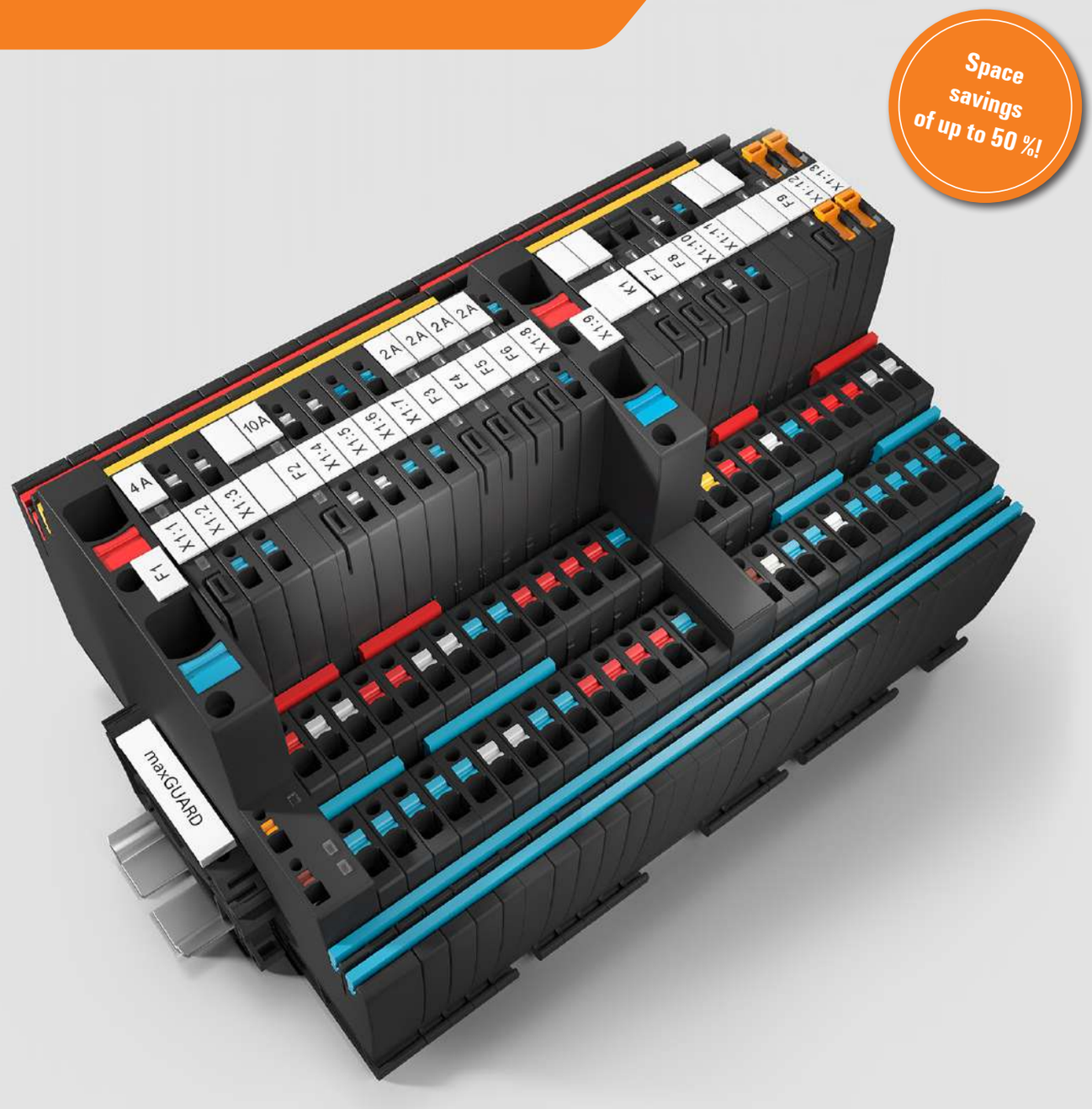
Load monitoring with integrated potential distribution maxGUARD – the innovative control voltage distribution system

Let's connect.

