Cable is the foundation of ADC KRONE's 10 Gigabit Ethernet capable structured cabling solution. This cable guarantees Category 6$_A$ performance ensuring maximum network speed, data throughput and reliability. Installed in high-performance networks worldwide, the system's patent-pending design minimises alien crosstalk and insertion loss and meets the performance requirements of IEEE 802.3an, ISO/IEC 11801 and TIA 568-B.2.

Ordering Information

Description	Quantity	Colour	Product No.
CopperTen Cable (4-pair UTP)	305m Reel	Grey	10G-A6TR-GYM2
CopperTen Cable (4-pair UTP)	305m Reel	Blue	10G-A6TR-BLM2
CopperTen Cable LSZH	305m Reel	Blue	10G-A6TZI-BLM2

CopperTen Category 7 4PR S/FTP Horizontal Cable

The ADC KRONE S/FTP 600/AWG23 4PR cable is designed for applications up to 600 MHz and its connection properties exceed Category 7 specifications ISO/IEC 11801 (2002) and EN 50173-1 (2002).

Every pair is seperately shielded – pairs in metal foil (PIMF). The twisted pairs are covered with a braided screen (S/FTP) which guarantees outstanding shielding properties.

Ordering Information

Description	Quantity	Colour	Product No
Category 7 Horizontal Cable S/FTP Duplex	1000m Reel	Orange	7053 3 762-55

CopperTen™ 10 Gigabit Solutions
Patch Panels

CopperTen Patch Panel

The CopperTen 1RU 24-port Patch Panel is designed to optimise performance to allow 10 Gigabit transmission. The modular design features outlets that are offset and staggered to counter the negative effects of alien crosstalk; critical for 10 Gigabit Ethernet performance. The panel also features a unique fully-moulded polymer design that further reduces alien crosstalk when compared with traditional panels that have metal frames.

CopperTen 24-port Patch Panel

Ordering Information

Description	Product No.
CopperTen 24-port Patch Panel Consists of (1) 24-port unloaded panel, (24) CopperTen Keystone RJ45 outlets and (24) port labels	TPNP-24NC10-BKA
Cable Management Bracket Used as a stand-off for the rear cable manager	TPNP-NNC10-WM-BKT

CopperTen Shielded Patch Panel

The modular augmented Category 6 panel utilises the high performing SFTP Keystone RJ45. Rear Cable Management included.

CopperTen Shielded Patch Panel

Ordering Information

Description	Product No.
CopperTen SFTP 24-port Patch Panel Augmented Category 6	7022 1 155-24

CopperTen™ 10 Gigabit Solutions

Termination Modules

CopperTen™ Modules

The 20-pair CopperTen module is the world's highest performing cross-connect module. It is designed to suit 5 incoming and 5 outgoing 4-pair Category 6$_A$ cables. Each IDC slot is colour coded to allow for accurate termination of each of the 4 pairs. The CopperTen module utilises a disconnect feature making it ideal for Patch-by-Exception installations and can also be patched as a traditional cross-connect. The cable manager at the rear of the module ensures that cables are held in place securely without the need for Velcro ties.

CopperTen 12 Way Kit

Ordering Information

Description	Product No.
CopperTen 12 Way Kit Consists of (1) Backmount frame, (12) CopperTen modules with rear managers and (12) label holders.	6450 1 107-00

CopperTen Consolidation Point

For use in the horizontal cabling system, inside the ceiling or under a false floor.

The plastic cover clips into place, protecting the termination contacts from dust and other foreign matter.

CopperTen Consolidation Point

Ordering Information

Description	Product No.

CopperTen Consolidation Point
Includes 4 x CopperTen Modules
          4 x Label holders
          1 x Backmount Frame
          1 x Cover
	6450 1 105-05

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CopperTen™ 10 Gigabit Solutions
Termination Modules

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CopperTen 8-pair Module Kit

Provides for the termination of twenty four,
4-pair cables. Includes a label and vertical cable
management.

