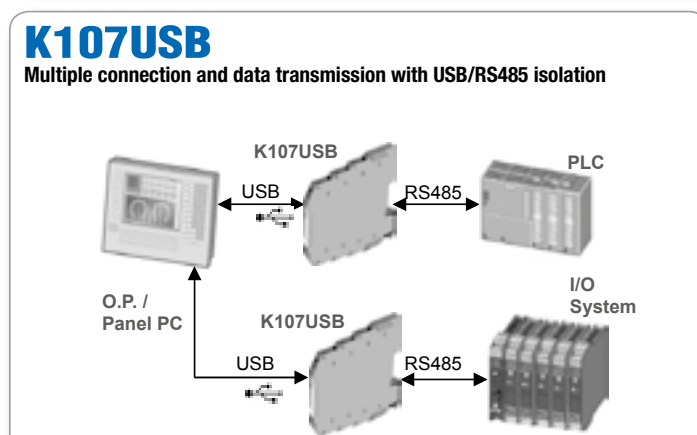
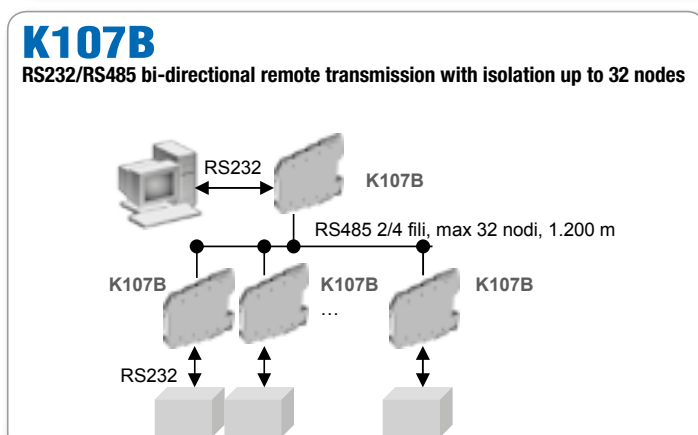
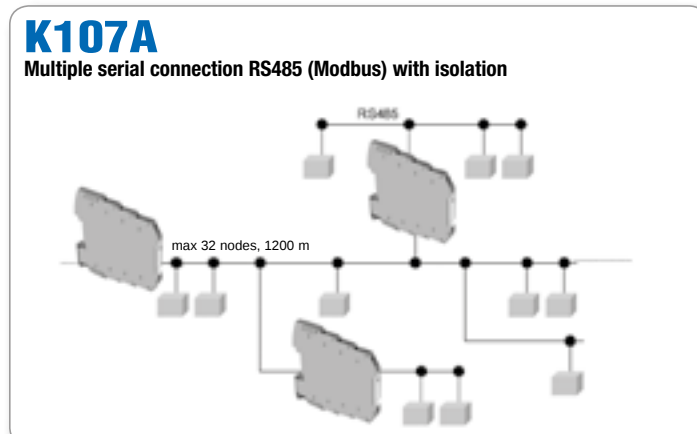
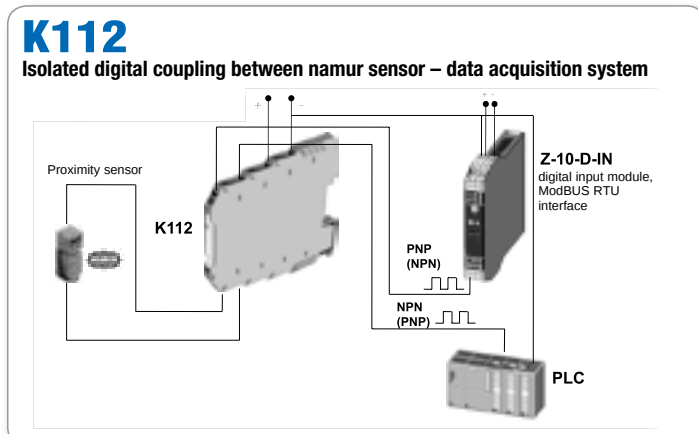
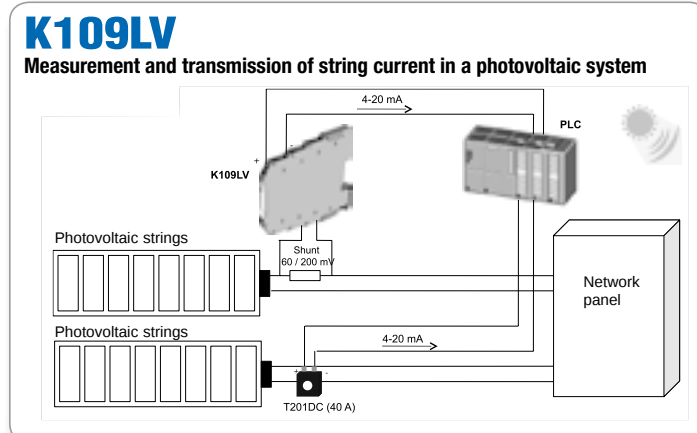