Power supply

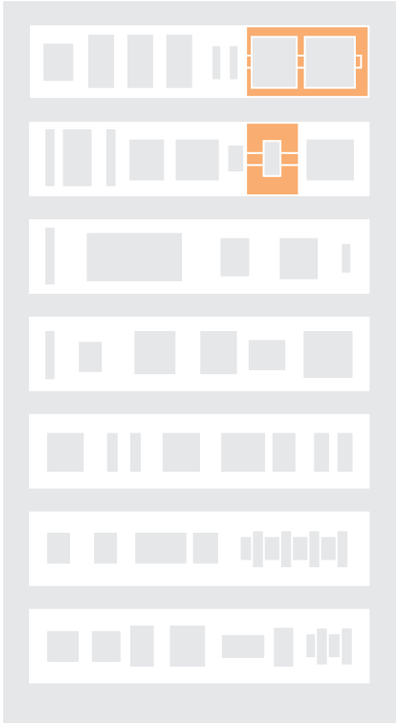


Weidmüller

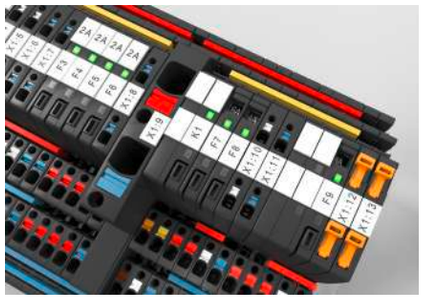
Load monitoring and potential distribution in one complete solution

maxGUARD – taking control voltage distribution to a new level

Fail-safe and maintenance-friendly control voltage distributions that can be installed in a time- and space-saving manner are a must for efficient machine and facility operation. With the new maxGUARD system, the terminal blocks (previously installed separately) for distributing potential to the outputs of the electronic load monitors become an integral part of a 24 V DC control voltage distribution solution. The new combination of load monitoring and potential distribution saves time during installation, increases safety against failure and reduces the amount of space required on the terminal rail by 50 %.



Extreme ease of servicing
Sophisticated operating, testing and connection elements permit safe access to all voltage potentials and load circuits during commissioning and maintenance.

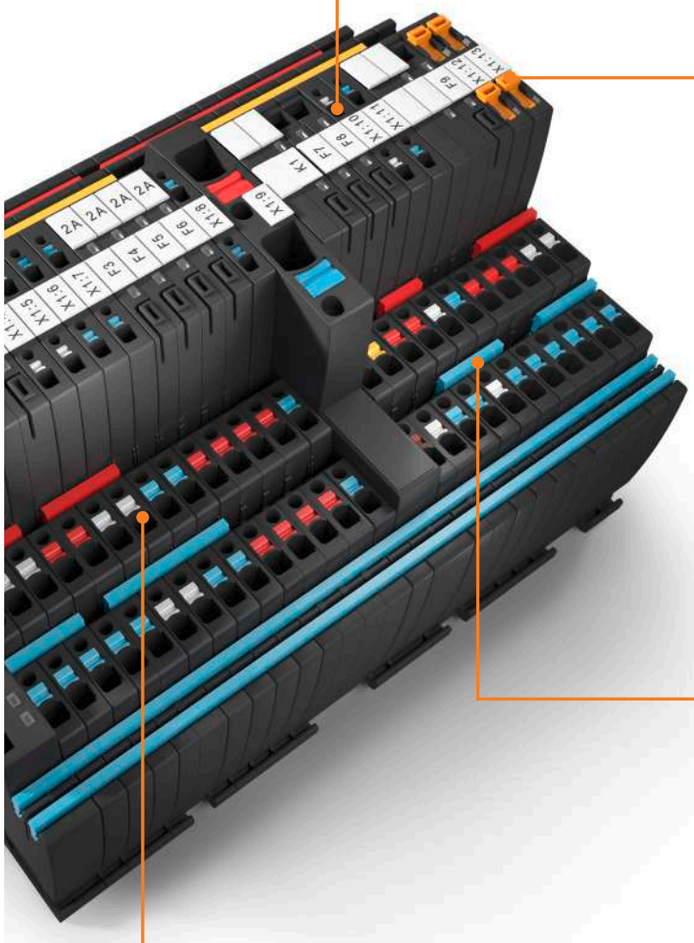


Particularly space-saving
Electronic load monitors and potential distributors with a 6.1 mm pitch.