CopperTen 8-pair Module Kit

Ordering Information

Description	Product No.
CopperTen 8-pair Module Kit Consists of (1) Backmount Frame, (12) CopperTen 8-Pair Modules, (1) Label Holder and (2) Cable Management Rings	6450 1 107-10

CopperTen 8-pair Module

Used to terminate two 4-pair cables. CopperTen
modules provide the highest performing method
of cross-connect of any product on the market.

CopperTen 8-pair Module

Ordering Information

Description	Quantity	Product No.
CopperTen 8-pair Module	Box of 10	6468 5 070-00

CopperTen™ 10 Gigabit Solutions
Wall Mount Cable Management

Cable Management Kits & Covers

The cable management ring controls vertical cable management between frames, ensuring that cables do not interfere when adds, moves and changes occur. The dual cable manager is ideal for high density or heavily patched installations and provides a neat finish to the CopperTen system.

Cable troughs mounted on the top and bottom of each frame ensure superior patch cord management and correct bend radius between frames.

Single Cable
Management Rings

Single Cover

Dual Cover

Dual Cable
Management Rings

Cable Trough

Ordering Information	
Description	**Product No.**
300-pair Cable Management Kit Includes (2) dual cable management rings and (1) dual cover	6450 1 103-00
900-pair Cable Management Kit Includes (6) dual cable management rings and (3) dual cover	6450 1 104-00
Dual Cable Management Rings (2)	6450 2 156-02
Dual Cover (1)	6450 2 158-02
Single Cable Management Kit Includes (2) single cable management rings and (1) single cover	6450 1 103-01
Single Cable Management Rings (2)	6450 2 156-01
Single Cover (1)	6450 2 158-01
Cable Trough (1)	6450 2 157-00

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4. CopperTen™ 10 Gigabit Solutions

CopperTen™ 10 Gigabit Solutions
Module Specifications

CopperTen Module Specifications

MECHANICAL

Wire Range for Solid and Stranded Copper Conductors:	0.4mm to 0.65mm (26 to 22 AWG)*
Wire Insulation Diameter Range (PE,PVC):	0.7mm to 1.4mm
Number of Wire Terminations:	≥200
Wire Insertion Force (0.5mm conductor dia):	6N
Wire Pull Out Force, Radial (0.5mm conductor dia):	≥5N
Wire Pull Out Force, Axial (0.5mm conductor dia):	≥35N
Number of Patching Cycles:	750

*A maximum of 2 equal diameter solid conductors only, of up to 0.5mm conductor diameter can be terminated per slot. Only 1 conductor of stranded wires per slot can be terminated. If any conductors >0.5mm diameter have been terminated, reversal to smaller conductors is no longer possible.
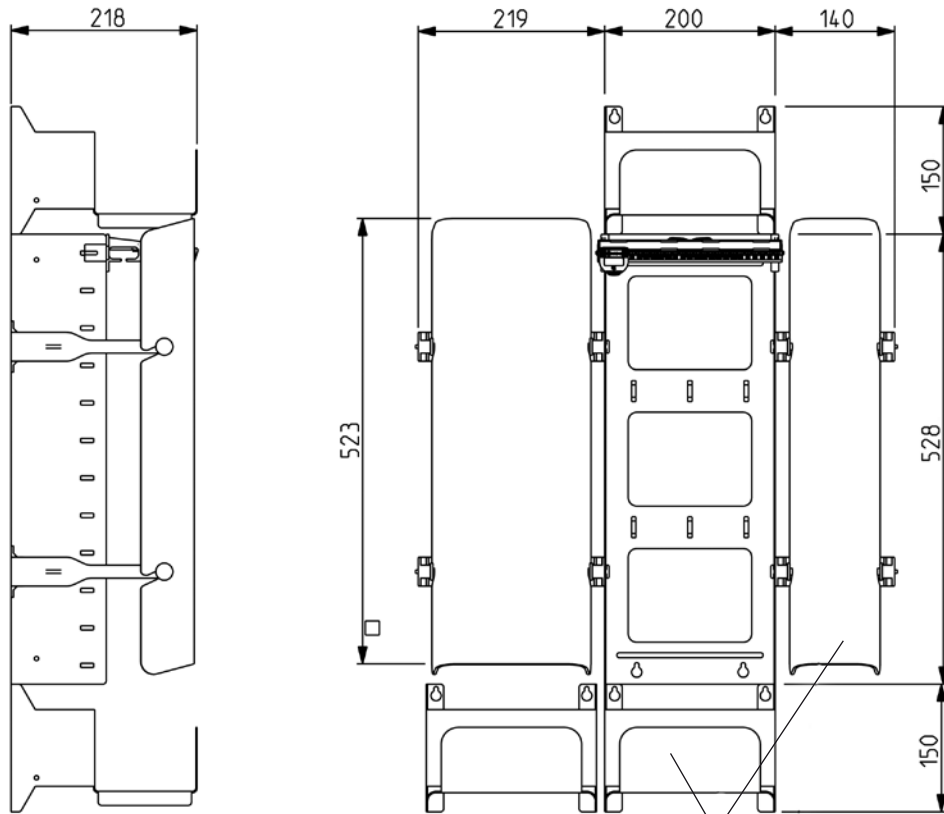
ELECTRICAL

