

LSA-PLUS® Connectivity Catalogue

1st Edition



KRONE

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Introduction

There is a vast amount of information at the speed of light over data highways. We live in the information age and communicate at levels that were once inconceivable.

Large amount of data across great distance with ease, in the twinkling of an eye. ADC KRONE makes this possible. As a leading telecommunication firm, our products and solutions reliably connect and distribute all types of information.

As our customer you can rely on the innovative capability of one of the most experienced telecommunication firms in the world and outfit your network with components of the highest quality. Choose ADC KRONE for an economic, future-secure network.

With ADC KRONE as your partner you benefit on all counts. We plan your networks, supply both components and solutions, and offer, in addition, comprehensive maintenance for your telecommunication systems.

Your first step is the choice of products. Familiarize yourself with our broad range of products. We are only a call or an email away for any questions you might have.

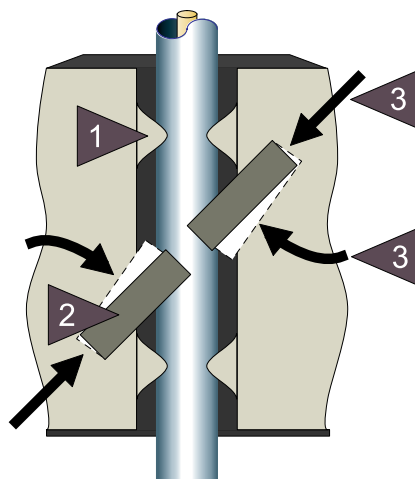
This catalogue is your quick connection to ADC KRONE. Thank you for your interest.

As a leading producer of connectivity system for voice, data and video transmission, ADC KRONE ensures the networking of infrastructures through out the world. We supply the complete connectivity and distribution technology for copper and fiber networks. We provided the foundation for satisfying all of your needs in telecommunication technology. ADC KRONE offers complete system solutions for the communication infrastructure of both public and private network operators.

The patented LSA-PLUS® connection technology proves itself daily billion-fold in all telecommunication market throughout the world. For decades, ADC KRONE's unique quick connection technology has set the standard in telecommunications. It is the technological leader whenever the secure, reliable and quick connection of wires is desired.

To summarize, the main features and advantages of LSA-PLUS® are :

- 45 degree contact
- Silver plate contact
- 4 plastic clamping ribs for every termination point
- Complied to IEC 352-4 which standardize the reliability of IDC quality under the OSP environment.



Introduction

LSA-PLUS® – The Quality Contact

Excellent quality image is backed by years of products service life in the field without problem.

The first LSA-PLUS® contact was installed in Germany during 1980s and it is still working well in the field. If you are using the same LSA-PLUS® installed today, it means it can still run for another 30 years or above free of problems.

Big pool of well-known customer base with excellent quality word of mouth.

Below is a table showing all our Northeast Asia and Southeast Asia major carrier customers using our LSA-PLUS® connectivity in their networks. This list excludes those outside these regions.

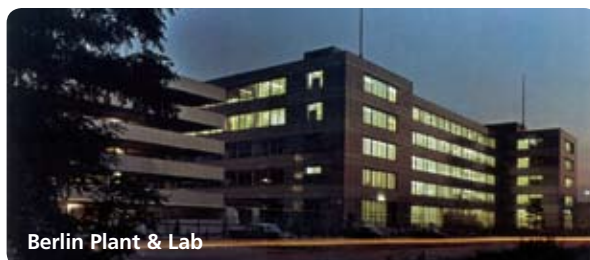
LSA-PLUS® Carrier Customer References

City/Country	Major Customers
Hong Kong	PCCW, HKBN, New World Telecom, HGC, HKCSL
Macau	CTM
Taiwan	Chunghwa Telecom
Philippines	PLDT, Globe Telecom, Smart Telecom
Vietnam	VNPT, Viettel
Singapore	SingTel, StarHub, M1
Thailand	True Telecom, TOT, TT&T, CAT
Indonesia	PT Telkom, Telkomsel, Indosat, Excelcomindo
Malaysia	Telekom MalaysiaMaxis, Celcom, Digi

Global OEM key account companies like Alcatel-Lucent, Siemens-Nokia Networks, Huawei, Ericsson, Motorola, Nortel, etc are also using our LSA-PLUS® connectivity solutions bundled with their own telecom equipment to supply to the above carriers.

High-tech production plant with excellent quality system

Our two major plants producing LSA-PLUS® are in Berlin of Germany and Sydney of Australia, both ISO9000 certified, with thousands professional staffs are committed to achieve the best quality beyond the customer expectations.



Introduction

ADC KRONE must pass these tests :

Contact resistance test The cornerstone of all ADC KRONE reliability tests, it indicates the reaction of ADCKRONE LSA-PLUS® contacts to a variety of test loads.	ADC KRONE Quality The quality of LSA-PLUS® contact is not reduced, even after the toughest continuous load.
Insulation resistance test ADC KRONE tests the resistance between the insulated contacts of ADC KRONE connectors.	ADC KRONE Quality High insulation resistance is maintained even under extremely humid conditions.
Long-term stability tests ADC KRONE creates accelerated artificial ageing process. This provides a solid base for highly accurate reports on the service life and behaviour of ADC KRONE contacts under extreme conditions.	ADC KRONE Quality Contact free of corrosion warranty for 30 years or above.
Vibration resistance test ADC KRONE determines whether building vibrations and other load causes disturbance in LSA-PLUS® contact.	ADC KRONE Quality No contact disturbance; high contact and grip forces are sufficient to maintain both the connector and the connection in the defined position.
Contact pressure relief test ADC KRONE simulates artificial ageing by storing the contacts for longer periods at higher temperatures. The quality of the contacts is subsequently tested.	ADC KRONE Quality No changes to the LSA-PLUS® contact or housing that could impede functional or operational reliability.
Temperature shock test ADC KRONE uses this test to determine whether frictional corrosion occurs under extreme temperature changes and whether temperature reactions in the connector housing have avoidable effects.	ADC KRONE Quality Contact quality is not reduced, even under these extreme conditions.
Humidity resistance test ADC KRONE tests the effects of high humidity on contacts and insulation material.	ADC KRONE Quality Not even high humidity affects contacts or insulation resistance.
Corrosive atmosphere test ADC KRONE tests how the contacts react to the effect of harmful gases in an aggressive industrial atmosphere.	ADC KRONE Quality Most aggressive constituents in the atmosphere do not affect contact quality.

Besides LSA-PLUS® contact, all other LSA-PLUS® Connectivity products with plastic materials must meet the flame retarding according to UL 94-V0, non-ageing and weather resistance and insusceptible to cable grease and plasticisers used in PVE insulations.

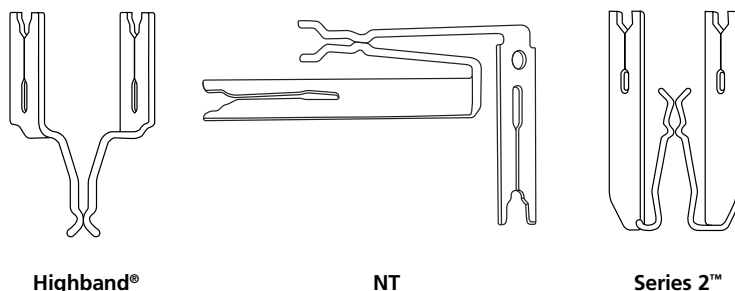
Introduction

Top rated test laboratory facility to support the top rated quality requirements

Thanks to in-house quality testing you're always on the safe side with ADC KRONE.

Typical functional reliability, durability and dependability are the result of complete and intense quality testing. This testing is planned in the very last detail and the results flow directly into research. It is here at ADC KRONE that many technological advances had their origins.

Three major types of LSA-PLUS® terminal blocks are popularly used in Asia Pacific. They are HighBand®, NT and Series 2™ modules. All three types can be used with the same ADC KRONE sensor insertion tool (6417 3 055-01). HighBand® and NT are the enhanced version of Series 2. Below shows the design differences of them.



Basically LSA-PLUS® HighBand® module is the best fit for very high speed transmission application such as broadband like VDSL2. The 350 MHz bandwidth exceeds the requirement under the EIA/TIA 568 B.2 Cat5e test standard.

LSA-PLUS® NT module is a high density module. It is best fit for FTTN application where density in the building MDF, Co-location and remote street cabinet applications is important.

There will be detail description of them in the latter section of this brochure.

About ADC

Founded in 1935, ADC has served the telecommunication industry for more than half a century and today is a leading supplier of global network infrastructure products and services. In 2004, ADC acquired the KRONE Group, a leading global supplier of copper and fiber-based connectivity solutions and cabling products, and serves its customers as ADC KRONE in the Europe/Middle East/Africa, Asia-Pacific regions of the world. The integration of these two companies positions ADC with annual sales US\$1.15 billion (FY 2009) and employs approximately 9,000 professionals worldwide.

Headquartered in Minneapolis, Minn. in the United States, the company has sales into more than 130 countries and occupies facilities around the world including locations in Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, France, Germany, Hong Kong, Hungary, India, Indonesia, Italy, Japan, Malaysia, Mexico, New Zealand, the Philippines, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Thailand, the United Arab Emirates, the United Kingdom, the United States, Venezuela, and Vietnam.

Customers around the world include local and long distance telephone companies, cable television operators, Internet/data communications providers, wireless service providers, private network operators, and broadcast television operators. Examples of this vast customer base include, AT&T, Alcatel-Lucent, Bell Canada, Bloomberg, China Telecom, Citibank, Comcast, Cox, Deutsche Telekom, Ford, GlaxoSmithKline, HSBC, JPMorgan Chase, Mayo Clinic, Morgan Stanley, NBC, Optus, Qwest, Reliance Infocom (India), Sprint Nextel, T-Mobile, Telus, Venetian Resort Hotel, Verizon, Vodafone, and many others.

Learn More About LSA-PLUS® Connectivity Solutions

Within this catalogue, you'll find complete descriptions and ordering information for the most popular LSA-PLUS® Connectivity Solutions so to keep pace with the latest innovations.