Space saving of up to 50 %

Integrated test point
Consistently integrated test points in the maxGUARD control voltage distribution's input and output speed up troubleshooting operations.

Practical disconnecting lever
Potential distributor with a disconnecting lever for simple galvanic isolation of the load circuit for testing and checking purposes.



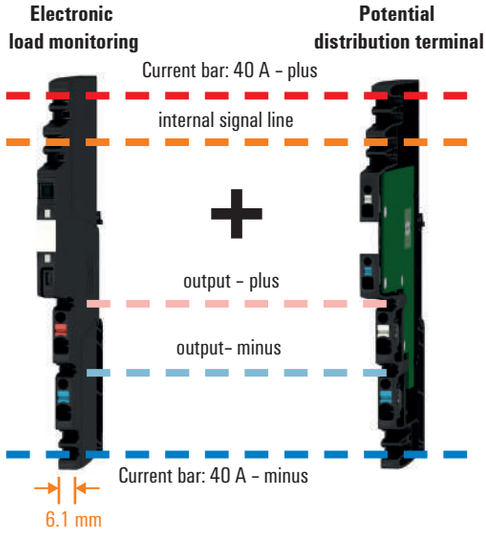
Unique cross-connectors
Less time and effort needed for wiring due to cross-connections between load monitoring and potential distribution terminals.

Time saving of up to 20 %

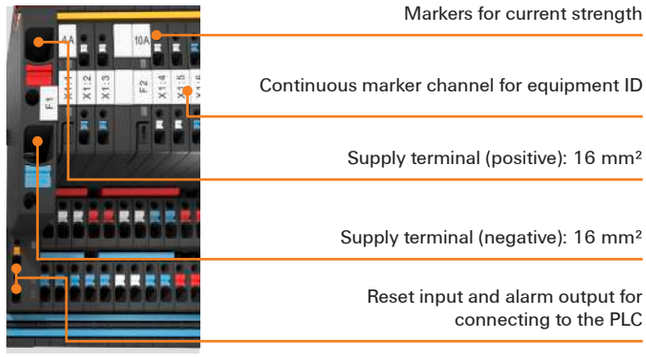
Can be used in a customised way
The sheer range of variants and the very different potential distribution terminals and additional components enable customised solutions at all times.

maxGUARD – the concept

Time- and space-saving control voltage distribution

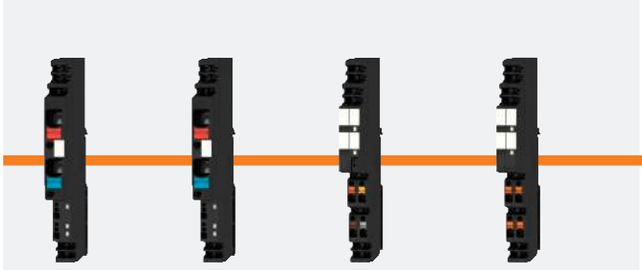


Sophisticated arrangement of connections and markers ensures clarity



- Combination of load monitoring and potential distribution
- Three main connection channels: positive, negative and internal signals
- Simple to increase the number of contacts thanks to cross-connection option in the potential distribution terminals

Supply terminals, and control and alarm modules



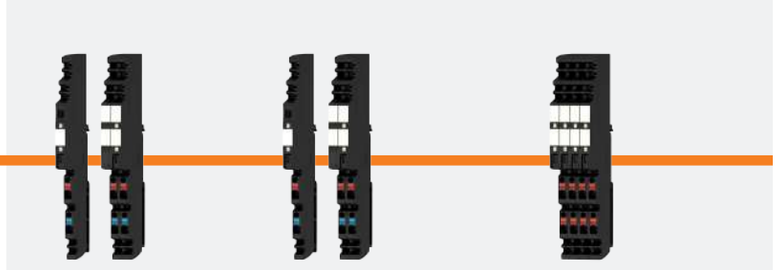
Supply terminal
16 mm²
Passive

Supply terminal
16 mm²
With alarm and reset function

Control module
Alarm
Reset
I>90 %
ON/OFF

Alarm module
Potential-free contacts for alarm
I>90 %

Electronic load monitoring



Fixed-value modules
1 / 2 / 4 / 6 A
6.1 mm housing
8 A / 10 A
12.2 mm housing

Adjustable modules
1 - 2 - 3 - 4 - 6 A
6.1 mm housing
4 - 6 - 8 - 10 - 12 A
12.2 mm housing