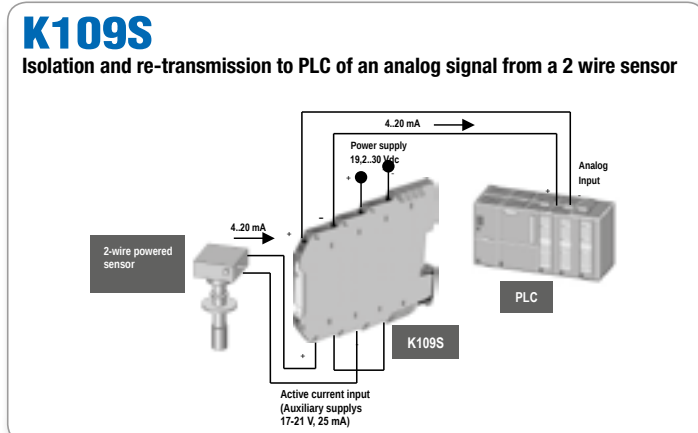
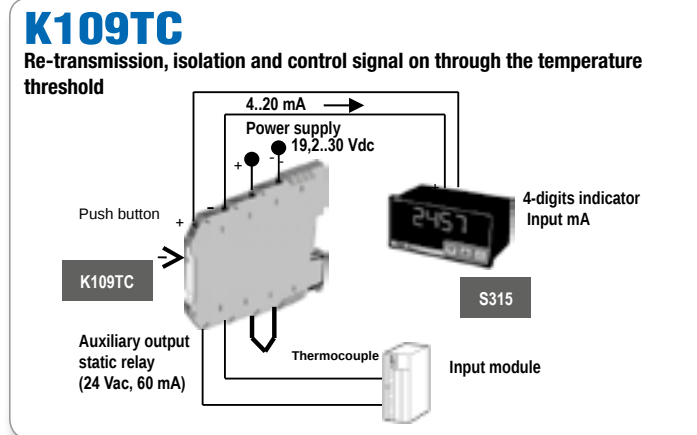
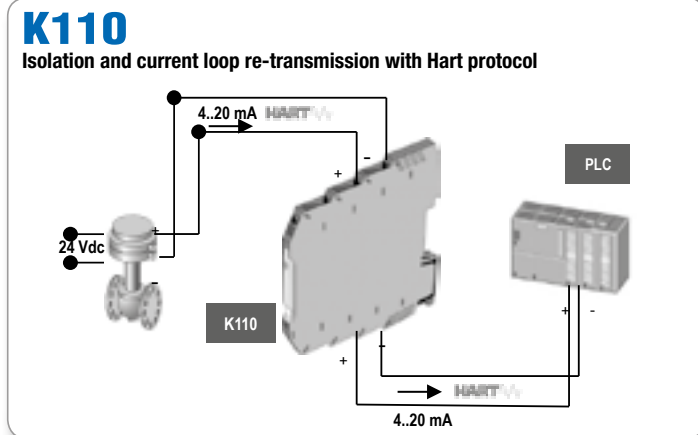
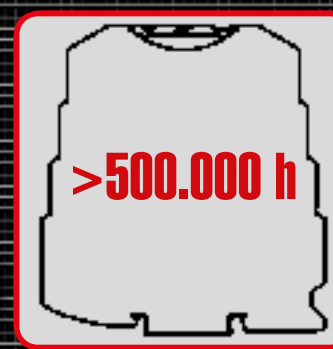