Technical Reference

LSA-PLUS® technical details

GENERAL TECHNICAL DATA¹⁾:

Climate conditions:

In dry or damp rooms not subject to condensation

TEMPERATURE RANGE:

Storage:

-40.....+90 °C

Operation:

-20...+80 °C

MECHANICAL DATA:

IDC standard – IEC 352-4 part 4 and DIN 41 611-6-C-EL-CL

Conductor specification (diameter)

a) solid wires:

for connections with one wire:

0.40...0.8²⁾ mm, AWG 26...20

for connections with two wires of the same diameter and type:

0.40...0.65 mm, AWG 26...22

b) Stranded cable for simple connection:

7x 0.12...0.32 mm CuSn, AWG 28...20

Other stranded cables:

on request

External diameter (insulation :PVC and PE):

untwisted 0.70...1.60 mm

No. of wires that can be connected per contact slot:

2

No. of reterminations 0.40...0.65 mm:

200

MATERIALS:

Plastic parts:

PBT

Flamability:

Conforms to UL 94 V-0

Contact blade:

special brass, silver plated, 0.5µm in contact range ≥ 5 µm

ELECTRICAL DATA:

(after 4 days storage in a constant environment at +40 °C and 93 % rel humidity)

Insulation resistance:

≥ 5 x 10⁴ mΩ

Dielectric strength:

2 KV_{rms}

Impulse voltage resistance (with undulations 1.2/50 µsec):

3.6 KV

Contact resistance (wire connection)

Typical value:

1 mΩ

Guaranteed value:

≤ 2.5 mΩ

Total resistance incl. Disconnection contact:

≤ 10 mΩ

Permitted impulse voltage resistance of (current impulse wave 8/20 µsec)³⁾

Connection module:

10 KA (for wire diameter 0.6mm=5 KA)

Disconnection module:

5 KA⁴⁾

Switching module:

5 KA

Notes:

¹⁾ Please refer to our laboratory report for details.

²⁾ After connection of ≥ 0.65 mm, it is no longer possible to switch to a smaller wire diameter.

³⁾ This applies to Series 2™ and NT modules.

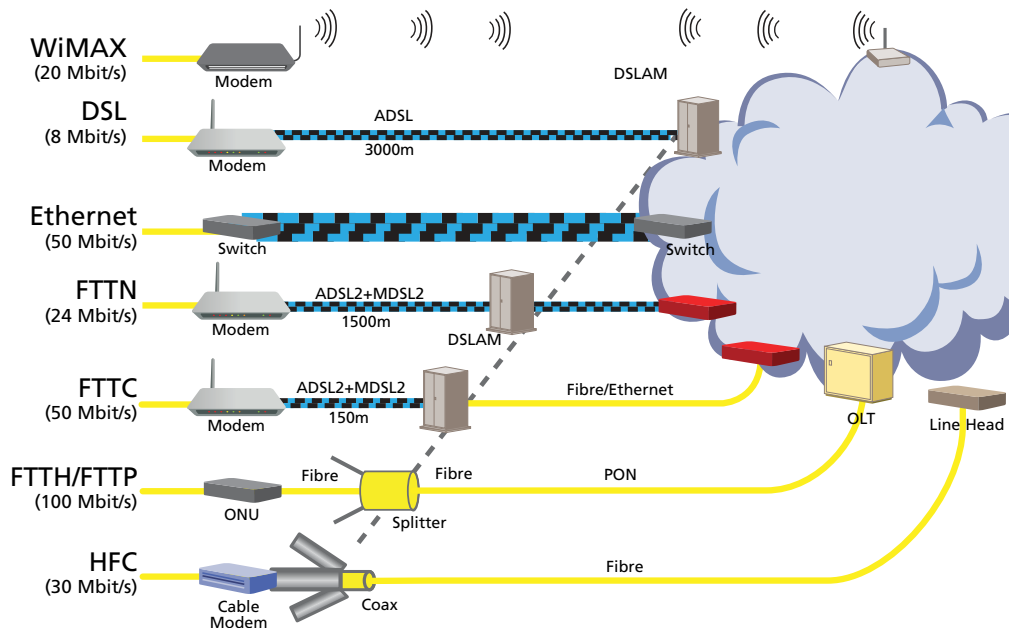
⁴⁾ 3 KA for HighBand® module.

No matter whether your FTTX is FTTB or FTTC, there is bound to be copper connectivity for the last 500m ~ 1Km loop. Fiber + VDSL2 is still the most cost effective solution for the emerging market carriers on broadband deployments. On one hand, it can solve the immediate bandwidth requirements. On the other hand it can easily migrate to purely FTTH for the next 5 or 10 years when the demand for such market comes.¹⁾

The new MDF will be different from the past we usually find in the central office. High bandwidth, high density and integrated features will be the keys. ADC KRONE provides three different types of MDF connectivity solutions for our customers. Each one can deliver specific values to the customers.

Since MDF is moved from central office to outside plant environment, the connection reliability subject to outside plant environment is crucial. There will be no more air-condition room to house the MDF. All ADC KRONE three solutions can meet these requirements. Our LSA-PLUS® connectivity solutions are complied to IEC 352 part 4 international standard.

A typical ADC KRONE FTTB + Cat 5e Cabling to provide a VDSL2 broadband service (100 Mbps up and down links) configuration is show as below.



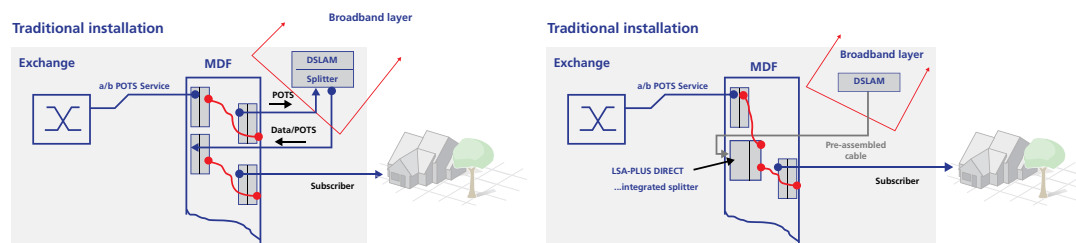
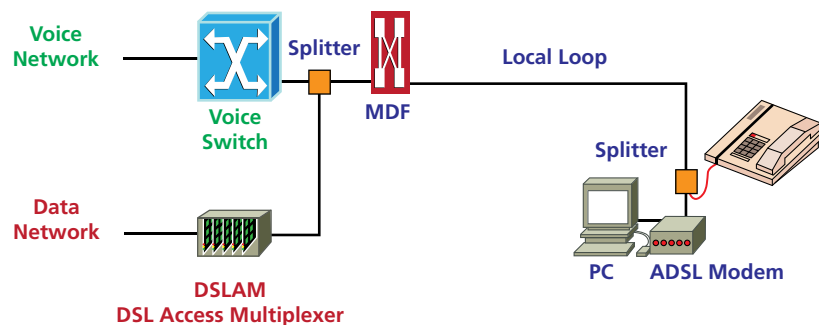
¹⁾ Please refer to our FTTN white paper 2009 issue 1.

BroadWire PLUS™

VDSL2/ADSL2+ Splitter Solution

Broadwire PLUS™ ADSL2+/VDSL2 8-pair splitter module separate high-frequency ADSL/VDSL signals from low frequency voice signals. This enables common use of a copper pair for both telephony services and high bit-rate data service. Direct installation in existing or new distribution systems reduces setup and cabling time. The splitter's modular design allows variants to be supplied that satisfy technical specifications or standards, as well as country-specific network characteristics. Depending on the configuration of existing distributors, over-voltage protection can be integrated directly into the splitter module or can be coordinated with or expanded by using protection circuits (installation on the line side).

The splitter is installed in the local exchange at a hand-over distribution frame or in cross-connection cabinets with active telecommunication components in de-centralised network topologies. The module housing snaps onto the rods of the 95mm profil® rod system or is mounted in a special back mount frame. Each housing accommodates one eight-pair splitter cards. Termination of the subscriber side, as well as connection to both the system side and the DSLAM, is carried out line-by-line using the standard LSA-PLUS® insertion tool.



The development of the LSA-PLUS® DIRECT ADSL splitter was driven by the demands of network operators in order to minimise their efforts in cabling and installation times; finally leading to a more attractive business case to their network upgrade for the provisioning of DSL services. Traditionally, the splitter cards were part of the DSLAM rack somewhere close to the established distributor. This configuration causes extra long cable runs, extra modules, long installation times and limits the flexibility inside the DSLAM rack. Today there is a common trend to move the splitter from the DSLAM rack to the modules inside the distribution environment gaining the advantages described above.

BroadWire PLUS™

VDSL2/ADSL2+ Splitter Solution

An example details breakdown of the customer savings by using ADC KRONE Broadwire PLUS™ splitter module is shown in Table 1. For a normal 60K lines ADSL central offices, the savings will be around USD 600,000! This does not include the intangible savings due to network breakdown, maintenance costs, etc caused by the traditional splitter rack approach.

Table 1

Saving Areas	Breakdown	Cost Saving/Line
Terminal block space	Frame space	5.66
	Module Cost	0.60
Cable Saving	Cable Cost	1.00
	Cabling labour cost	0.0333
Termination works		0.047
Splitter rack space		1.50
19" rack cost		0.11
19" rack space		1.49
TOTAL		10.45

As more and more telecom equipment is being deployed closer to the customer side, space will be a big issue no matter whether it will be installed in the street cabinet or building MDF room.

In some situations, services providers cannot get the required space even he is willing to pay for a higher rental price. By then ADC KRONE BroadWire PLUS™ is the best choice for both cost saving and feasible solution.