Load monitoring (4-channel) 2-2-2-2 A,
4-4-4-4 A
6-6-6-6 A, 2-2-4-4 A
2-2-6-6 A
Monitored individually
Negative potential thanks to use of AMG XMD potential distribution terminals
24.4 mm housing

Signaling LEDs enable immediate status indication and monitoring

Green/red LED status indicator

LED Status	Meaning
LED green	Load monitoring is switched on
LED green flashing	Overcurrent advance warning (I>90 %)
LED red	Load monitoring is switched off
LED red flashing	Load monitoring has been initiated
LED red fast flashing	Internal error

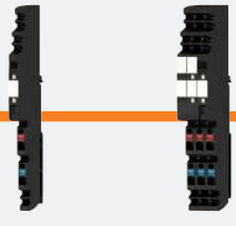
Load monitoring status	Pressing the button
LED green, in operation	>0.1 to 2 s (manual switch-off)
LED red flashing, Load monitoring has been initiated (switched off)	>0.1 to 2 s (confirm and reset)
LED red (permanently lit)	>0.1 to 2 s (restart)

Multicoloured pushers simplify the identification of active and passive components when connecting cross bridges

Pushers

Red pushers indicate the active output terminals of the electronic load monitoring elements. Blue or white pushers indicate the output terminals of the potential distributors.

Potential distribution and accessories



Fixed-value modules
1 / 2 / 4 A
Class 2
6.1 mm housing

Adjustable modules
with 2-pole output relay
1 - 2 - 3 - 4 - 6 A
18.3 mm housing
4 - 6 - 8 - 10 A
18.3 mm modules

Modules for potential distribution
AMG OD: 2 x Plus, 2 x Minus
AMG PD: 4 x Plus
AMG MD: 4 x Minus
AMG XMD: 4 x Minus (direct)

Terminal block
for all pole disconnection
of the load
AMG DIS

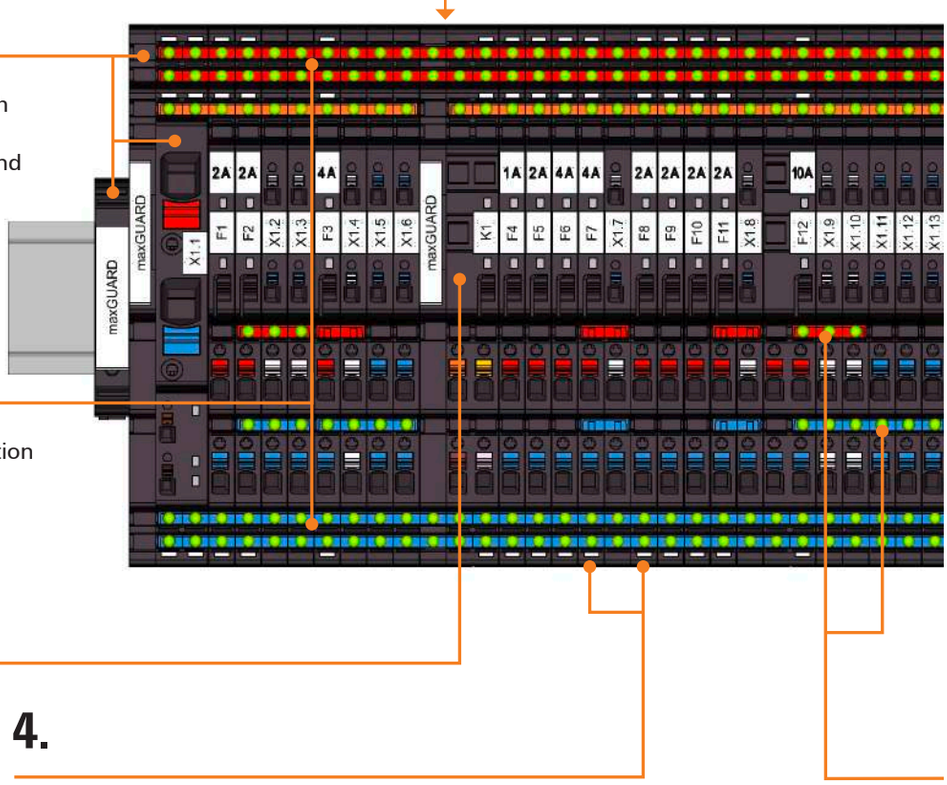
Isolating plate, end plate
and bracket
for isolation, structuring and
proper fit
of the DC station

