EN

K-SUPPLY

K-BUS power supply for K-Series modules

General Description

The K-SUPPLY module permits the delivery of power supply to numerous K-Series modules through K-BUS connection by creating interface between an external power supply system and the user module distribution bus. The impossibility of tapping current from the bus to the input terminals permits the connection of numerous K-SUPPLY modules in parallel on the same bus together with the protection provided against polarity inversion permits the module to offer valid protection against erroneous connections.
Main features:

- two independent inputs that permit the use of one power supply system; redundant power supply that guarantees the presence of power supply even whenever the source of either input undergoes power failure;
- indication of the presence of each channel: the LED switches on only when there is sufficient voltage for the operation of the K-Series modules connected;
- a LED that signals input inverted polarity or alternating current;
- built-in over-voltage (surge) protection;
- differential mode filter.

Technical features

Input characteristics	
Number:	2, with shared negative terminal.
Type:	Pass-through: each input can be accessed by two pairs of terminals, in this way permitting the same power supply source to be used for more than one K-Supply module (see the section entitled **Example of Connection to more than one bus**).
Voltage:	19,2..30 Vdc
Current carrying capacity:	Maximum current per terminal: 4 A
Protection:	Each positive input must be provided with protection by an external fuse (see the section entitled **Fuse Sizing Selection**). The device has no limit on maximum current.

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Output characteristics	
Maximum voltage drop:	300 mV
Voltage :	Input voltage minus internal voltage drooping value.
Current carrying capacity:	One single input: maximum 1.6 A Inputs 1 and 2 connected in parallel: maximum 2 A.

Other electrical characteristics	
Filter:	Differential mode, equal to 4.7 mH & 2 x 470 nF per input.
Power Consumption:	Maximum 5 mA per input.
Dissipation:	Maximum 600 mW at peak load.

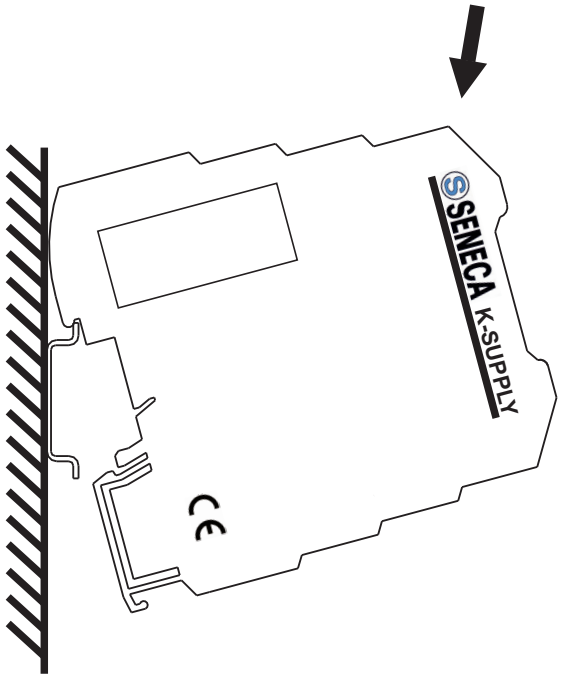
General technical characteristics	
Protection:	IP20
Environmental conditions:	Temperature: -20 … +65°C Humidity: 10 … 90% non-condensing Altitude: up to 2000 m. a. s. l.
Storage temperature:	-40..+85°C
Connections:	Cable clamp terminals
Wire section:	0,2..2,5 mm^2
Wire stripping:	8 mm
Box :	PBT, black
Dimensions and weight :	6,2 x 93,1 x 102,5 mm, 46 g.
Reference standards : CE	EN61000-6-4/2002 (electromagnetic emission, industrial environment) EN61000-6-2/2002 (electromagnetic immunity, industrial environment) EN61010 (electrical safety)