Product Features

- Optimised for cabinet and collocation distribution frame applications
- Splitter module for 8 subscriber lines
- Flexible profil® rod installation frame installation
- Compact size
- Enlarge jumper rings
- Replaceable splitter boards
- Customer-specific overvoltage protection can be integrated
- Cost-effective and rapid installation in distribution systems
- Splitter available for ETSI and ITU standard
- Supports ADSL2+ up to VDSL2
- LSA-PLUS® quick connection technology for the subscriber side, as well as for access to the system side and to the DSLAM
- Hinged label holder included
- Different colors to differentiate POTS, DSLAM and LINE ports IDC terminals
- Monitoring test of each port can be done with special test cord
- Optional mounting aid for the ease of rear connector terminations

BroadWire PLUS™

VDSL2/ADSL2+ Splitter Solution

Specifications

TEMPERATURE CHARACTERISTICS

Operating temperature:

-20°C to +60°C

Storage temperature:

-40°C to +80°C

ENVIRONMENTAL CHARACTERISTICS

Environmental conditions:

DIN IEC 68 Part 2-1 (cold), Part 2-2/3 (heat)

MECHANICAL CHARACTERISTICS

LSA-PLUS® contacts:

Jumper conductor diameter: 0.4-0.6 mm

Outer diameter: 0.7-1.2 mm with PE or PVC insulation

Mechanical load:

Sinusoidal vibration according to IEC 68-2-6



8-pair VDSL2+ over POTS Splitter Module, 600 Ohm



Hinged Label Holder for 8-pair Splitter Module



Mounting Aim for 8-pair Splitter Module



Test Cord, 2-pole; 2-pole plug/ open end / 1m Length



Test Cord, 2-pole; 2-pole Plug/ Banana Sockets / 151mm Length

Ordering Information

Description	Quantity	Product No.
8-pair VDSL2+ over POTS Splitter Module, 600 Ohm	Each	8822 3 001-08
Mounting Aim for 8-pair Splitter Module	Each	7073 2 007-04
Hinged Label Holder for 8-pair Splitter Module	Each	HLF-7073 2 135-00
Test Cord, 2-pole; 2-pole Plug / Banana Sockets / 151mm Length	Each	6623 2 023-00
Test Cord, 2-pole; 2-pole plug / open end / 1m Length	Each	6623 2 033-00

As we mentioned before in our past ADC KRONE articles that FTTX which is including FTTH, must be planned strategically. The four main factors must be considered carefully. They are

- Bandwidth required by users
- The reach of the subscribers
- Current infrastructure and resources
- CAPEX and OPEX

FTTH is undeniable future but it is unrealistic to build and fully cover all customers base within a short time. Do we have sufficient contents to fill-in the FTTH bandwidth? Will our customers be willing to pay? All these are business risks to the investments to the triple-play operators. In today's unstable economy situation, a safe-mode business decision may not be a bad approach. What is the minimum risk approach? We believe a good transition plan and schedule from FTTN to FTTH is the key to success of a fixed-line operator.

In order to meet the above four factors, FTTN can be approached in two different areas – existing and new built. For existing networks, the voice services still come from the local central office but data must go through the fiber channel to the remote site or last mile node. This is where the voice and data traffic re-combine and run through a better grade copper cables to provide a high bandwidth channel for both data and voice services to the subscribers in the last mile. The advantages of this deployment is to maintain the valuable copper assets underground or aerial mounted, avoiding those data transmission quality issues through current copper lines from central office (CO) to node, and at the same time satisfying the current bandwidth requirements with the minimum investments required.

For new built lines, the voice switches will be moved out of the CO to the remote node and integrated with MSAN equipment. Operators do not need to invest any new copper lines.

In future when FTTH services with the right contents is ready and matured, the node is where we split the fiber to individual subscribers.

ADC KRONE HighBand® Solution provides telecommunication operator a good option to provide current subscribers with sufficient bandwidth under the current copper technologies in the last mile.

Under the EIA/TIA 569B.2 standard, HighBand® module NEXT is 11 dB high than the Series 2™ module at 100 M Hz transmission frequency. NEXT is related to ACR which is linked to signal to noise ratio. A 3 dB lost is roughly equal to 50% signal strength reduction. ADC KRONE HighBand® 10 disconnection module has the highest NEXT bandwidth disconnection module in the market!

Products Features

- 48 dB NEXT – 5 dB higher than EIA/TIA 568B.2 Cat 5e standard (43 dB)
- LSA-PLUS® technology
- Disconnection point for 5-point protector and look-both way test, or interruption/reactivation of services
- Same Series 2™ insertion tool, mountings, label holder..etc
- Patch by exception – quick switch-over of services without waiting for re-jumpering



Specifications

MECHANICAL:

Environment for use:	Complied to IEC352-4
Operating temperature range:	-20°C to + 80°C
Wire range for solid and stranded copper conductors:	0.4-0.65 (26-22 AWG)*
Maximum relative humidity:	≤93% non-condensing
Wire insulation diameter range (PE, PVC):	0.7–1.4mm
Number of wire terminations:	typically ≥200
Wire insertion force (0.5, conductor dia):	typically 6N
Wire pull out force, radial (0.5, conductor dia):	typically ≥5N
Wire pull out force, axial (0.5, conductor dia):	typically ≥35N
Number of patching cycles, Modules:	typically ≥750
Patch plugs:	typically ≥200

ELECTRICAL:

Transmission and reliability:	exceeds Cat 5e TIA/EIA 568-B.2
Change of contact interface resistance after reliability testing to EIA568A and ISO/IEC 11801 per through connection. i.e 2 insulation displacement and 1 disconnection contact joints:	typically <5mΩ
Voltage/current rating at 25°C ambient:	≤150VAC at 2.5A max.
Dielectric strength:	≥1.5kVAC
Surge voltage strength (1.2/50 μsec wave shape):	≥2.5kV
Insulation resistance:	≥5x10 ⁴ MΩ at 500 VDC
Safety:	UL 1863
Flammability rating of plastic housing:	UL 94 V-0

RoHS and WEEE compliant

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

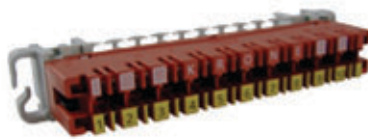
Terminal block & Surge Protection



HighBand® 10 Disconnect Module



HighBand® Compact 8 Disconnect Module



HighBand® 10 Switching Module



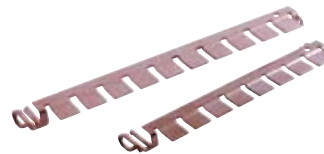
HighBand® ComProtect® HB/1 CP
CHGB180A1 O/V & O/C



HighBand® ComProtect® HB/1 CP CAA180A1
O/V, Cat 5e certified



Earth Clip



Earthrail 2/10 & 2/8

Ordering Information

Description	Quantity	Product No.
HighBand® 10 Disconnect Module with JRP10	Pack of 10	6468 5 061-00Y
HighBand® Compact 8 Disconnect Module with JRP10	Pack of 10	6468 5 061-08Y
HighBand® 10 Switching Module with JRP10	Pack of 10	6468 5 081-00Y
HighBand® ComProtect® HB/1 CP CHGB180A1 O/V & O/C	Kit**	8800 1 010-18
HighBand® ComProtect® HB/1 CP CAA180A1 O/V, Cat 5e Certified	Kit**	8800 1 010-28
Earthrail 2/10	Each	5909 3 041-00
Earthrail 2/8	Each	5909 3 042-00
Earth Clip	Each	6089 3 202-00

** 1 kit = 10 pcs with 1 pc Earth Bar

Accessories



HighBand® Discon Plug



HighBand® Marking Cap



HighBand® Dummy Plug



HighBand® to S2 Adaptor



Label Holder
2/10, blank, label size 95x22
2/10, blank, label size 95x15
2/8, blank, label size 75x13



Hinged Label Holder
2/10



Edge Protection Strip
Length 60mm



Cable Protection Ring



LSA-PLUS® Universal Mounting Aid



Sensor Insertion Tool

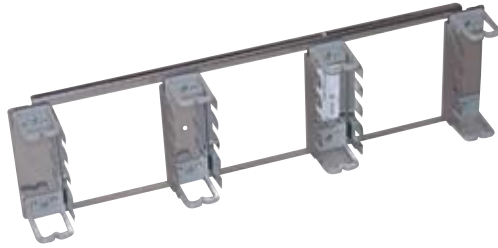


Disposable Insertion tool

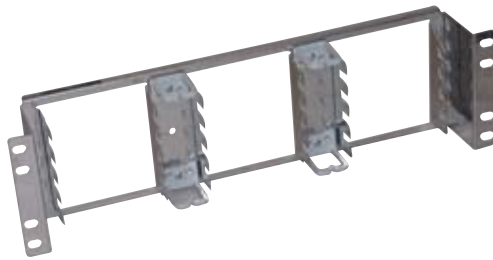
Ordering Information

Description	Quantity	Product No.
HighBand® Disconnection Plug 1 pair White	Pack of 20	6462 2 097-00
HighBand® Disconnection Plug 1 pair Red	Pack of 20	6462 2 097-10
HighBand® Disconnection Plug 1 pair Green	Pack of 20	6462 2 097-20
HighBand® Marking Cap 1 pair BLUE	Pack of 20	6462 2 101-00
HighBand® Marking Cap 1 pair RED	Pack of 20	6462 2 101-01
HighBand® Marking Cap 1 pair GREEN	Pack of 20	6462 2 101-02
HighBand® Dummy Plug 1 pair RED	Pack of 100	6451 5 035-00
Label Holder 2/10, blank, label size 95mm x 22mm	Each	6092 2 012-01
Label Holder 2/10, blank, label size 95mm x 15mm	Each	6092 2 012-02
Label Holder 2/8, blank, label size 75mm x 13mm	Each	6036 2 018-00
Hinged Label Holder 2/10	Each	6089 2 015-01
Hinged Label Holder 2/8	Each	6036 2 005-02
HighBand® Label Holder	Pack of 10	6462 2 096-00
Sensor Insertion Tool	Each	6417 2 055-01
Disposable Insertion tool	Each	6417 1 830-00
LSA-PLUS® Universal Mounting Aid	Each	6417 1 850-00
HighBand® to Series 2™ Adaptor	Each	6451 2 178-04
Cable Protection Ring	Each	6050 3 044-00
Edge Protection Strip Length 60mm	Each	6092 3 017-01
Edge Protection Strip Length 120mm	Each	6092 3 017-00

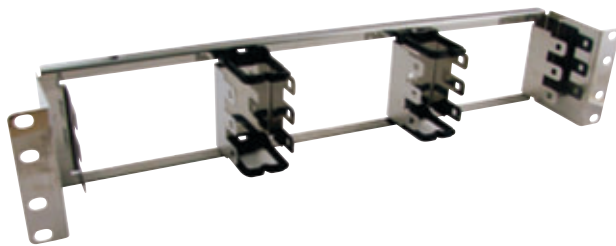
Mounting Frames



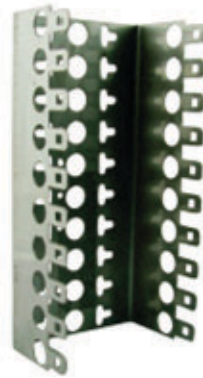
BMF 19" Rack 15 way



BMF 19" Rack 15 way Recessed



BMF 19" Rack 9 way Recessed



BMF 2/10, Pattern #1, 22.5mm,
10 way, 50mm deep

Ordering Information

Description	Quantity	Product No.
BMF 19" Rack 15 way	Each	6450 1 008-00
BMF 19" Rack 15 way Recessed	Each	6450 2 006-00
BMF 19" Rack 9 way Recessed	Each	6450 2 009-00
BMF 2/10, Pattern #1, 22.5mm, 6 way, 50mm deep	Each	6050 3 150-06
BMF 2/10, Pattern #1, 22.5mm, 10 way, 50mm deep	Each	6050 3 150-10
BMF 2/10, Pattern #1, 22.5mm, 11 way, 50mm deep	Each	6050 3 150-11