APPLICATION EXAMPLES



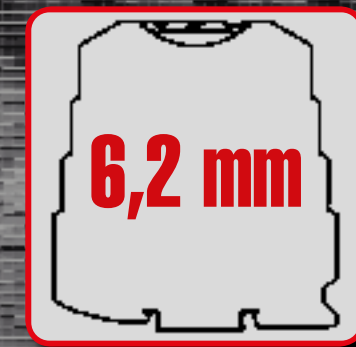
10 good reasons to choose K LINE



HIGH LEVEL RELIABILITY



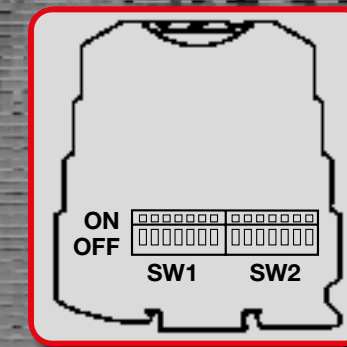
PC PROGRAMMING



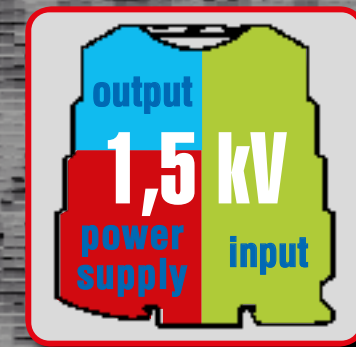
COMPACT SIZE



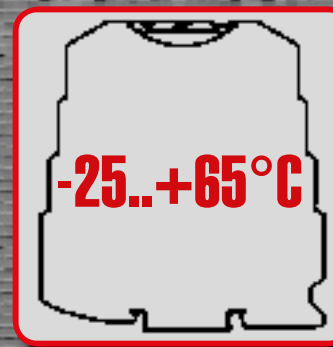
BEST ACCURACY



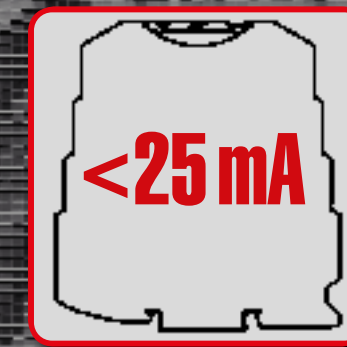
FLEXIBLE CONFIGURATION VIA DIP-SWITCHES



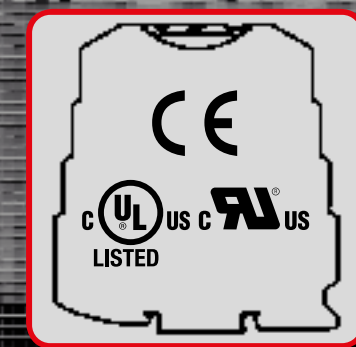
ISOLATION 3-WAY



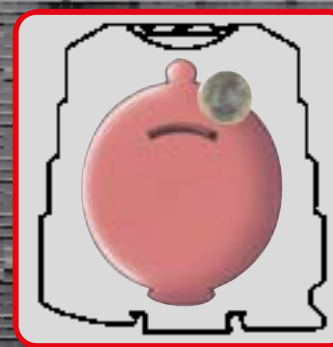
WIDE OPERATING TEMPERATURE



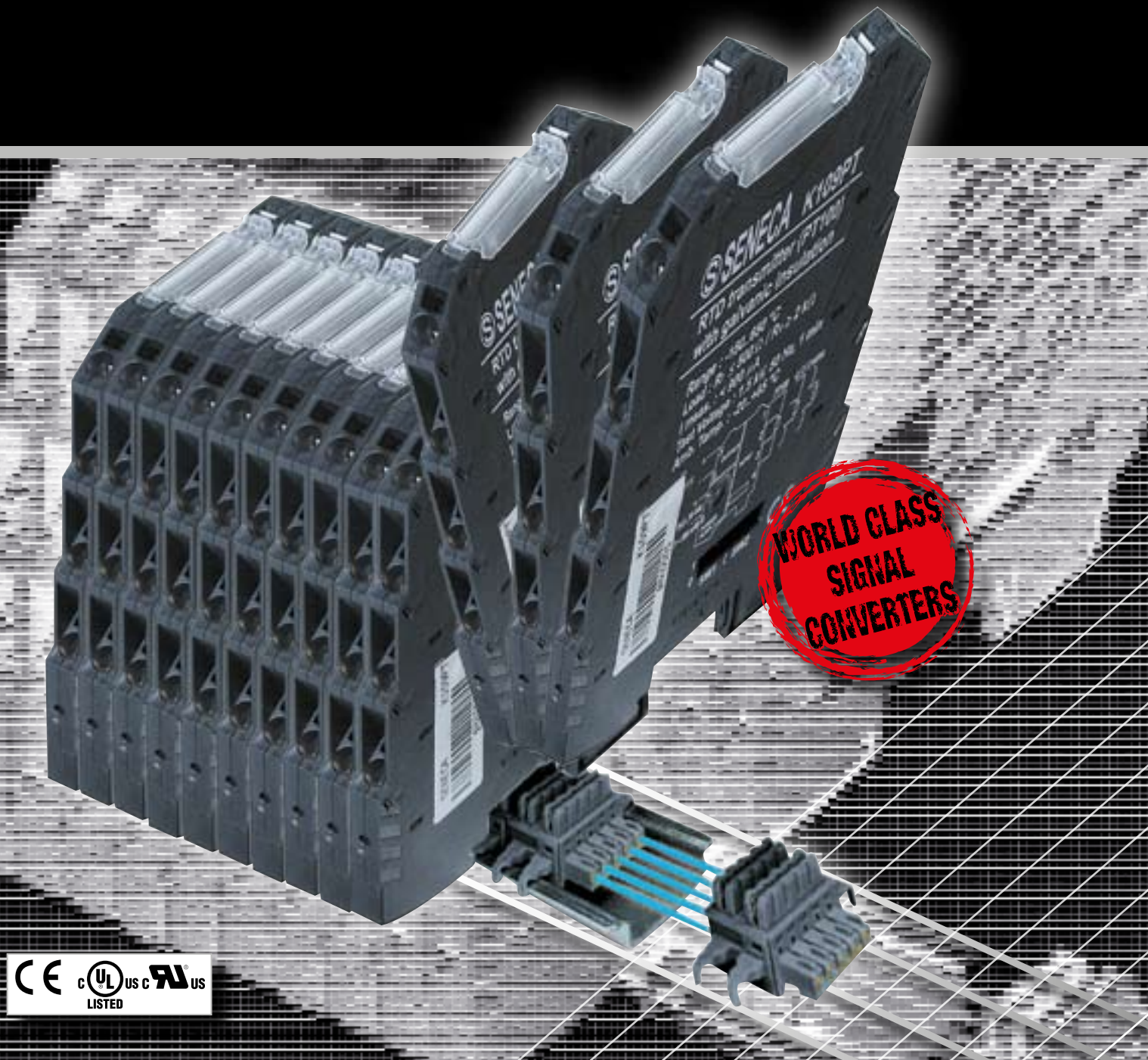
LOW POWER CONSUMPTION



INTERNATIONAL STANDARDS



COST EFFECTIVE



Galvanic Isolation



Temperature conversion (TC, RTD)



Analog conversion (mA, V, mV)



Digital / Frequency Conversion



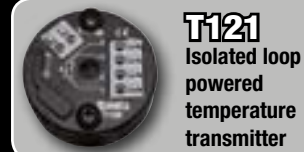
Serial conversion (RS232, RS485, USB)

UNIVERSAL

K121

Loop powered isolator / universal converter (mA, V, RTD, TC)

Power supply range: 5..30 Vdc
Isolation: 1,5 kVdc
Input: Nr 1 channel, current (4..20, 20..4 mA), voltage (± 30 V), Pt100 (-200...+650°C), Ni100 (-60...+250°C), Pt500 (-200...+650°C), Pt1000, (-200...+200°C) TC (J, K, R, S, T, B, E, N)
Output: Nr 1 channel 4..20 / 20..4 mA
Accuracy: 0,1%



LOOP POWERED

TEMPERATURE

K109PT

Pt100 to DC current / voltage isolator converter

Power supply: 19,2..30 Vdc
Input: Nr 1 channel, Pt100, -150...+650 °C, min span 50°C
Output: Nr 1 channel, voltage (0..10 / 10..0 / 0..5 / 1.5 V) / current (4..20 / 20..4 / 0..20 / 20..0 mA)
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%