Transmission, Performance and Reliability:	Exceeds ISO/IEC 11801
	AS/NZS 3080
	TIA/EIA 568-B
Voltage Rating:	150 VAC
Insulation Resistance:	≥500,000 MΩ at 500 VDC

ENVIRONMENTAL AND SAFETY

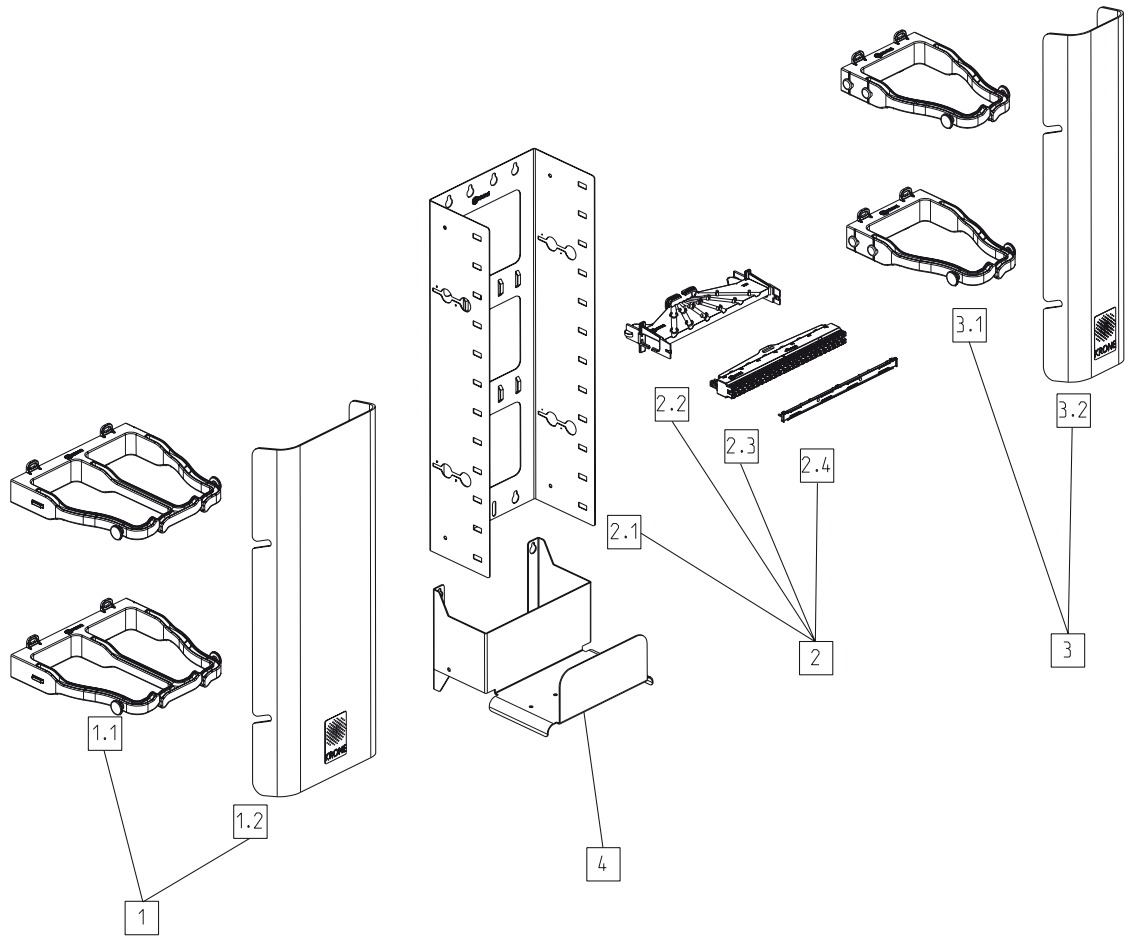|	
Safety Compliance:	UL 1863
Flammability Rating of Plastic Housing:	UL 94 VO
Environment for Use:	Indoors or in dry enclosure rated IP54 or greater
Operating Temperature Range:	-40°C to +80°C
Maximum Relative Humidity:	≤93% non-condensing