Test Cords



HighBand® Test Cord 1 pair - 2 x
Banana Sockets, X 190mm



HighBand® Test Cord 2 pairs - 4 x
Banana Sockets, X 190mm



HighBand® 10 Patch Cord
1 or 2 pair



HighBand® to Series 2™ Patch
Cord, 1 pair



HighBand® 10 Patch Cord,
4-pairs to 4-pairs



HighBand® 10 Patch Cord,
4-pairs to RJ45



HighBand® 10 Patch Cord,
2-pairs to RJ45

Ordering Information

Description	Quantity	Product No.
HighBand® Test Cord 1 pair - 2 x Banana Sockets, X 190mm	Each	6451 2 207-00
HighBand® Test Cord 2 pairs - 4 x Banana Sockets, X 190mm	Each	6451 2 213-00
HighBand® to Series 2™ Patch Cord, 1 pair, 2m, Quantity	Pack of 2	6451 2 059-21
HighBand® to Series 2™ Patch Cord, 1 pair, 3m, Quantity	Pack of 2	6451 2 059-31
HighBand® to Series 2™ Patch Cord, 1 pair, 5m, Quantity	Pack of 2	6451 2 059-51
HighBand® Patch Cord, 1 or 2-pair, 2m	Pack of 2	6451 2 048-21
HighBand® Patch Cord, 1 or 2-pair, 3m	Pack of 2	6451 2 048-31
HighBand® Patch Cord, 1 or 2-pair, 5m	Pack of 2	6451 2 048-51
HighBand® 10 Test Cord, 4-pair to RJ45, monitoring, 3m	Each	6451 2 099-30
HighBand® 10 Test Cord, 2-pair to RJ45, monitoring, 3m	Each	6451 2 100-30
HighBand® 10 Patch Cord, 4-pairs to 4-pairs, 3m	Pack of 2	6451 2 101-30
HighBand® 10 Patch Cord, 4-pairs to RJ45, 3m	Pack of 2	6451 2 102-30
HighBand® 10 Patch Cord, 2-pairs to RJ45, 3m	Pack of 2	6451 2 104-30

LSA-PLUS® NT - an Investment that Quickly Pays for Itself

LSA-PLUS® NT is a connection module for all telecommunication distributors which is very easy to work with. It features a high connection density and requires only the traditional LSA-PLUS® insertion tool for connection work. The system side is situated at the back at a right angle, so that there is no possibility of accidental access to the system connections. The test access and the jumper contacts are accessible from the front and very clearly arranged.

The absolutely unique design of the LSA-PLUS® NT module results in quick and reliable work with the module, as well as a very low rate of connection errors. The modules are designed for mounting onto Profile bars.

Also available are complete protected block with the most important accessories in one pre-assembled unit. The protected block LSA-PLUS® NT comprises 10 LSA-PLUS® NT modules with 10 pairs each, a label holder, Profile mounting frame and fixing elements, as well as 100 Over-voltage and over-current single-pair NT protector. The modules are mounted onto a Profile frame. The module pitch is 17.5mm.

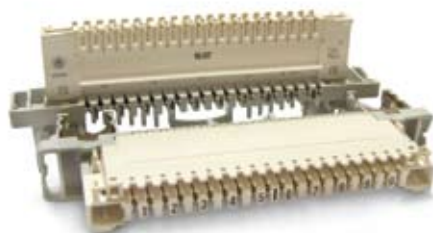
A special feature of the LSA-PLUS® NT is that the contacts for the cable wires and the jumpers are not located on the same plane. The cable wires are fed in from the side and at the back so that when the module has been installed only the contacts for the jumpers are directly accessible. If there is a special need to carry out work on the cable side the module can always be released from its Profile mounting position so that new wiring work can be done. The jumpering space between the modules is just as large as with LSA-PLUS® Series 2 modules. Nonetheless, there is more space for the jumper wires since the cable and jumper sides are in different planes. One result of this is that shielded jumper wires can be more easily terminated.

Despite the generous jumper channels, the modules are mounted with a small pitch of 17.5mm. Compared with other modules (e.g. LSA-PLUS® Series 2™), this LSA-PLUS® NT module results in a space savings of about 33% in the distributor. LSA-PLUS® NT, which is terminated using the standard LSA-PLUS® insertion tool, can be used at all at sites where many copper lines have to be distributed; or where active components also have to be installed so that there is only limited space remaining.

This is mostly the case in cross connection cabinets. But it is the FTTN cabinet that LSA-PLUS® NT reveals its true performance: There is little space in an OSP active cabinet. Here the space-saving design of LSA-PLUS® NT is precisely what is called for. The design of LSA-PLUS® NT prevents un-authorized access to the cable side of the module. This is quite frequently happen when an active cabinet are under two different maintenance groups.

Product Features

- Space savings and connection reliability in cable distribution.
- Optimal access security in Network interfaces.
- Installation with the same tool as LSA-PLUS® in voice and data distribution.



Specifications :

Mounting pitch: 17.5mm

ELECTRICAL

Contact stability: satisfying IEC 352 Part 4

Electrical safety: satisfying EN 60950

All wires between 0.4 and 0.8mm conductor diameter can be connected

Stranded wire can also be connected

Conforms to CE low-voltage guidelines

MECHANICAL

Temperature-resistant: from -40 °C to 90 °C

Resistant to chemicals, also to alcohol and cleaning agents

Non-flammable and self-extinguishing in according to UL 94-V0

Metal: stainless steel

Plastic: recyclable, UL 94 V0

DIMENSIONS

Width: 112mm

Height: 17.5mm

Depth: 27.5mm

PROTECTION DATA

DC spark-over voltage: 230V ±20%

Impulse spark-over voltage at 1KV/ µs: < 700V (a/b-e)

AC discharge current: 5A rms (a/b-e)

Impluse discharge current (8/20 µs): 5KA (a/b-e)

Line resistance: 14 Ohm ±20 :a,b Δ R < 1 Ohm

Trip current @ 25 °C: > 160 mA

Nominal operating current: 70mA

Typical Capacitance (a/b-e, a-b at 1 MHz): < 10 pF

With failsafe

Complied to RoHS, ITU-T K-12, IEC 68-2-6,

DIN IEC 68 part 2-1/2/3

Terminal block & Surge Protection



LSA Profil® NT Disconnection
Module, 8 pairs



LSA Profil® NT Disconnection
Module, 10 pairs



LSA Profil® NT Switching Module



100-Pair NT Protected Block



ComProtect® NTP GB 180A2



ComProtect® NTP CGB180A2



Jumpering Tool for NT Single-pair
Protector



Earth Bar NTP/10

Ordering Information

Description	Quantity	Product No.
LSA Profil® NT Disconnection Module, 8 pairs, Printing: Cable End and Jumper End:1, 2, 3, ...	Each*	7014 1 501-00
LSA Profil® NT Disconnection Module, 10 pairs, Printing: Cable End & Jumper End: 1, 2, 3, ... 0, White Enclosure	Each*	7014 1 601-01
LSA Profil® NT Switching Module, 10 pairs, Yellow Housing	Each*	7014 1 603-00
100-Pair NT Protected Block including 1 set of 7014 1 601-01, 10 pack of 8800 1010-16, 1 x 10 Ways Profile Mounting Frame, 1 x Label Holder 2/10, blank, label size 95mm x 15mm, 2 x Earth Clip	Each	8810 3 010-10
ComProtect® NTP GB 180A2	Kit	7019 1 013-00
Earth Bar NTP/10	Each	7019 3 037-00
NTP CGB180A2 1 Kit = 10 pcs with 1 pc Earth Bar 7019 3 037-00	Kit	8800 1 010-16
Jumpering Tool for NT Single-pair Protector	Each	6417 3 117-01

* ADC KRONE only accepts orders in multiples of 10

Accessories & Mounting Frames & Test Cords



Disconnection Plug NT, 1 pair



Dummy Plug NT, 1-pair



NT 1-pair Disconnect Adaptor



NT Mounting Aid, 10-pair



LSA-PLUS® NT Hinged Label Holder, 10 pairs, label: 91 x 10.9mm



NT Connection Cord, 1-pair



NT Test Cord, 4-pole, 20cm



NT Test Cord, 2-pole, 20cm

Ordering Information

Description	Quantity	Product No.
Disconnection Plug NT, 1 pair, Red	Each*	7014 3 021-00
Disconnection Plug NT 10-pair	Each	7014 3 085-00
Dummy Plug NT, 1-pair short, Red	Each*	7014 3 049-00
NT 1-pair Disconnect Adaptor	Each*	7014 1 043-00
NT Mounting Aid, 10-pair	Each	6690 3 031-10
LSA-PLUS® NT Hinged Label Holder, 10 pairs, label: 91mm x 10.9mm	Each	7014 2 007-00
LSA-PLUS® NT Hinged Label Holder, 8 pairs, label: 75mm x 10.9mm	Each	7014 2 032-00
NT Test Cord, 2-pole, 20cm	Each	7014 2 003-00
NT Test Cord, 4-pole, 20cm	Each	7014 2 004-00
NT Connection Cord, 1-pair, a/b-a/b, 2m	Each	7014 2 040-00

* ADC KRONE only accepts orders in multiples of 10

LSA-PLUS® Series 2™ module has been in services in the market for over 40 years, initially installed in the outside-plant cross-connection cabinet application then later in the central office as MDF. The long year of services proves itself a very reliable connection technology for telecommunication copper network especially in the out-side plant environment. This will fit for the current telecommunication infrastructure changes which shift more and more telecommunication equipments from central offices to outside and near to the customers, no matter it is FTTC, FTTB, FTTN, etc.

The most important elements of the LSA-PLUS® products are the modules. They are made of thermoplastic polyester as insulation and support material for the ADC KRONE LSA-PLUS® contacts.