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Installation rules

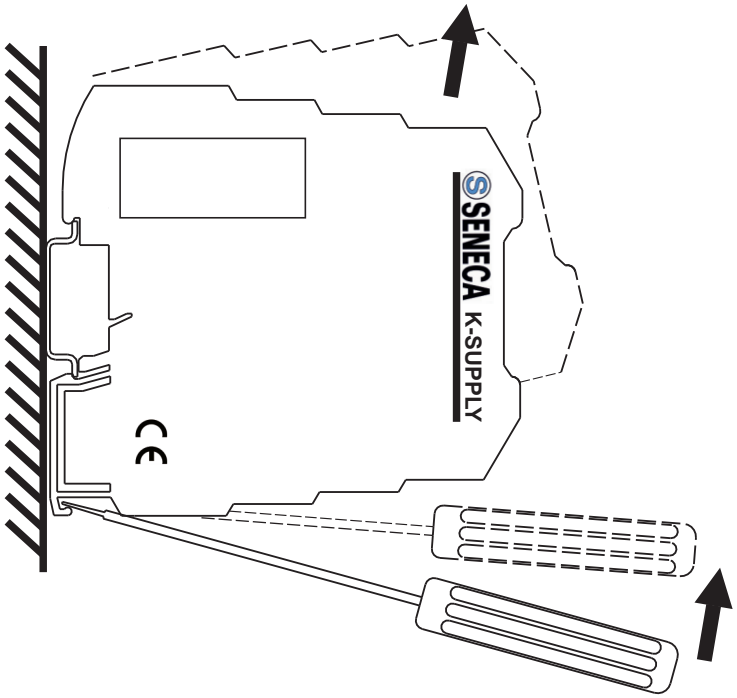
This module has been designed for assembly on a DIN 46277 rail. Assembly in vertical position is recommended in order to increase the module's ventilation, and no raceways or other objects that compromise aeration must be positioned in the vicinity.
Do not position the module above equipment that generates heat; we recommend positioning the module in the lower part of the control panel or container compartment.

Inserting the module in the rail



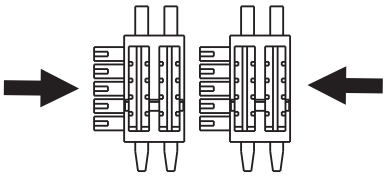
1 - Attach the module in the upper part of the rail.
2 - Press the module downwards.

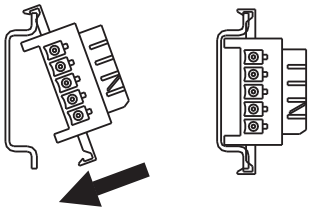
Removing the module from the rail



1 - Apply leverage using a screwdriver (as shown in the figure).
2 - Rotate the module upwards.

Using the K-BUS connector





1 - Compose the K-BUS connectors as required in order to obtain the number of positions necessary (each K-BUS permits the insertion of no. 2 modules).
2 - Insert the K-BUS connectors in the rail by positioning them on the upper side of the rail and then rotating them downwards.
IMPORTANT: Pay particular attention to the position of the protrudent terminals of the K-BUS. The K-bus must be inserted in the guide with the protrudent terminals on the left (as shown in the figure) otherwise the modules are turned upside downs.

- Never connect the power supply directly to the bus connector on the DIN rail.
- Never tap power supply from the bus connector either directly or by using the module's terminals.

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Fuse sizing selection

This section provides indications on the sizing of the fuse to be used for the protection of the inputs as required by the number of boards that the K-SUPPLY module must power.

The table below provides the sizing recommended per type of fuse for battery-powered systems (21…30 V) in which surge is not foreseen.