Dimensions of an installed CopperTen 20-pair system with dual and single cable management on either side.

Optional cable trough, single management & covers

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Key	
1	**Dual Cable Management Kit** 1.1 Dual Vertical Cable Manager (2) 1.2 Dual Cover
2	**CopperTen Module Kits** 2.1 12 Way Backmount Frame 2.2 Rear Cable Manager (12) 2.3 Modules (12) 2.4 Label Holder Kit (12)
3	**Single Cable Management Kit** 3.1 Single Vertical Cable Manager (2) 3.2 Single Cover
4	**Cable Trough**

CopperTen™ 10 Gigabit Solutions
Patch Cords

RJ45 to RJ45 Patch Cords

Designed for patching between two RJ45 outlets in a
Category 6$_A$ network.
Copper conductors used are stranded and compacted to
a near-round shape for optimal signal strength.

RJ45 Patch Cord

Ordering Information

Description	Quantity	Length	Colour	Product No.
RJ45 Patch Cord	Bag of 1	1.2m	Blue	6645 2 820-04
RJ45 Patch Cord	Bag of 1	2.1m	Blue	6645 2 820-07
RJ45 Patch Cord	Bag of 1	3.0m	Blue	6645 2 820-10
RJ45 Patch Cord	Bag of 1	4.5m	Blue	6645 2 820-15
RJ45 Patch Cord	Bag of 1	7.5m	Blue	6645 2 820-25
RJ45 Patch Cord	Bag of 1	15.0m	Blue	6645 2 820-50

LSZH UTP Patch Cords

Designed for patching between two RJ45 outlets in a
Category 6$_A$ network.
Copper conductors used are stranded and compacted to
a near-round shape for optimal signal strength.
Made from Low Smoke, Zero Halogen material.

RJ45 Patch Cord

Ordering Information

Description	Quantity	Length	Colour	Product No.
RJ45 LSZH UTP Patch Cord	Bag of 1	1.2m	Blue	6645 2 827-04
RJ45 LSZH UTP Patch Cord	Bag of 1	2.1m	Blue	6645 2 827-07
RJ45 LSZH UTP Patch Cord	Bag of 1	3.0m	Blue	6645 2 827-10
RJ45 LSZH UTP Patch Cord	Bag of 1	4.5m	Blue	6645 2 827-15
RJ45 LSZH UTP Patch Cord	Bag of 1	7.5m	Blue	6645 2 827-25
RJ45 LSZH UTP Patch Cord	Bag of 1	15.0m	Blue	6645 2 827-50

LSZH S/FTP Patch Cords

The high performance plug is designed with an
integrated strain relief boot that prevents the cable from
moving at the termination point when the cable is flexed.

The copper conductors held within the cable pairs are
stranded for superior flexibility and are compacted for
optimum signal strength.