The various module versions were used, include

- Connection module
- Disconnection module
- Switching module

The cable guides of the modules are extremely easy to use; the cable bundles are fed through the module guide ring and the individual wires of the cable are then inserted into the contact guide slots via the fanning guide pins and wire clips on the top of the module. Colored markets (option) printed on the top of the can identify the correct color code sequence for the cable.

The contact guide slots are fitted with plastic clamping ribs which hold the wires in position which means that all the wires can first be formed into the module without having to connect them immediately.

The jumper side of the module is printed with pair numbers and in addition each module has an opening at each end for fitting number flags which are used to identify the pair numbers of a cable series.

The simple clipping-on of the module onto the backmount frame or Profil® bars save the time-consuming screw-mounting systems and also allows the easy removal of individual modules from the frame when necessary. The retractable blade on the LSA-PLUS® insertion tool is used for this purpose.

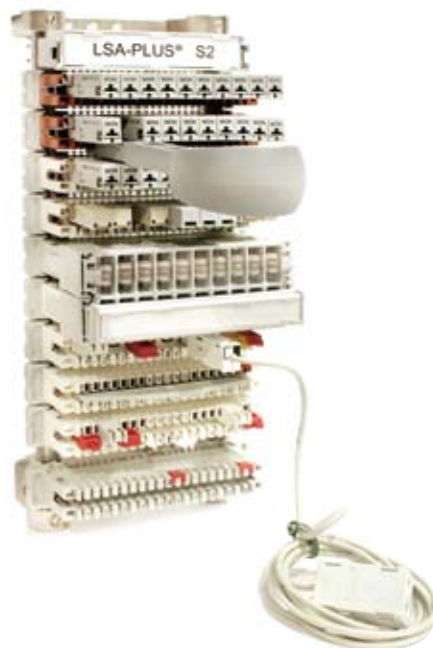
The module housing is color-coded, permitting the user to quickly recognize and differentiate between the functions of the various module versions

Connection module:	grey (similar to RAL 7035)
Disconnection module:	white
Switching module:	brown (similar to RAL 8004)

Color accessories (disconnection plugs, marking caps, etc.) are available in order to mark various services and circuits.

Product Features

- Genuine KRONE LSA-PLUS®
- 10 pair disconnection module
- White colour
- Fits on all LSA-PLUS® backmount frames as well as on Profil® Frames
- Suitable for the use in all ADSL circuits
- Long term environmental stability
- Indoor and outdoor use



Specifications

ELECTRICAL VALUES

Insulation Resistance:	> 50 GOhm @ 500 V
Contact Resistance:	1 mOhm
Safety classification:	(EN 60950)
Transient voltage:	2,5 kV
Operation voltage for basic insulation:	210VDC TNV
Pollution severity:	II
Current carrying capacity:	2 A (50Hz, 1s)
Impulse current:	5 kA (8/20µs)

CONNECTABLE WIRES CONDUCTOR DIAMETER

Single solid wire per contact:	0.40mm to 0.8 mm
Stranded wires:	7 tin coated copper strands, 0.12 to 0.32 mm diameter
All accessories from LSA-PLUS® Series 2™ will fit:	Overvoltage protection possible Labels Test and connection cords

PROPERTIES

Connection frequency:	200 times
Plug-in cycles:	250
Storage:	(EN 60721-3-1): 1K5 (-40°C bis +90°C)/1Z1/1B1/1C1/1S1/1M2
Transport:	(EN 60721-3-2): 2K2 (-40°C bis +90°C)/2B1/2C1/2S1/2M2
Operation:	(EN 60721-3-3): 3K5 (-5°C bis +60°C) /3Z1/3B1/3C1/3S1/3M2
Relative Humidity:	95 %, no Water condensation, no ice

MATERIALS

Plastics:	PBT
Plastics Flammability class:	UL 94 V-0
Resistance against aggressive chemicals (PVC-softener)	
Halogene free according to RoHS, European Directive 002/95/EG	
Contact:	Special Brass, Silver plated.

Terminal Blocks & Surge Protection



ComProtect® 2/1 CP BOD180A1



ComProtect® 2/1 CP B170A1



ComProtect® 2/1 CG B180A2



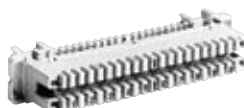
ComProtect® 2/1 CP B180A1



ComProtect® Test Device



2/10 Profile Disconnection Module



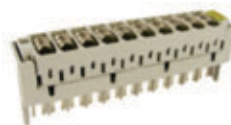
2/10 Profile Connection Module



LSA-PLUS® Over Voltage Protection Magazine, 2/10



2/10 Profile Switching Module



LSA-PLUS® Over Voltage Protection Magazine

Ordering Information

Description	Quantity	Product No.
2/8 Profile Disconnection Module	Each*	6036 1 005-00
2/10 Profile Connection Module	Each*	6089 1 120-02
2/10 Profile Disconnection Module	Each*	6089 1 121-02
2/10 Profile Switching Module	Each*	6089 1 126-00
ComProtect® 2/1 CG B180A2	Kit**	8800 1 010-20
ComProtect® 2/1 CP B180A1	Kit**	5909 1 076-00
ComProtect® 2/1 CP BOD180A1	Kit**	5909 1 078-00
ComProtect® 2/1 CP B170A1	Kit**	5909 1 082-00
LSA-PLUS® Over Voltage Protection Magazine, 2/10 (for 10x3-pole Arrestors)	Each*	6089 2 023-01
LSA-PLUS® Over Voltage Protection Magazine, 2/10 with 3-pole GD Tube	Each*	S6089 2 023-08
Magazine Cover	Each*	6417 3 022-01
ComProtect® Test Device	Each	5909 1 302-00
Software for ComProtect® Test Device	Each	5909 1 304-00
LSA-PLUS® 2/10 Adaptor for ComProtect® Test Device	Each	5909 1 303-00
Jumpering Tool for S2 Single-Pair Protector H Series	Each	6417 3 117-00

* ADC KRONE only accepts orders in multiples of 10

** Kit = 10pcs with 1 pc Earth Bar

Accessories



Disconnection Plug



Dummy Plug



Marking Cap



Disconnection Adaptor, 2/1



Spacer 5 mm



Spacer 2.5mm



Switchover Adapter - 10 Pair
printed with 1...0 (MOQ=10)



Label Holder 2/10 (95mm Profile
spacing), Profile



Disconnection Plug 2/10 & 2/8



Dust Cover 2/10, 100-pair

Ordering Information

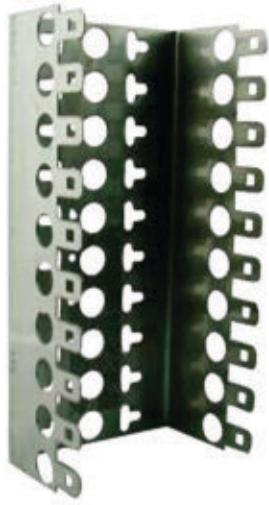
Description	Quantity	Product No.
Disconnection Plug, Red	Each*	6089 3 055-00
Disconnection Plug 2/10	Each*	6418 1 810-00
Disconnection Plug 2/8	Each*	6418 1 811-00
Marking Cap, Red	Each*	6089 3 006-00
Dummy Plug, Red	Each*	6417 3 105-00
Disconnection Adaptor, 2/1	Each**	6089 2 098-00
Disconnection Adaptor 2/10	Each**	6089 2 099-00
Switchover Adapter - 10 Pair printed with 1...0	Each**	6089 2 081-02
Switchover Adapter - 1 Pair	Each**	6089 2 093-00
Spacer 2.5mm	Each***	6619 2 046-00
Spacer 5 mm	Each***	6619 2 046-01
Dust Cover 2/10, 10-pair, Shallow	Each	6089 2 097-00
Dust Cover 2/10, 100-pair, Shallow	Each	6092 3 016-00
Dust Cover 2/10, 50-pair, Shallow	Each	6092 3 016-01
Dust Cover 2/10, 100-pair, Deep	Each	6092 3 034-10
Dust Cover 2/10, 50-pair, Deep	Each	6092 3 034-11
Label Holder 2/8 (75mm Profile spacing), Profile	Each	6753 2 008-00
Label Holder 2/10 (95mm Profile spacing), Profile	Each	6753 2 009-00

* ADC KRONE only accepts orders in multiples of 100

** ADC KRONE only accepts orders in multiples of 10

*** ADC KRONE only accepts orders in multiples of 20

Mounting Frames



BMF 2/10, pattern #1, 22.5mm,
10 way, 30mm deep



BMF 2/10, pattern #1, 22.5mm,
31 way



Fixing Materials for BMF 2/10

Ordering Information

Description	Quantity	Product No.
2/10 BMF - 21 Way	Each	5267 3 585-01
2/10 BMF - 31 Way	Each	5267 3 585-02
2/10 BMF - 41 Way	Each	5267 3 585-03
Fixing Materials for BMF 2/10	Each	6092 2 017-00
BMF 2/10, pattern #1, 22.5mm, 1 way, 12mm deep	Each	6050 3 112-01
BMF 2/10, pattern #1, 22.5mm, 2 way, 12mm deep	Each	6050 3 112-02
BMF 2/10, pattern #1, 22.5mm, 2 way, 22mm deep	Each	6050 3 122-02
BMF 2/10, pattern #1, 22.5mm, 3 way, 22mm deep	Each	6050 3 122-03
BMF 2/10, pattern #1, 22.5mm, 5 way, 22mm deep	Each	6050 3 122-05
BMF 2/10, pattern #1, 22.5mm, 5 way, 30mm deep	Each	6050 3 130-05
BMF 2/10, pattern #1, 22.5mm, 6 way, 30mm deep	Each	6050 3 130-06
BMF 2/10, pattern #1, 22.5mm, 10 way, 30mm deep	Each	6050 3 130-10
BMF 2/10, pattern #1, 22.5mm, 11 way, 30mm deep	Each	6050 3 130-11
BMF 2/10, pattern #1, 22.5mm, 20 way, 50mm deep	Each	6050 3 150-20
BMF 2/10, pattern #1, 22.5mm, 21 way, 50mm deep	Each	6050 3 150-21
BMF 2/10, pattern #1, 22.5mm, 30 way, 50mm deep	Each	6050 3 150-30
BMF 2/10, pattern #1, 22.5mm, 31 way, 50mm deep	Each	6050 3 150-31