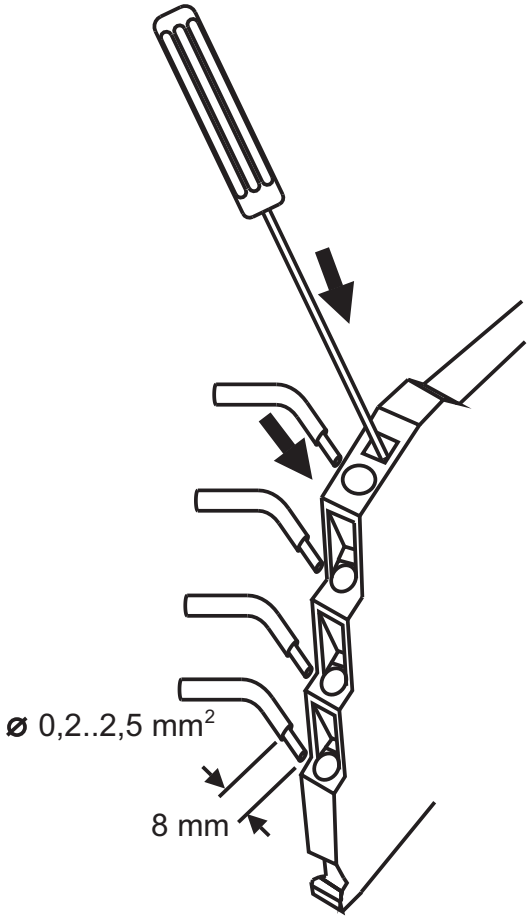
Numbers of modules	Rapid type	Average type	Delayed type
2	–	100 mA	100 mA
5	–	200 mA	200 mA
10	–	400 mA	400 mA
20	750 mA	630 mA	630 mA
35	1250 mA	1250 mA	–
50	1600 mA	1600 mA	–
70	2500 mA	–	–

The table below provides the sizing recommended for systems in which surge is foreseen with 23 to 30V voltage.

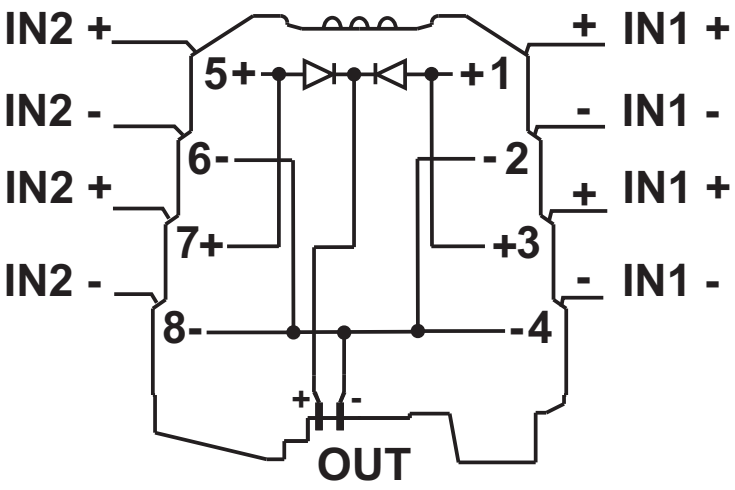
Numbers of modules	Rapid type	Average type	Delayed type
2	–	–	300 mA
5	–	–	300 mA
10	–	–	300 mA
20	–	600 mA	500 mA
35	1250 mA	1 A	–
50	1500 mA	1250 mA	–
70	2 A	1600 mA	–
100	2500 mA	–	–

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Electrical connections



Internal wiring diagram



Inputs

The module has two inputs (19.2…30V DC) with shared negative terminal.