High level of modularity for optimal adaptability

Customised solutions made simple with maxGUARD

maxGUARD is breaking new ground in control voltage distribution. The combination of load monitoring elements and potential distribution terminals saves up to 50 % space and up to 20% time with wiring work, while the flexible compatibility of numerous single-channel and four-channel variations optimises material costs. maxGUARD offers you the benefits of a modular, highly flexible system that can be optimally adapted to any application.

Segment (see point 3)



1.

A maxGUARD station should always begin with an end bracket WEW 35/2, an end plate AMG EP and a supply terminal, and should always end with an end plate and an end bracket.

2.

For system currents >20 A, a the main connection channels must be configured in duplicate.

3.

The use of control modules allows for the segmentation of a maxGUARD station.

4.

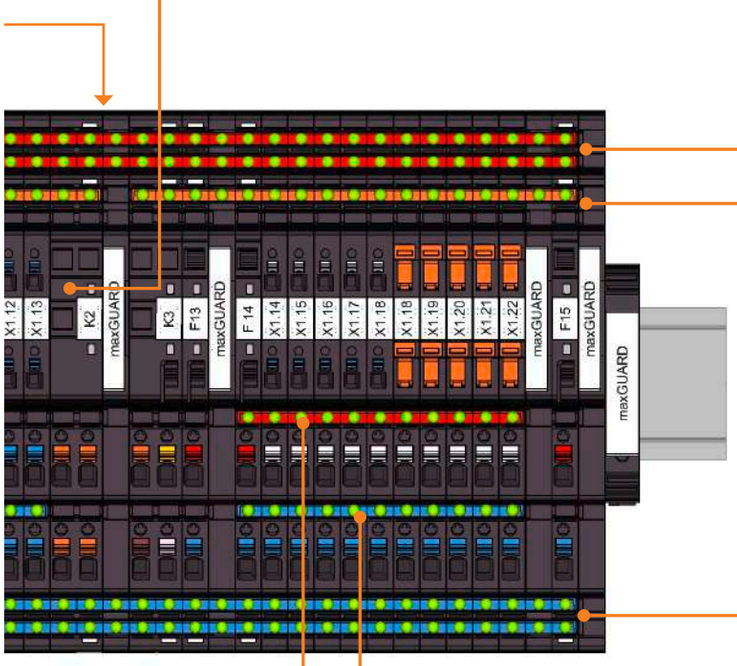
The markings on the plastic tabs denote the active inserted cross-connection sockets, whereby the upper and lower contact for each are electrically connected to one other. These sockets can be used to extend the cross bridges for currents of up to 20 A (see point 7).

The maxGUARD wizard enables the simple and fast configuration of the optimal station for your application.
We are happy to provide you with data for further planning.

www.weidmueller.com/configurator

8.

An alarm module can be connected as desired and offers potential-free decoupling of the “Alarm” and “I>90 %” signals.



7.

The main channels for positive and negative and the internal signal line are designed as double-shaft channels.
This allows smaller systems with currents of up to 20 A to be easily expanded at any time. There are different ways to achieve system currents >20 A:
a) By using longer cross-connection bridges
b) By installing a passive supply terminal directly behind the last cross-connection PIN and shifting the main cross bridges over to the next PIN on the right, so that the first and last supply terminals are connected to the cross-connector.

6.

Non-insulated cross-connectors must be used for cross bridges with >10 poles in the load monitoring outputs, multi-pole. In order to avoid short circuits with adjacent cross-connectors, a separation plate must be installed.

5.