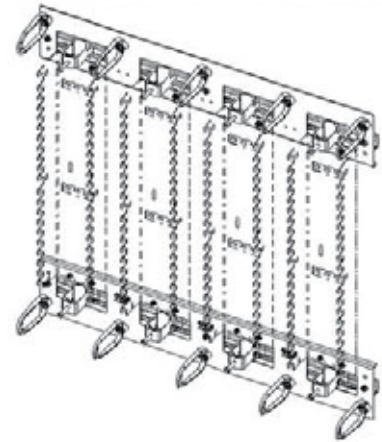
Mounting Frames



Universal 1,400-pair Frame, dual columns, BMF



Universal 700-pair Frame, single-column, BMF



Wall-mounted Distribution Frame Assembly Kit

Ordering Information

Description	Quantity	Product No.
Wall-mounted Distribution Frame Assembly Kit	Each	6577 1 011-04
Universal 700-pair Frame, single-column, BMF with 1 pair of legs	Each	8817 1 020-01
Universal 1,400-pair Frame, dual columns, BMF with 1 pair of legs	Each	8817 1 020-02
1 Pair of legs for the Universal 700/1400 pairs Frame	Each	8817 1 020-03
1 Pair Wall Mounting Bracket	Each	8817 1 020-04

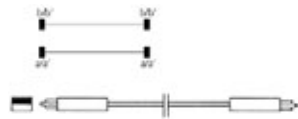
Mounting Frames

- For installation in system racks with metric or 19" design.
- Different heights offer a universal applicability.
- Size : 15U (H) x 535 (W) x 250 (D).
- High density solution also for collocation rooms.
- Vertical PROFIL rods with specially formed jumper rings at the right and the left.
- Vertical identification profiles can be mounted for counting of the module sites.
- Size : 2200 (H) x 600 (W)x300 (D).

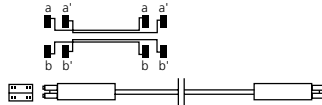
Ordering Information

Description	Quantity	Product No.
Vt COM 600	Each	6971 1 200-00
Vt COM 540	Each	6971 1 201-00
Vt COM Rack 2200x600x600	Each	6971 1 210-00
Rack Termination Kit	Each	6971 2 203-00
Rack Termination Kit, depth 300mm	Each	6971 2 210-00
Rack Termination Kit, depth 600mm	Each	6971 2 212-00
Ceiling Fixing Kit (1000mm height x 600mm width)	Each	6971 2 270-00
Ceiling Fixing Kit (2000mm height x 600mm width)	Each	6971 2 270-02
Screw Kit for back-back Mounting	Each	6971 2 420-00
ETSI 735U - 19" 41U Profile Rack	Each	7012 1 002-00
19" 15 U Profile Rack	Each	7012 1 110-00
19" 11 U Profile Rack	Each	7012 1 111-00
19" Subrack 3U Profile	Each	7012 1 301-00

Test Cords



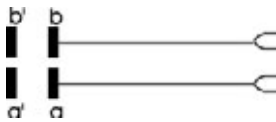
Test Cord 2/2, both ends



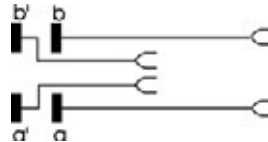
Test Cord 2/4, both end



Plug Set 2-pole Assembly



Test Cord 2/4, 2 x Banana Sockets



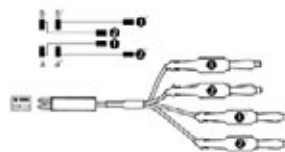
Test Cord 2/4, 4 x Banana Sockets



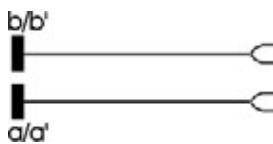
Plug Set 4-pole Assembly



Test Cord 2/4, 2 x Banana Sockets



Test Cord 2/4, 4 x Banana Plug



Test Cord 2/2, 2 x Banana Sockets



Test Cord 2/2, 2 x Banana Plugs

Ordering Information

Description	Length	Quantity	Product No.
Test Cord 2/2, 2 x Banana Sockets	2m	Each	6624 2 040-02
Test Cord 2/2, 2 x Banana Sockets	0.2m	Each	6624 2 040-09
Test Cord 2/2, 2 x Banana Plugs	2m	Each	6624 2 061-02
Test Cord 2/2, 2 x Banana Plugs	6m	Each	6624 2 061-06
Test Cord 2/2, both ends	2m	Each	6624 2 081-02
Test Cord 2/2, both ends	6m	Each	6624 2 081-06
Plug Set 2-pole Assembly, printed		Each	6624 2 201-04
Test Cord 2/4, 2 x Banana Sockets	2m	Each	6624 2 320 02
Test Cord 2/4, 2 x Banana Sockets	0.2m	Each	6624 2 320 09
Test Cord 2/4, 4 x Banana Sockets	2m	Each	6624 2 340-02
Test Cord 2/4, 4 x Banana Sockets	6m	Each	6624 2 340-06
Test Cord 2/4, 4 x Banana Sockets	0.2m	Each	6624 2 340-09
Plug Set 4-pole Assembly, printed		Each	6624 2 401-04
Test Cord 2/4, 2 x Banana Plugs	2m	Each	6624 2 521-02
Test Cord 2/4, 2 x Banana Plugs	6m	Each	6624 2 521-06
Test Cord 2/4, 4 x Banana Plug	2m	Each	6624 2 541-02
Test Cord 2/4, 4 x Banana Plug	6m	Each	6624 2 541-06
Test Cord 2/4, both end	2m	Each	6624 2 801-02
Test Cord 2/4, both end	6m	Each	6624 2 801-06

The increasing installation of cellular phone networks, as well as the introduction of the third/ fourth generation mobile phone network (3G/4G) and the rapidly increasing number of internet users, cause an extreme demand for bandwidth in both the access and transmission networks. Consequently this causes the extension of already existing hubs and the installation of new hubs as well.

For the 2 MBit-lines (PCM 30, E1) copper pairs with an impedance of 120 Ohms are used. For this medium ADC KRONE offers a complete product range of connection parts - LSA-PLUS® Disconnection Module 6 x abs.

If maximum packing density is needed in the digital signal distributor we recommend the LSA-PLUS® or LSA-Profil® 6 x abs module. This module is able to connect 2 Megabit lines reliable and even has more capacities. The paired contacts have an additional single-ended contact in between. The outer contacts are also completely shielded. By that even the stray-field of the outer pairs is considerably limited. The module complies with the recommendations of ITU-T G.703 (Physical/electrical characteristics of hierarchical digital interfaces).

The LSA-Profil® disconnection module 6 x abs, is designed for the distribution of shielded, single-pair to 6-pair copper cables in high-speed data transmission networks. The module, besides mounted in standard BMF, can be installed in standard LSA-Profil® frames where the centre-to-centre distance is 95 mm.

The 6 x abs disconnection module is best fit for 3G/4G base stations.

Features

- The module is designed for the distribution of 2Mbit services.

Advantages

- Cost-effective
- Easy to install and terminate
- Guaranteed performance
- Utilises proven LSA-PLUS® technology
- Terminated using standard LSA-PLUS® insertion tool
- From the leading manufacturer of telecommunications distribution technology - a guarantee of a secure investment

Benefits

- Can be configured individually
- Low operational and maintenance

Digital Distribution Frame (DDF) Solutions

120 Ohm DDF Solutions



Disconnection Module 2/6x3, Cableside Printing abs



PROFILE Disconnection Module 2/6x3, Printing cable side 1....6



2/10 Earth Module, 38, Red, 250mm Cable Rug

Ordering Information

Description	Quantity	Product No.
2/10 Earth Module, 38, Red, 250mm Cable Rug	Each*	6089 2 017-00
PROFILE Disconnection Module 2/6x3, Printing cable side 1....6	Each*	6504 1 005-01
Disconnection Module 2/6x3, Cableside Printing abs	Each*	6504 2 002-00

* ADC KRONE only accepts orders in multiples of 10

Digital Distribution Frame (DDF) Solutions

75/120 Ohm Balun Panels

At ADC KRONE, we design and manufacture connectivity and interface solutions for telecom network applications. Our solutions are designed to save space, time and expense while delivering high quality and reliability. We design to international standards and understand the operators' need for solutions that support the continuous change inherent in a high technology industry. Our specialty is interfacing equipment of varying connector standards, gender and impedance. We work in all corners of the world and welcome the unique challenges of your network.

Improve Network Economy and Transmission Performance with ADC KRONE Balun Solutions

ADC KRONE Baluns allow telecom network operators to convert a Digital Distribution Frame (DDF) from coax to twisted pair and achieve 75% saving on the cost of installations and maintenance, 75% less time to get tasks done and 75% less space used.

Transmission Baluns connect modern equipment with twisted pair interfaces to established coaxial infrastructure. Baluns also isolate the signal path and ground references, valuable tools in controlling and limiting earth currents and noise across the network.

Return Loss

Measures the impedance matching performance of a Network where mismatch causes reflections that reduce and distort the transmitted signal. The ITU's G.703 specification defines the maximum return loss for equipment to equipment transmission across a DDF (Digital Distribution Frame). Every ADC KRONE Balun is tested to ensure performance exceeds ADC KRONE's spec leaving headroom to allow real DDF's to meet the ITU's G.703 requirement..

Insertion Loss

The maximum attenuation of a signal passing from equipment to equipment across a DDF is defined by the ITU's G.703 specification as 6dB for E1/E2 transmissions.

Baluns and Accessories for Telecom Applications

ADC KRONE technologies produce baluns for a broad range of Telecom digital network data streams from 1.5Mbit/s "T1" and 2.048Mbit/s "E1" through to 155Mbit/s STM1. We produce Baluns as single devices through to high density arrays. There are Balun families for mounting in existing U-Link panels, network specific DDF panels such as those used for BNC connectors or on Back Mount Frames. We produce Baluns in 19", ETSI and 23" panels in traditional formats as well as modular 1U panel solutions. Our modular panels allow users to choose the desired interfaces, functions, partially populate and add or remove modules without disturbing adjacent circuits. ADC KRONE's Balun products are available off the shelf with BNC, DIN 1.6/5.6 and SMB 75 Ohm coaxial interfaces complete with gender and mounting options. Our standard twisted pair interfaces include LSA-PLUS® IDC module and RJ45.