K109PT-HPC

Pt100 to DC current / voltage isolator converter (high precision)

Power supply: 19,2..30 Vdc
Input: Nr 1 channel, Pt100, -200...+160 °C, min span 50°C
Output: Nr 1 channel, voltage (0..10 / 10..0 / 0..5 / 1.5 V) / current (4..20 / 20..4 / 0..20 / 20..0 mA)
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%



ANALOG

K109UI

DC current / voltage to current / voltage isolator converter

Power supply: 19,2..30 Vdc
Input: corrente Nr 1 channel, current (0/4..20 mA) / voltage (0/1..5, 0/2..10, 0..15/30 Vdc)
Output: Nr 1 channel, current (0/4..20, 20..4/0 mA) / voltage (0..5/10, 10..0, 1..5 Vdc)
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%
Special function: scale inversion, square root extraction, tank linearization



K109S

DC current / voltage to current / voltage isolator converter (2 wire power transducer)

Power supply: 19,2..30 Vdc
Input: Nr 1 channel, current (0/4..20 mA powered by loop) / voltage (0..10 / 10..0 / 0..5 / 1.5 V)
Output: Nr 1 channel, current (0/4..20, 20..4/0 mA) or voltage (0..5/10, 10..0, 1..5 Vdc)
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%
Auxiliary supply: 17..20 V
Special function: scale inversion, square root extraction, tank linearization



ACTIVE INPUT

K109LV

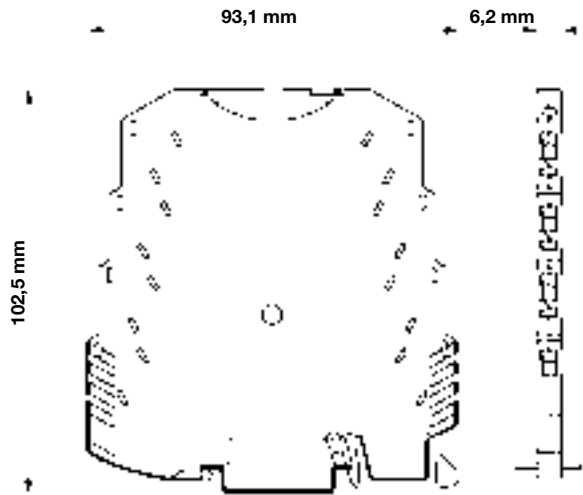
DC low voltage to current / voltage isolator converter

Power supply: 19,2..30 Vdc
Input: Nr 1 channel, pre-settled scales from ± 25 mV to ± 2000 mV
Output: Nr 1 channel, current (0/4..20, 20..4/0 mA) / voltage (0..5/10, 10..0, 1..5 Vdc)
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%



BATTERY AND STRING CURRENT MONITORING

K LINE Compact Signal Conditioners & Isolators



Power supply range*	19,2.. 30 Vdc
Bridge supply	Bus connectors (K-BUS) can be snapped into 35 mm DIN rail according to EN 60175
Wire section	0,2..2,5 mm²
Wire stripping	8 mm
Power on side terminals	yes
Hot swapping	yes
Max current consumption*	21..25 mA (24 Vdc)
Consumption without load @ 25°C	7,5 mA
Max power consumption	500 mW
A/D conversion	16 bit
Rejection	50 o 60 Hz (programmable)
Settings	DIP switch, software
Filter	Insertable
Dimension	93,1 x 6,2 x 102,5 mm
Isolation	1,5 kV (50 Hz, 1 min)
Isolation technique	Digital (optocoupler)
Processing	Floating point 32 bit
Colour	Black
Case material	PBT
Weight	45 g
Operating temperature	-20...+65 °C
Storage temperature	-40...+85 °C
Humidity	10..90 % non condensing
Connection	Clamp terminals and/orBUS
Protection degree	IP 20
Conformity	CE, UL-UR CSAEN 50081-2, EN 50082-2, EN 61010-1, EN 60742, EN 61000-6-4, EN 61000-6-2

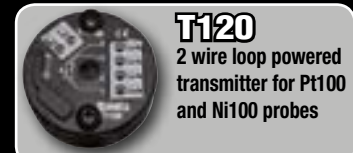
* except loop powered versions

TEMPERATURE

K120RTD

Pt100, Ni100 to DC current converter (loop powered)