The cross-bridging of load monitoring outputs in the potential distribution terminals must always be performed with insulated prefabricated bridges. This prevents the risk of short circuits occurring if there are cross bridges directly adjacent from an adjoining load monitoring circuit. Insulated prefabricated bridges are available with 2 to 10 poles.

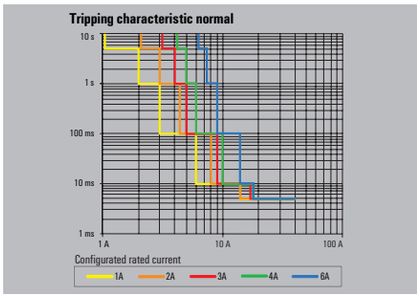
maxGUARD – accessories and order information

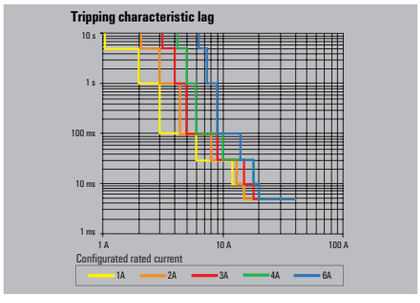
Technical data for your planning activities

Selection of characteristic curves using the example of a 6-A adjustable load monitoring system:

- Current and characteristic curves for adjustable load monitoring systems can be selected using the thumbwheel switch.
- New settings during operation are only applied by switching the system on/off.

ELM6	1	2	3	4	6	1	2	3	4	6
Factory settings					↑					
Triggering current	1 A	2 A	3 A	4 A	6 A	1 AT	2 AT	3 AT	4 AT	6 AT





Internal signal line:

- The internal signal line is used to switch the signals: alarm, I>90 %, reset, ON/OFF
- Since the signal line can only accept one status at a time, the signals are processed according to priority:

Bus status
Reset
ON/OFF
Alarm
Advance warning (I>90 %)
IDLE
Wire breakage

Priority
high
medium to high
medium
medium to low
low
low

Encoders
AMG FIM-C / AMG CM
AMG CM
AMG ELM
AMG ELM
AMG FIM-C / AMG CM
AMG ELM

maxGUARD – Accessories

Cross-connections orange

	Type	Qty.	Order No.
2-pin	ZQV 4N/2	60	**1527930000**
3-pin	ZQV 4N/3	60	**1527940000**
4-pin	ZQV 4N/4	60	**1527970000**
5-pin	ZQV 4N/5	60	**1527980000**
6-pin	ZQV 4N/6	20	**1527990000**
7-pin	ZQV 4N/7	20	**1528020000**
8-pin	ZQV 4N/8	20	**1528030000**
9-pin	ZQV 4N/9	20	**1528070000**
10-pin	ZQV 4N/10	20	**1528090000**
50-pin	ZQV 4N/50	5	**1528130000**

Cross-connections blue

Type	Qty.	Order No.
ZQV 4N/2 BL	60	**1528040000**
ZQV 4N/3 BL	60	**1528080000**
ZQV 4N/4 BL	60	**1528120000**
ZQV 4N/5 BL	60	**1528140000**
ZQV 4N/6 BL	20	**1528170000**
ZQV 4N/7 BL	20	**1528180000**
ZQV 4N/8 BL	20	**1528190000**
ZQV 4N/9 BL	20	**1528220000**
ZQV 4N/10 BL	20	**1528230000**
ZQV 4N/50 BL	5	**1528240000**

Cross-connections red

Type	Qty.	Order No.
ZQV 4N/2 RD	60	**2460450000**
ZQV 4N/3 RD	60	**2460810000**
ZQV 4N/4 RD	60	**2460800000**
ZQV 4N/5 RD	60	**2460790000**
ZQV 4N/6 RD	20	**2460780000**
ZQV 4N/7 RD	20	**2460770000**
ZQV 4N/8 RD	20	**2460760000**
ZQV 4N/9 RD	20	**2460750000**
ZQV 4N/10 RD	20	**2460740000**
ZQV 4N/50 RD	5	**2460730000**

maxGUARD – Accessories

Partition plate and end plate

Type	Qty.	Order No.
AMG PP	10	**2123000000**
AMG EP	10	**2495380000**

End bracket

Type	Qty-	Order No.
WEW 35/2 SW	100	**1061210000**
WEW 35/2 V0 GF SW	100	**1479000000**