Digital Distribution Frame (DDF) Solutions

Balun Panels

Features

- Coaxial to twisted pair conversion of E1 / E2 / E3 signals, 75/120 Ohm
- 1U 19" panels house up to 40 baluns
- Shielded KRONE Module twisted pair interface and RJ45
- Choose balun or monitored balun module functions
- Choose BNC, DIN 1.6/5.6 and SMB coax
- Choose connectors with male or female gender
- Partially populate and swap modules without disturbing adjacent circuits
- Panel constructed from zinc sealed, black powder coated steel
- Modules constructed from impact resistant thermoplastic alloy
- Accessories available for monitor and patch on disconnect interface
- Performance exceeds the ITU G.703 requirements
- > 33dB return loss and < 0.15dB insertion loss 0.3 to 3MHz
- Customised solutions (impedance, bit rate, function) on request

ADC KRONE modular Balun panels offer the advantages of industry standard 19" rack mounting coupled with the flexibility of individual modules. Designed for converting 1 to 20 E1/E2/E3 circuits (up to 40 baluns) from 75 Ohm coax to 120 Ohm twisted pair. Modules are available with different coaxial interfaces each with a choice of RJ45 or IDC twisted pair. Available as preloaded panels or individual modules there are a variety of functions such as balun, monitored balun, balun with disconnect and patch.

Our separate internal circuits have DC isolated signal paths and shielding to minimise cross talk, noise and earth loops that cause data errors. Each module is housed in an impact resistant, fire retardant, thermoplastic alloy case and mounts in a 19" 1U steel panel. The panel may be oriented with coax or twisted pair to the front and recessed to ease cable entry. Users choose the desired functions and number of circuits providing a custom solution using standard building blocks.



Digital Distribution Frame (DDF) Solutions

Balun Panels



Balun Panel, 1RU, 32xBNC(F) to 8x4Way KRONE Modules, reversible, 2-8Mbit/s Application, 75/120 Ohm, 16xE1 Channels



Balun Panel, 1RU, 32x1.6/5.6(F) to 8x4Way KRONE Disconnect Modules, reversible, 2-8Mbit/s Application, 75/120 Ohm, 16xE1 Channels



Balun Panel 48xBNC(f) to 24xRJ45 E1/2, 75/120 hm, 1U



Modular Panel (Empty), 19" 1RU



Dual Balun, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded BNC (f) to RJ45 (f)

Ordering Information

Description	Quantity	Product No.
Balun Panel, 1RU, 32xBNC(F) to 8x4Way KRONE Modules, reversible, 2-8Mbit/s Application, 75/120 Ohm, 16xE1 Channels, with Earth Studs.	Each	6450 1 081-10
Balun Panel, 1RU, 32x1.6/5.6(F) to 8x4 Way KRONE Disconnect Modules, reversible, 2-8Mbit/s Application, 75/120 Ohm, 16xE1 Channels, with Earth Studs.	Each	6450 1 081-11
Balun Fixed Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 32 x BNC (f) to 16 x RJ45 (f)	Each	6450 1 084-00
Modular Balun Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 32 x BNC (f) to 16 x RJ45 (f)	Each	6450 1 085-00
Modular Balun Panel, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded 19" 1RU, 16 x BNC (f) to 8xRJ45 (f)	Each	6450 1 086-00
Modular Panel (Empty), 19" 1RU	Each	6450 1 087-00
Dual Balun, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded BNC (f) to RJ45 (f)	Each	6450 1 088-00
Balun Panel 48xBNC(f) to 24xRJ45 E1/2, 75/120 hm, 1U	Each	6450 1 089-00

Digital Distribution Frame (DDF) Solutions

Balun Panels



Modular Balun Panel, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded 19" 1RU, 16x1.6/5.6 (f) to 8xRJ45 (f)



Dual Balun, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded 1.6/5.6 (f) to RJ45 (f)

Ordering Information

Description	Quantity	Product No.
Balun Fixed Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 32xSMB (m) to 16xRJ45 (f)	Each	6450 1 110-00
Balun Fixed Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 48xSMB (m) to 24xRJ45 (f)	Each	6450 1 111-00
Balun Fixed Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 32x1.6/5.6 (f) to 16xRJ45 (f)	Each	6450 1 112-00
Modular Balun Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 32x1.6/5.6 (f) to 16xRJ45 (f)	Each	6450 1 113-00
Modular Balun Panel, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded 19" 1RU, 16x1.6/5.6 (f) to 8xRJ45 (f)	Each	6450 1 114-00
Modular Balun Panel, 75/120Ohm, 2-8M bit/s, E1 & E2, Shielded 19" 1RU, 32xSMB (m) to 16xRJ45 (f)	Each	6450 1 117-00
Dual Balun, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded 1.6/5.6 (f) to RJ45 (f)	Each	6450 1 115-00
Dual Balun, 75/120 Ohm, 2-8Mbit/s, E1 & E2, Shielded SMB (m) to RJ45 (f)	Each	6450 1 116-00
21" Bracket set for 1U Panel	Set	6450 1 118-21
23" Bracket set for 1U Panel	Set	6450 1 118-23

Digital Distribution Frame (DDF) Solutions

Single Balun

Features

- Coaxial to twisted pair conversion
- BNC, 1.6/5.6 or SMB coaxial connectors
- Standard family with KRONE 3 pole IDC Interface
- Supports E1/E2/E3 line code and others
- Convert 75 to 120, 2-8, 2-8-34MBit/s and others
- Performance exceeds the ITU G.703 requirements
- < -33dB return loss 0.3 to 3MHz
- < 0.15 dB insertion loss 30KHz to 3MHz
- < -70dB cross talk on 15mm pitch
- Teflon insulators, 1.25m Gold plating on pins
- > 500 coax insertion cycles
- Small compact design

ADC KRONE single Baluns are used to convert unbalanced coaxial transmissions to balanced twisted pair and are intended to be mounted in DDF panels or directly on equipment interfaces. A bi-directional device requiring no external power, they connect telecommunications equipment with mismatched interfaces or may be used to convert a coaxial DDF to twisted pair giving the Network Operator savings of up to 75% in time, space and costs. They are available with a number of different coaxial connectors including BNC, 1.6/5.6 and SMB in a variety of industry standard mountings. They are shielded, provide twisted pair strain relief and are quickly terminated on the twisted pair side with a KRONE tool.

Digital Distribution Frame (DDF) Solutions

Single Balun



Balun 1.6/5.6(M) Plug Screw
to 3 Pole KRONE IDC



Balun 1.6/5.6(F) Socket
to 3 Pole KRONE IDC



Balun Patch Cord 1.6/5.6(M)/2p
KRONE Plug With Monitor, 3m



Balun Patch Cord 1.6/5.6(M)/4p
KRONE Plug



Balun Patch Cord BNC(M)/2p
KRONE Plug

Ordering Information

Description	Quantity	Product No.
Balun BNC(m) to 3 Pole KRONE IDC, E1/E2	Each	6468 3 061-00
Balun BNC(f) TO 3 Pole KRONE IDC, E1/E2	Each	6468 3 061-01
Balun BNC(m) to 3 Pole KRONE IDC, E1/E2/E3	Each	6468 3 061-03
Balun BNC(f) to 3 Pole KRONE IDC, E1/E2/E3	Each	6468 3 061-04
Balun SMB (f) SNAP to 3 Pole KRONE IDC, E1/E2	Each	6468 3 066-00
Balun SMB (m) Bulkhead to 3 Pole KRONE IDC, E1/E2	Each	6468 3 066-01
Balun Patch Cord 1.6/5.6(m)/2P KRONE Plug with monitor, 3m	Each	6468 3 082-03
Balun Patch Cord 1.6/5.6(m)/4P KRONE Plug, 3m	Each	6468 3 083-03
Balun Patch Cord BNC(m)/2P KRONE Plug, with Monitor, 3m	Each	6468 3 084-03
Balun 1.6/5.6(m) Plug Screw TO 3 Pole KRONE IDC, E1/E2	Each	6468 3 087-00
Balun 1.6/5.6(m) Plug Screw to 3 Pole KRONE IDC, E1/E2/E3	Each	6468 3 087-01
Balun 1.6/5.6(f) Socket to 3 Pole KRONE IDC, E1/E2	Each	6468 3 088-00
Balun 1.6/5.6(f) Socket to 3 Pole KRONE IDC, E1/E2/E3	Each	6468 3 088-01
Profile Earth Strap	Each	6455 2 042-00
Coax Coupling Support for 4 x BNC	Each	6619 2 004-00
Coax Carrier, 6x1.6/5.6 for Profil®	Each	6619 2 004-13

External cabinets are subjected to particularly stringent demands from their environment against external influences and access by unauthorized personnel requires the highest standards of stability, resistance to all kinds of climatic influences, air pollution and tempering. Equally, authorized personnel must have easy access and maintenance should be minimal. For several decades the ADC KRONE plastic cross connection cabinets have been meeting these requirements.

Sandwich Construction Details: The Advantages Offered by ADC KRONE Cross Connection Cabinets

- Climatic and Environmental Reliability**
 The heat pressure moulded surface of glass-fibre reinforced polyester ensures a long services life and is resistant to all the demands imposed by the climate and environment. The jumpering racks, as well as all the fittings are made from stainless steel.
- Avoidance of Condensation**
 The thermally sealed insulated housing with its sandwich construction prevents rapid internal changes in temperature which would cause condensation. Auxiliary internal heating is therefore not required.
- Protection against Dust and Insects**
 Between the lower edges of the cabinet and the base plate there is an air vent for compensation of pressure in the cabinet. The design parameters of this air vent and the door sealing are such that dust and insects are prevented from entering the cabinet. The material composition even provides protection against termites.
- Protection against Damages**
 Scratch-resistant surfaces, solid walls and doors, good overall stability and a high degree of flame resistance result in optimum protection against accidental or willful damage.
- Ease of Maintenance**
 During the entire service life of the cabinet, surface maintenance is not required. The housing does not require painting and the rust damage associated with metal housings does not occur.
- Exchangeability of the Cabinet Housings.**
 The structural separation between the outer shell and the mounting frame for the LSA-PLUS® modules makes it easy to replace the housing if it gets damages.
- Simple Assembly, Good Accessibility**
 When the outer shell of the cabinet is detached from the internal frame-work, the base plate and the mounting frame can be easily installed and all round access to the cables and LSA-PLUS® modules is possible. When the housing is replaced and fixed in position by means of two fixing bolts, the doors can be fully opened and secured at an angle of over 100 degrees to the front face of the cabinet thus allowing easy access to the terminal blocks. The door can be attached from either the right or the left side.