Power supply range: 5..30 Vdc (by loop)
Input: Pt100 (EN 60751/A2 – ITS90), -200...+650°C, Ni100 (-60...+250 °C min span 20°C)
Output: Nr 1 channel, current (4..20, 20..4 mA)
Accuracy class: 0,1% o 0,1°C



LOOP POWERED

K109PT1000

Pt1000 to DC current / voltage isolator converter

Power supply: 19,2..30 Vdc
Input: Pt1000 (EN 60751/A2 – ITS90), -200...+210 °C, min span 30° C
Output: current (0/4..20, 20..4/0 mA) / voltage (0..5/10, 10..0, 1..5 Vdc)
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%



K109TC

TC to DC current / voltage isolator converter with settable threshold

Power supply: 19,2..30 Vdc
Input: Nr1 thermocouple type B,E,J,K,R,S,T (ITS-90), min span 100 °C
Output: Nr 1 channel, current (0/4..20, 20..4/0 mA) / voltage (0..5/10, 10..0, 1..5 Vdc)
Auxiliary output: static relay for settable alarm trip
Isolation: 1,5 kVdc (3-way)
Accuracy: 0,1%



SETTABLE THRESHOLD

ANALOG

K110

Loop powered current isolator, Hart compliance

Power supply range: 24 V
Input: Nr 1 channel, current (0..20, 4..20 mA)
Output: Nr 1 channel, current (0..20, 4..20 mA)
Accuracy: 0,1%
Isolation: 1,5 kVdc
Compliance: Hart, Brain



HART-BRAIN PROTOCOLS COMPLIANCE

K111

Dual output frequency trip amplifier for on/off sensors

Power supply: 19,2..30 Vdc
Input: Nr 1 channel, IEC1131, Namur, 2/3 fili PNP/NPN, reed, photocell
Input frequency: Max 20 kHz, min 1 pulse each 116°
Output: Nr 2 channels threshold, PNP, max current 200 mA
Isolation: 1,5 kVdc



EASY K111

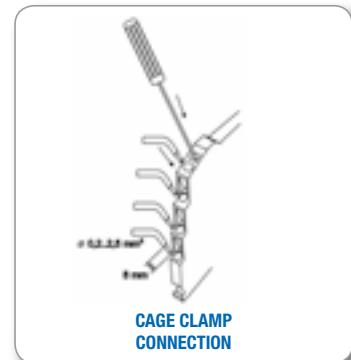
K112

Universal digital coupler / isolator

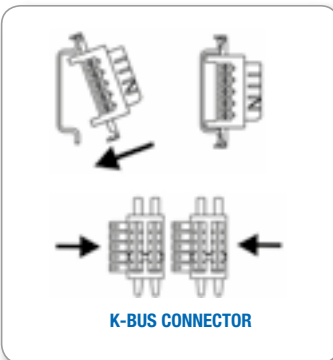
Power supply: 19,2..30 V
Input: Contact (IEC 1131.1 type 1), Namur (DIN 19234, EN 60947), NPN or PNP (12 o 22 V) 2/3 wire, reed, photocell, max frequency 400 Hz
Sensor supply: 8 $\pm$ 0,6 V, 12 $\pm$ 1 V, 22 $\pm$ 2 V
Output: Nr 2 simultaneous channels, PNP / NPN, max current 200 mA, max voltage 30 V (continuous), 50 V (pulse)
Isolation: 1,5 kVdc 2-way