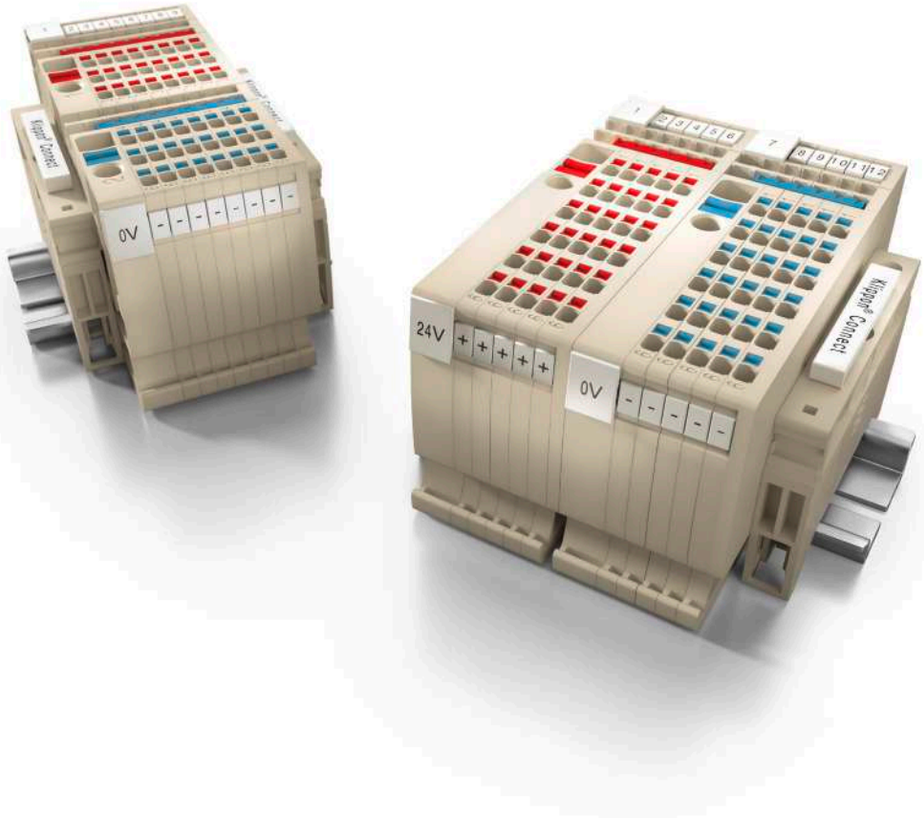
Cutting tool for cross-connectors

Type	Qty.	Order No.
KT 14	1	**1157820000**

Safe supply for consumers in the panel

Klippon® Connect for optimum control voltage distribution

Electrical energy from the power supply is distributed to many downstream consumers in control voltage circuits. Often, a daunting number of conductors has to be wired in a very confined space. This can quickly lead to incorrect wiring. Our AAP application solution allows for extremely clear and compact set-ups for control voltage distribution purposes.
The modular concept can be tailored individually to each machine type. A standardised distributor terminal block design and simple cross-connection options not only save space, they prevent incorrect wiring too. Two possible set-ups – alternating and grouped – increase flexibility. In the alternating set-up, two different potentials are located on one terminal, which saves additional space compared with conventional set-ups.



AAP – the concept

Modular and space-saving control voltage distribution

Example AAP 11

Example AAP 13

System solution with 6 mm² supply terminals and 1.5 mm² distribution terminals

Type	Description	End bracket	Order No.
AAP 11 – separate terminal blocks for positive and negative poles			
AAP11 6 LO RD	Red supply terminal	1988320000 AEP AP11	**1989780000**
AAP11 6 LO BL	Blue supply terminal	1988320000 AEP AP11	**1988130000**
AAP11 6 FE	Blue supply terminal with functional earth	1988320000 AEP AP11	**1988140000**
AAP11 1.5 LI RD	Red 6-pole distribution terminal	1988320000 AEP AP11	**1988160000**
AAP11 1.5 LI BL	Blue 6-pole distribution terminal	1988320000 AEP AP11	**1988170000**
AAP13 – combined terminal block – positive and negative poles in a single block			
AAP13 6 LO-LO	Combined supply terminal	1990140000 AEP AP13	**1988260000**
AAP13 6 FE-LO	Combined supply terminal with functional earth	1990140000 AEP AP13	**1988270000**
AAP13 1.5 LI-LI	6-pole distribution terminal (3 x red, 3 x blue)	1990140000 AEP AP13	**1988280000**