Input 1

Terminal 1 & Terminal 3: +
Terminal 2 & Terminal 4: -

Input 2

Terminal 5 & Terminal 7: +
Terminal 6 & Terminal 8: -

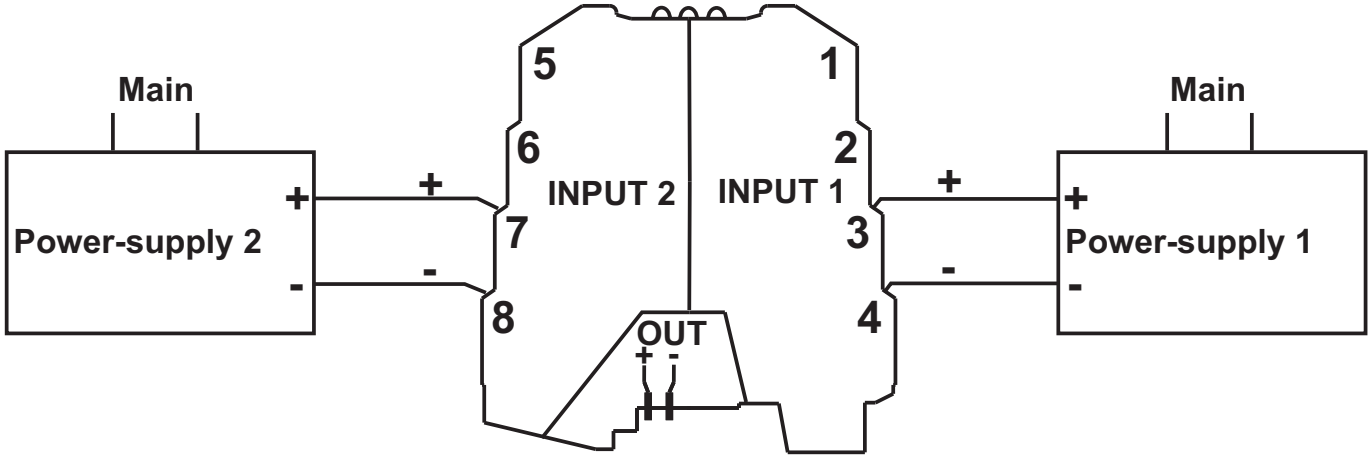
Terminals 2, 4, 6, and 8 are connected together.

Output

The module provides a K-BUS output equal to the input voltage minus the internal drooping value. The negative terminal is shared by input terminals 2, 4, 6 and 8. The module does not permit the tapping of current from the bus to the input terminals.

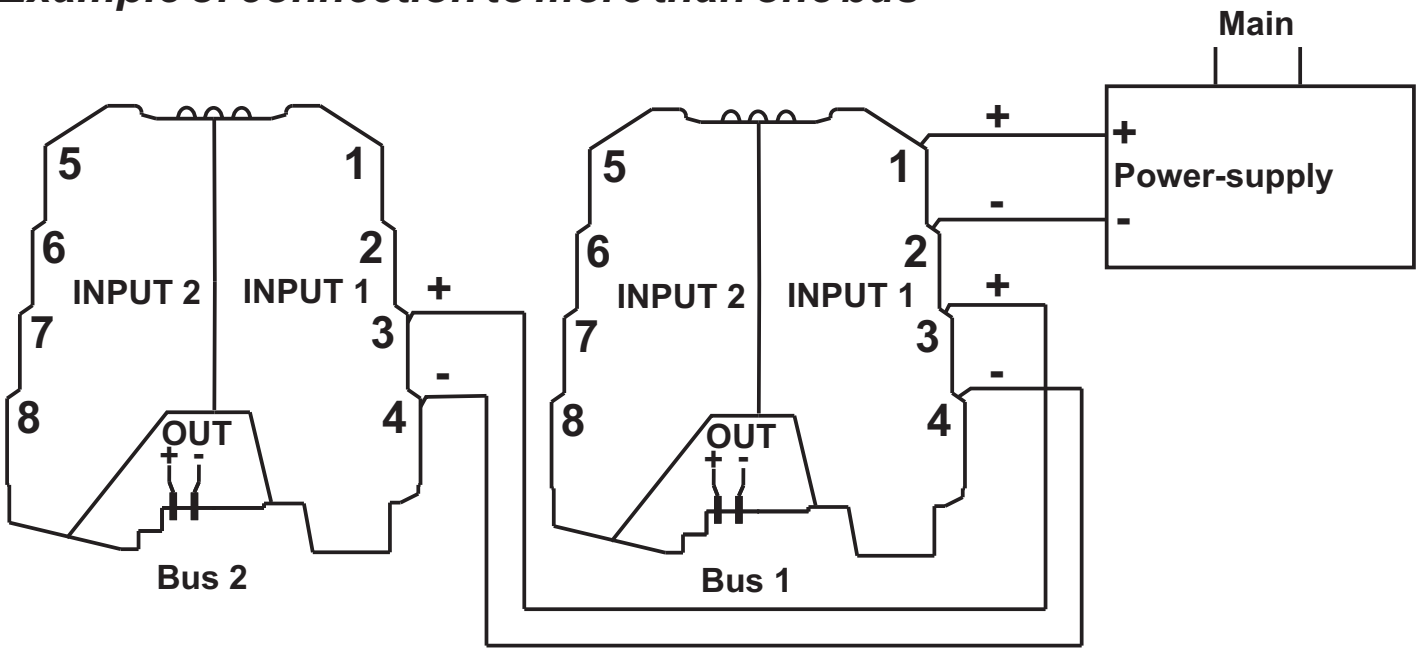
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Example of connection with REDUNDANT POWER SUPPLY