LSZH S/FTP Patch Cords

Ordering Information

Description	Quantity	Length	Colour	Product No
RJ45 LSZH SFTP Patch Cord	Bag of 1	1m	Blue	6830 2 881-04
RJ45 LSZH SFTP Patch Cord	Bag of 1	2m	Blue	6830 2 881-07
RJ45 LSZH SFTP Patch Cord	Bag of 1	3m	Blue	6830 2 881-10
RJ45 LSZH SFTP Patch Cord	Bag of 1	5m	Blue	6830 2 881-15

CopperTen™ 10 Gigabit Solutions
Patch Cords

4-pair Patch Cords

These patch cords are used for patching all four pairs between CopperTen modules. Spring loaded shutter protects the contacts when not in use.

These patch cords can be used in ADC KRONE's "Patch-by-Exception" solutions to break the original circuit and patch to a new location.

Rear Facing Patch Cord

Front Facing Patch Cord

Ordering Information

Description	Quantity	Length	Colour	Product No.
4-pair Rear Facing Patch Cord	Bag of 1	1.2m	Blue	6451 2 401C-10
4-pair Rear Facing Patch Cord	Bag of 1	2.1m	Blue	6451 2 401C-20
4-pair Rear Facing Patch Cord	Bag of 1	3.0m	Blue	6451 2 401C-30
4-pair Rear Facing Patch Cord	Bag of 1	4.5m	Blue	6451 2 401C-40
4-pair Front Facing Patch Cord	Bag of 1	1.2m	Blue	6451 2 443C-10
4-pair Front Facing Patch Cord	Bag of 1	2.1m	Blue	6451 2 443C-20
4-pair Front Facing Patch Cord	Bag of 1	3.0m	Blue	6451 2 443C-30
4-pair Front Facing Patch Cord	Bag of 1	4.5m	Blue	6451 2 443C-40
4-pair Rear Facing to RJ45 Patch Cord	Bag of 1	1.2m	Blue	6451 2 400C-10
4-pair Rear Facing To RJ45 Patch Cord	Bag of 1	2.1m	Blue	6451 2 400C-20
4-pair Rear Facing To RJ45 Patch Cord	Bag of 1	3.0m	Blue	6451 2 400C-30
4-pair Rear Facing To RJ45 Patch Cord	Bag of 1	4.5m	Blue	6451 2 400C-40
4-pair Front Facing to RJ45 Patch Cord	Bag of 1	1.2m	Blue	6451 2 404C-10
4-pair Front Facing To RJ45 Patch Cord	Bag of 1	2.1m	Blue	6451 2 404C-20
4-pair Front Facing To RJ45 Patch Cord	Bag of 1	3.0m	Blue	6451 2 404C-30
4-pair Front Facing To RJ45 Patch Cord	Bag of 1	4.5m	Blue	6451 2 404C-40

System Leads RJ45

Manufactured using the patent-pending CopperTen cable, these system leads come supplied with an RJ45 connector on each end. The assembly is cut into two to make two system leads. The RJ45 is plugged or patched into patch panels or network switches and the other end is directly terminated (using the KRONE termination tool) onto a module IDC.

System Leads RJ45

Ordering Information

Description	Quantity	Length	Product No.
CopperTen System Leads RJ45	Bag of 1	10m	6451 2 699-10
CopperTen System Leads RJ45	Bag of 1	20m	6451 2 699-20
CopperTen System Leads RJ45	Bag of 1	30m	6451 2 699-30
CopperTen System Leads RJ45	Bag of 1	40m	6451 2 699-40
CopperTen System Leads RJ45	Bag of 1	50m	6451 2 699-50

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4. CopperTen™ 10 Gigabit Solutions

CopperTen™ 10 Gigabit Solutions
Outlets

CopperTen FMK Outlet

These FMK CopperTen outlets clip directly into Clipsal/HPM style faceplates. The CopperTen modular outlet features LSA-PLUS® silver-plated 45° angled contacts for the most secure and reliable connection available.