Cross-connector

Type	colour	Order No.	colour	Order No.
ZQV 1.5N/2 ...	●	**1985530000**	●	**1985650000**
ZQV 1.5N/3 ...	●	**1985550000**	●	**1985670000**
ZQV 1.5N/4 ...	●	**1985570000**	●	**1985690000**
ZQV 1.5N/10 ...	●	**1985680000**	●	**1985800000**
ZQV 1.5N/20 ...	●	**1985700000**	●	**1985810000**
ZQV 1.5N/50 ...	●	**1985720000**	●	**1985820000**
AEB 35 SC/1	●	**1991920000**		

System solution with 10 mm² supply terminals and 2.5 mm² distribution terminals

Type	Description	End bracket	Order No.
AAP 12 – separate terminal blocks for positive and negative poles			
AAP12 10 LO RD	Red supply terminal	1988300000 AEP AP12	**1988190000**
AAP12 10 LO BL	Blue supply terminal	1988300000 AEP AP12	**1988180000**
AAP12 10 FE	Blue supply terminal with functional earth	1988300000 AEP AP12	**1988200000**
AAP12 2.5 LI RD	Red 5-pole distribution terminal	1988300000 AEP AP12	**1988290000**
AAP12 2.5 LI BL	Blue 5-pole distribution terminal	1988300000 AEP AP12	**1988100000**
AAP13 – combined terminal block – positive and negative poles in a single block			
AAP14 10 LO-LO	Combined supply terminal	1988340000 AEP AP14	**1988250000**
AAP14 10 FE-LO	Combined supply terminal with functional earth	1988340000 AEP AP14	**1988240000**
AAP14 2.5 LI-LI	4-pole distribution terminal (2 x red, 2 x blue)	1988340000 AEP AP14	**1988230000**

Cross-connector

Type	colour	Order No.	colour	Order No.
ZQV 2.5N/2 ...	●	**1527740000**	●	**2108470000**
ZQV 2.5N/3 ...	●	**1527770000**	●	**2108690000**
ZQV 2.5N/4 ...	●	**1527780000**	●	**2108700000**
ZQV 2.5N/10 ...	●	**1527880000**	●	**2108910000**
ZQV 2.5N/20 ...	●	**1527890000**	●	**2108920000**
ZQV 2.5N/50 ...	●	**1527920000**	●	**2109000000**
AEB 35 SC/1	●	**1991920000**		

Terminal blocks for connection of sensors and actuators

Type	Description	End bracket	Order No.
AIO 21			
AIO21 1.5 SI	Signal, positive, negative	1993580000 AEP IO21	**1992260000**
AIO21 1.5 SO	Signal, negative	1993580000 AEP IO21	**1992240000**
AIO21 1.5 SO-PE	Signal, positive, earth	1993580000 AEP IO21	**1992250000**
AIO 22			
AIO22 1.5 SI-PE	Signal, positive, negative, earth	1993590000 AEP IO22	**1992230000**
AIO 23			
AIO23 1.5 2SI	2 x signal, positive, negative	1993600000 AEP IO22	**1992220000**

Cross-connector

Type	colour	Order No.	colour	Order No.
ZQV 1.5N/2 ...	●	**1985530000**	●	**1985650000**
ZQV 1.5N/3 ...	●	**1985550000**	●	**1985670000**
ZQV 1.5N/4 ...	●	**1985570000**	●	**1985690000**
ZQV 1.5N/10 ...	●	**1985680000**	●	**1985800000**
ZQV 1.5N/20 ...	●	**1985700000**	●	**1985810000**
ZQV 1.5N/50 ...	●	**1985720000**	●	**1985820000**
AEB 35 SC/1	●	**1991920000**		

Weidmüller – Your partner in Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

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