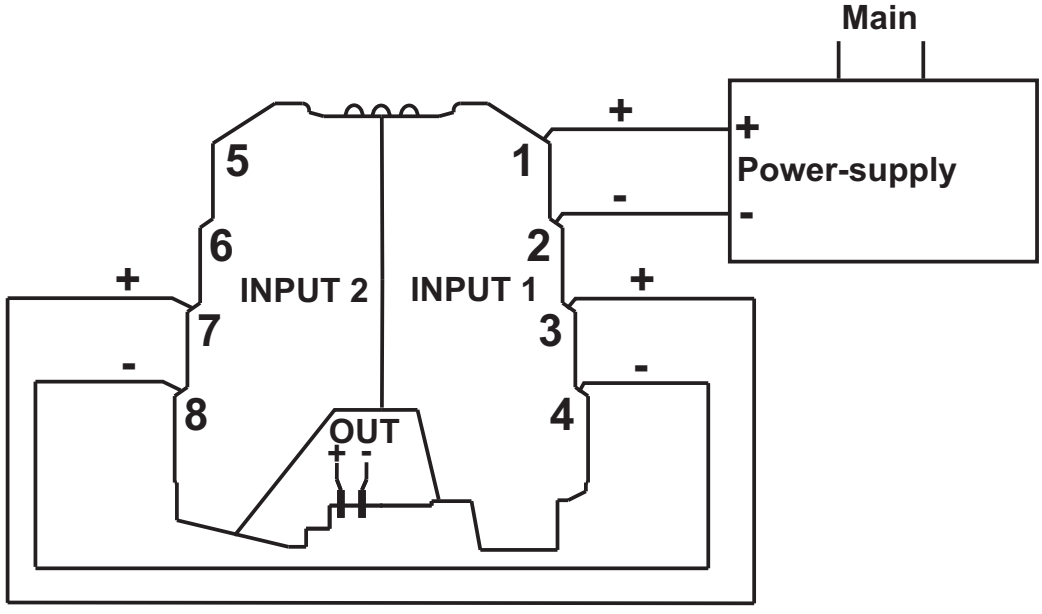


Bus for supplying K serie devices

Example of connection to more than one bus



Example of connection with inputs connected in parallel: 2 A output



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Signalling by LED on the front panel

LED	Meaning
Green Led 1	When illuminated, this LED signals the presence of sufficient voltage for the first input. The illumination threshold is 19.2 V ± 0.3 V
Green Led 2	When illuminated, this LED signals the presence of sufficient voltage for a second input. The illumination threshold is 19.2 V ± 0.3 V.
Red Led	When illuminated, this LED signals erroneous input polarity or alternating current. The illumination threshold is 2V.

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