CopperTen FMK Outlet

Ordering Information

Description	Quantity	Colour	Product No.
CopperTen FMK Outlet	Bag of 10	White	6467 4 272-00
CopperTen FMK Outlet	Bag of 10	Black	6467 4 272-10

CopperTen UTP Keystone Outlet

These Keystone mount CopperTen outlets clip directly into Keystone style faceplates or can be used with our Clipsal/HPM mounting adaptors. The CopperTen modular outlet features LSA-PLUS® silver-plated 45° angled contacts for the most secure and reliable connection available.

CopperTen Keystone Outlet

Ordering Information

Description	Quantity	Colour	Product No.
CopperTen Keystone Outlet	Bag of 10	White	6830 5 835-01
CopperTen Keystone Outlet	Bag of 10	Black	6830 5 835-04

CopperTen Shielded Keystone Outlet

The CopperTen shielded outlet is utilised at the work area and within the patch panel. Because it is shielded, there are no alien crosstalk issues.

Ordering Information

Description	Quantity	Colour	Product No.
CopperTen Shielded Keystone Outlet	Pack of 1	White	6830 1 811-01
CopperTen Shielded Keystone Outlet	Pack of 1	Black	6830 1 811-04

CopperTen™ 10 Gigabit Solutions
Faceplates

CopperTen 3-Port Angled Faceplate

The unique three-port design supports 10 Gigabit Ethernet performance. Angled to provide added protection for outlets and patch cords.

Ordering Information	
Description	**Product No.**
CopperTen 3-port angled faceplate	
Vertical	6467 1 119-01
Horizontal	6467 1 119-00

CopperTen 4-Port Staggered Faceplate

The unique staggered four-port design supports 10 Gigabit Ethernet performance by countering the negative effects of alien crosstalk.
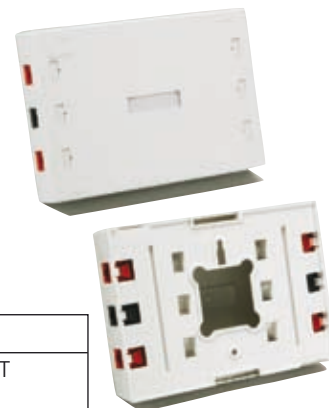

Ordering Information	
Description	**Product No.**
CopperTen 4-port staggered faceplate Includes: 2 blank paper labels, 2 clear plastic protectors, 1 logo insert, 6 reversible ID tabs numbered 1–6 (ID tabs match faceplate colors), mounting screws	TNSCSFPSO4-WT

CopperTen 6-Port Surface Mount Box

The unique six-port design supports 10 Gigabit Ethernet performance by countering the negative effects of alien crosstalk.

Ordering Information	
Description	**Product No.**
CopperTen 6-port surface mount box Includes: 2 blank paper labels, 2 clear plastic protectors, 1 logo insert, 6 reversible ID tabs numbered 1–6 (ID tabs match faceplate color), 1 hook-and-loop fastener strip, 1 millie tie for cable management, 2 mounting screws	TNSCSSB6-WT

CopperTen™ 10 Gigabit Solutions
Faceplates

Flush Mount

These accept the CopperTen Keystone Outlets. The unique rotational adaptor allows for the faceplates to be mounted horizontally or vertically.

Flush Mount Plate Dual

Flush Mount Plate Single

Ordering Information

Description	Quantity	Colour	Product No.
Flush Mount Plate Single	Box of 10	White	6467 1 108-00
Flush Mount Plate Dual	Box of 10	White	6467 1 110-00

Clipsal / HPM Adaptors

Used to mount CopperTen Keystone Outlets into HPM and Clipsal Faceplates.

Clipsal / HPM Mounting Adaptor

Ordering Information

Description	Quantity	Colour	Product No.
Clipsal / HPM Mounting Adaptor	Bag of 10	Black	6467 1 116-00
Clipsal / HPM Mounting Adaptor	Bag of 10	White	6467 1 116-02
Clipsal / HPM Mounting Adaptor	Bag of 10	Red	6467 1 116-03
Clipsal / HPM Mounting Adaptor	Bag of 10	Blue	6467 1 116-04
Clipsal / HPM Mounting Adaptor	Bag of 10	Grey	6467 1 116-05