ADC KRONE CCC59M Unique Sandwich Structure

Cross Connection Cabinet 59M



CCC 59m1, 1-door



Mounting Rail, Horizontal for CCC 59m1 & 2



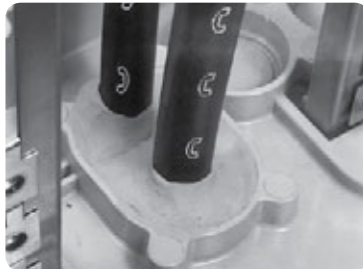
Earth Connection Kit



Door Retainer for CCC 59



Fixing Materials to BMF with T-shape



Sealing Putty



Concrete-plinth Fixing Kit

Ordering Information

Description	Quantity	Product No.
CCC 59m1, 1-door	Each	5267 1 600-02
CCC 59m2, 2-door	Each	5267 1 601-02
Sealing Putty	Each	0099 0004-00
Concrete-plinth Fixing Kit	Each	5267 2 530-00
Earth Connection Kit	Each	5267 2 533-00
Fixing Materials to BMF with T-shape	Each	5267 2 577-02
Mounting Rail, Horizontal for CCC 59m1 & 2	Each	5267 2 578-00
Door Retainer for CCC 59	Each	5267 2 621-00



Key for Locking Mechanism 19



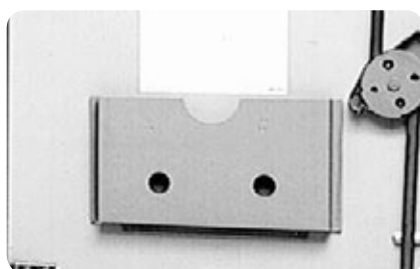
Saddle Clamp for 16-22 mm Cable Dia.



C Clamp and backing plate



2/10 BMF - 31 Way



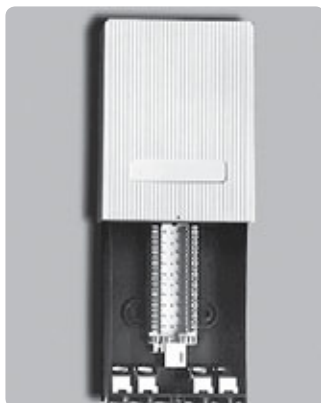
Document Holder Self Adhesive

Ordering Information

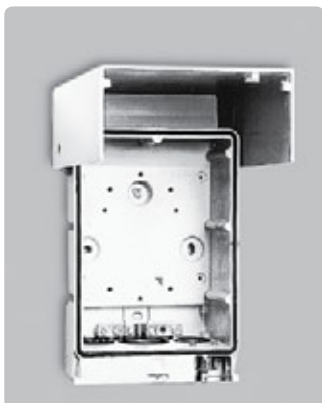
Description	Quantity	Product No.
Key for Locking Mechanism 19	Each	5267 3 383-52
Document Holder Self Adhesive	Each	5267 3 537-00
C Clamp for 18-22 mm Cable Dia.	Each	5267 3 571-04
C Clamp for 22-26 mm Cable Dia.	Each	5267 3 571-05
C Clamp for 26-30 mm Cable Dia.	Each	5267 3 571-06
C Clamp for 38-42 mm Cable Dia.	Each	5267 3 571-08
C Clamp for 30-34 mm Cable Dia.	Each	5267 3 571-09
C Clamp for 50-54 mm Cable Dia.	Each	5267 3 571-11
Backing Plate for C-clamp for 30-34 Cable Dia.	Each	5267 3 572-00
Backing Plate for C-clamp for 18-22 Cable Dia.	Each	5267 3 572-04
Backing Plate for C-clamp for 22-26 Cable Dia.	Each	5267 3 572-05
Backing Plate for C-clamp for 26-30 Cable Dia.	Each	5267 3 572-06
Backing Plate for C-clamp for 38-42 Cable Dia.	Each	5267 3 572-08
Backing Plate for C-clamp for 50-54 Cable Dia.	Each	5267 3 572-11
Saddle Clamp for 16-22 mm Cable Dia.	Each	6619 2 051-00
Saddle Clamp for 22-26 mm Cable Dia.	Each	6619 2 052-00
Saddle Clamp for 30-34 mm Cable Dia.	Each	6619 2 054-00
Saddle Clamp for 42-46 mm Cable Dia.	Each	6619 2 057-00
Saddle Clamp for 50-54 mm Cable Dia.	Each	6619 2 059-00
Jumper Guide	Each	5267 3 589-00
2/10 BMF - 31 Way	Each	5267 3 585-02

Outdoor & Indoor Boxes

A Series Box



Kronection Box A-10



Kronection Box A-30 for 3x1/10



Test Adaptor 8/1

Ordering Information

Description	Quantity	Product No.
Kronection Box A-2	Each	6430 1 002-00
Test Adaptor 8/1	Each	6430 2 003-00
Kronection Box A-10	Each	6432 1 002-00
Cylinder Lock	Each	6432 3 018-00
Key	Each	6432 3 019-00
Mini Distributor 8/2, 2-pair	Each	6562 1 001-00
Mini Distributor 6/10, shallow, c/w 1x8/10 Module	Each	6591 1 001-00
Mini Distributor 6/10, deep, c/w 1x8/10 Module	Each	6591 1 004-00
Kronection Box A-30 for 3x1/10	Each	6541 1 002-00
Kronection Box A-30, 3-way BMF for 2/10	Each	6541 1 003-00
Earthing Clamp for Cable Sheath	Each	6541 2 003-00
Pole fixing kit for A-30 and A-100	Each	6541 2 005-00
Security Lock with Locking Mechanism 19	Each	6541 2 006-00
Security Lock with Locking Mechanism 15	Each	6541 2 006-01
Lock Kit with 2 keys (Euro locks)	Each	6541 2 006-02
Kronection Box A100 for 2x10/5 Modules	Each	6542 1 001-00
Kronection Box A-100 for 4x1/10	Each	6542 1 002-00
Kronection Box A-100, 10-way BMF for 2/10	Each	6542 1 003-00
EVz KB 200-A	Each	7083 1 200-00

Outdoor & Indoor Boxes

BC Series Box



BC 30, c/w BMF, for 2x2/10 module

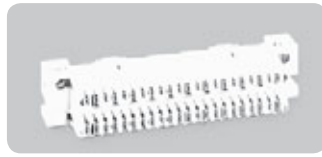


BC 50, c/w Profil® rods, for 10x2/10 module

Ordering Information

Description	Quantity	Product No.
BC 30, c/w BMF, for 2x2/10 module	Each	7083 1 301-00
BC 30, c/w C-rail, for 4xDrop-wire module	Each	7083 1 303-00
BC 40, c/w BMF, for 5x2/10 module	Each	7083 1 401-00
BC 40, c/w Profil® rods, for 5x2/10 module	Each	7083 1 402-00
BC 40, c/w C-rail, for 10xDrop-wire module	Each	7083 1 403-00
BC 50, c/w BMF, for 10x2/10 module	Each	7083 1 501-00
BC 50, c/w Profil® rods, for 10x2/10 module	Each	7083 1 502-00
BC 50, c/w C-rail, for 26xDrop-wire module	Each	7083 1 503-00
Retrofit kit lock for BC 30	Each	7083 1 900-00
Retrofit kit lock for BC 40/50	Each	7083 1 901-00
Retrofit kit sealing for BC 30	Each	7083 1 902-00
Retrofit kit sealing for BC 40	Each	7083 1 902-01
Retrofit kit sealing for BC 50	Each	7083 1 902-02

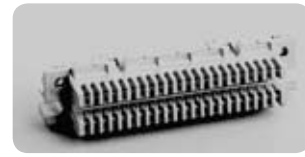
Supplementary Products



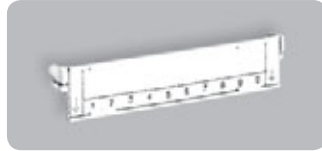
Connection Strip 1/10



Connection Strip 1/20



Earth Module 1/44



Label Holder 1/10



Test Cord 1/2 (7040)



Marking Cap 1/1



Connection Module 10/10,
12mm, w/o 1-way Safety Feature



Test Cord (7052) 130mm

Ordering Information

Description	Quantity	Product No.
Connection Strip 1/10	Each	6196 2 001-02
Connection Strip 1/20	Each	6196 2 002-02
Earth Module 1/44	Each	6196 2 003-01
Earth Module 1/84	Each	6196 2 004-01
Label Holder 1/10	Each	6196 2 005-00
Label Holder 1/20	Each	6196 2 006-00
Test Cord 1/2 (7040)	Each	6196 2 008-00
Marking Cap 1/1	Each*	6196 3 042-00
Connection Module 10/10, 12mm, w/o 1-way Safety Feature	Each	6730 1 001-00
Connection Module 10/10, 17mm, with 1-way Safety Feature & 20 x 5mm Spacers	Each	6730 1 001-01
Test Cord (7052) 130mm	Each	6089 2 141-00

* ADC KRONE only accepts orders in multiples of 100

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5267 2 577-02	Fixing Materials to BMF with T-shape.....	39
5267 2 578-00	Mounting Rail, Horizontal for CCC 59m1 & 2	39
5267 2 621-00	Door Retainer for CCC 59	39
5267 3 383-52	Key for Locking Mechanism 19	40
5267 3 537-00	Document Holder Self Adhesive	40
5267 3 571-04	C Clamp for 18-22 mm Cable Dia.....	40
5267 3 571-05	C Clamp for 22-26 mm Cable Dia.....	40
5267 3 571-06	C Clamp for 26-30 mm Cable Dia.....	40
5267 3 571-08	C Clamp for 38-42 mm Cable Dia.....	40
5267 3 571-09	C Clamp for 30-34 mm Cable Dia.....	40
5267 3 571-11	C Clamp for 50-54 mm Cable Dia.....	40
5267 3 572-00	Backing Plate for C-clamp for 30-34 Cable Dia.....	40
5267 3 572-04	Backing Plate for C-clamp for 18-22 Cable Dia.....	40
5267 3 572-05	Backing Plate for C-clamp for 22-26 Cable Dia.....	40
5267 3 572-06	Backing Plate for C-clamp for 26-30 Cable Dia.....	40
5267 3 572-08	Backing Plate for C-clamp for 38-42 Cable Dia.....	40
5267 3 572-11	Backing Plate for C-clamp for 50-54 Cable Dia.....	40
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5909 1 082-00	ComProtect® 2/1 CP B170A1	24
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