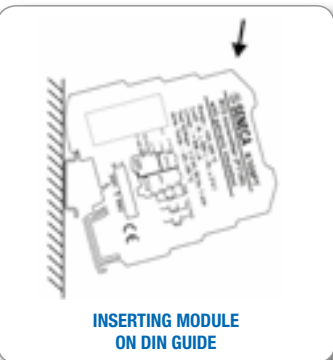
CONNECTION AND INSTALLATION



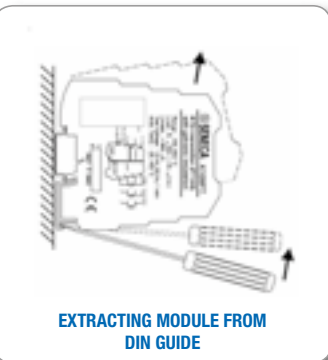
CAGE CLAMP CONNECTION



K-BUS CONNECTOR



INSERTING MODULE ON DIN GUIDE

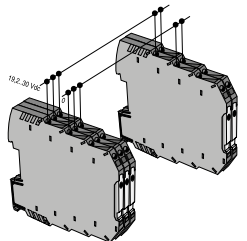


EXTRACTING MODULE FROM DIN GUIDE

POWER SUPPLY TECHNIQUE

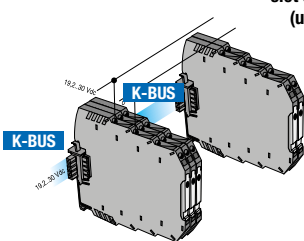
SUPPLY SYSTEM. With the exception of loop powered instruments, which aren't bus powered, K Line signal conditioners can be powered in 3 different ways: by the springcage terminal block (24 Vdc direct from power supply) or by SMART SUPPLY system. SMART SUPPLY system is based on expandable KBUS connector. Up to 16 devices, the distribution of power supply is possible connecting a single device at voltage source, as whole consumption doesn't exceed 400 mA. Over 16 and up to 75 devices, with maximum current consumption of 1,6 A (approx 21 mA per module), it's needed K-SUPPLY module that gets overvoltages protections on-board.

POWER SUPPLY ON SPRING-CAGE TERMINAL



1

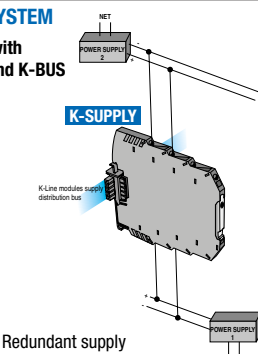
SMART SUPPLY SYSTEM Distributed supply with 2 slot connector K-BUS (up to 16 modules)



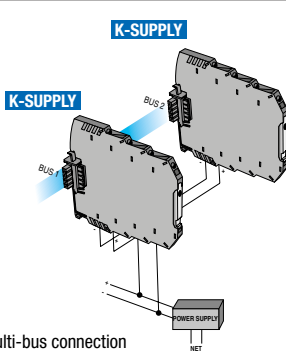
2

SMART SUPPLY SYSTEM

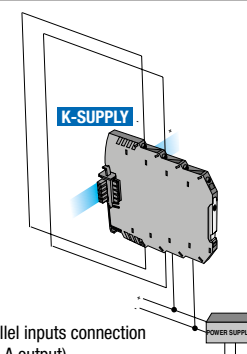
Distributed supply with K-SUPPLY module and K-BUS (up to 75 modules)



Redundant supply



Multi-bus connection



Parallel inputs connection (2 A output)

3

SERIAL

K107A

RS485 $\leftrightarrow$ RS485 serial isolator amplifier

Serial port #1: RS485 Half Duplex
Serial port #2: RS485 Half Duplex
Isolation: 1,5 kVdc (3-way)
Handshake: Automatic
Baud rate: 1.200..115.200 bps



K107B

RS232 $\leftrightarrow$ RS485 serial isolator converter

Serial port #1: RS232B
Serial port #2: RS485 Half Duplex
Isolation: 1,5 kVdc (3-way)
Handshake: automatic
Baud rate: 1.200..115.200 bps



K107USB

RS485 $\leftrightarrow$ USB serial isolator converter

Power supply: By USB port
Serial port #1: USB standard 1.0 e 2.0, USB A and MINI USB B connectors
Serial port #2: RS485 Half Duplex
Compliance: USB standard 1.1 e 2.0
Isolation: 1,5 kVdc (USB/RS485)
Handshake: automatic



CD Driver

S107USB Portable version

ACCESSORIES & SOFTWARE

K-SUPPLY

Redundant power supply module with overvoltages protection

Power supply: 19,2..30 Vdc
Max drop voltage: 300 mV
Input: Nr 2 independent channels, max current per terminal 4 A
Differential mode filter



K-BUS

Expandable power supply connector (EN 60175)



S117P-1



K121, K120RTD, K111, T120, T121 configuration toolkit including S117P-1 (RS485, RS232, TTL / USB converter with power transducer), PM002411 (S117P connection cable), Easy LP, Easy K111 (programming software)

EASY LP

K120RTD, K121, T120, T121 programming software



EASY K111

K111 configuration software

