

Input: RS-232 or RS-485 Serial Data
Output: RS-485 Serial Data

- Only 6.2 mm Wide
- DIP Switch Configuration
- Full 3-Way Isolation
- Bus Power Options

Applications

- Extend and Isolate RS-485 Data
- Use Two Modules as Isolator or Repeater for a Full-Duplex Connection.

Description

The K107A is used to isolate, extend the distance, and increase the number of devices attached (max. 32) to a RS-485 serial line. It can also be used to configure a star connection.

The K107B accepts a single half duplex RS-232 on the X side and a single, isolated, half duplex RS-485 on the Y side. The K107B is ideal for serial conversion and isolated transmission over long distances.

These models also feature timed automatic direction switching and simple DIP-switch configuration.

Specifications

Model	Data X Side	Data Y Side
K107A	One RS-485 half duplex	One RS-485 half duplex
K107B	One RS-232 half duplex	One RS-485 half duplex

Communication

Timed automatic handshake
 Timed automatic direction switching
 Baud rate: 1200 to 115,200 bps
 X->Y or Y->X communication direction inhibition
 K107A RS-485: up to 32 total nodes
 K107A RS-485: X or Y side terminator
 K107B RS-485: Y side terminator

LED Indicators

Power on
 Data on X port, data on Y port
 Inverted connection

Configuration

DIP switches

Conversion

Floating point, 32 bit

Isolation and Protection

30 VDC max. protection on each data connection
 Full 3-way isolation: input, output, power
 Optical isolation
 1500 V_{RMS} 1 minute isolation
 Hot swappable

Filtering

50 to 60 Hz line filter

Ambient Conditions

-20°C to +65°C operating
 -40°C to +85°C storage
 10 to 90% RH at 40°C non-condensing

Connections

24 to 14 AWG wire size stripped 5/16"
 Spring clamp terminals or DIN rail K-BUS for power

Housing

IP 20, requires installation in panel or enclosure
 Mounts to standard 35 mm DIN rail
 1.6 ounces (45 grams)
 Black polybutylene terephthalate (PBT) plastic

Power

19.2 to 30 VDC via terminals or K-bus
 22 mA at 24 VDC max.
 500 mW max. power consumption

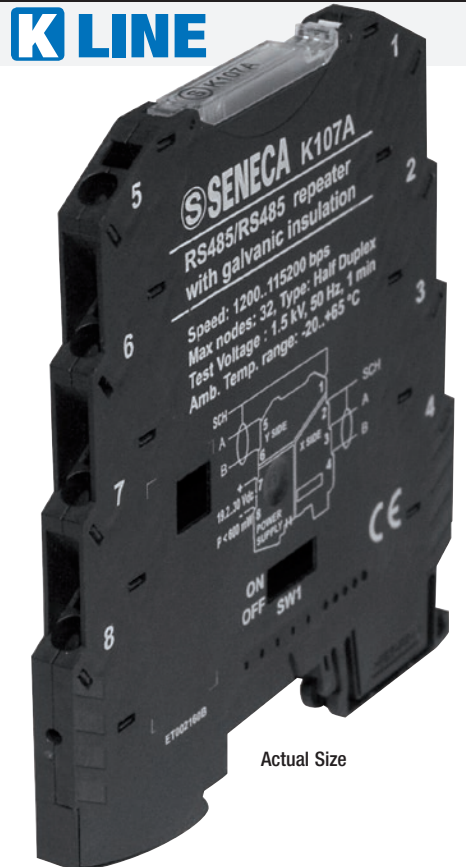
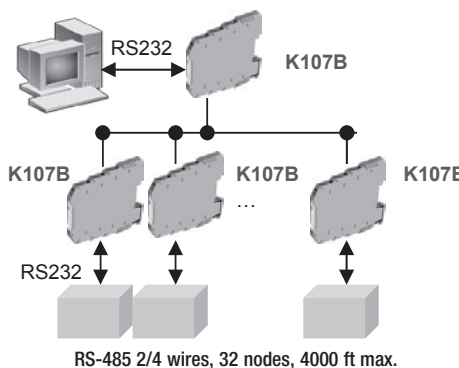
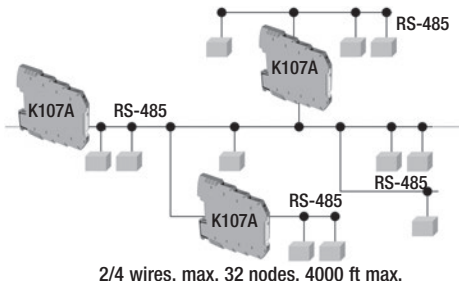
Dimensions

2.5" H x 0.25" W x 4" D (93.1 x 6.2 x 102.5 mm)

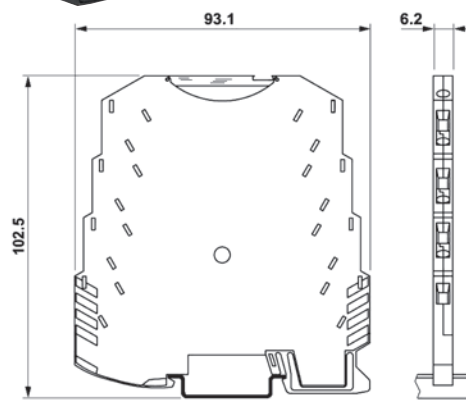
Standards

CE, UL
 EN 61010-1, EN 60742, EN 61000-2, EN 61000-4

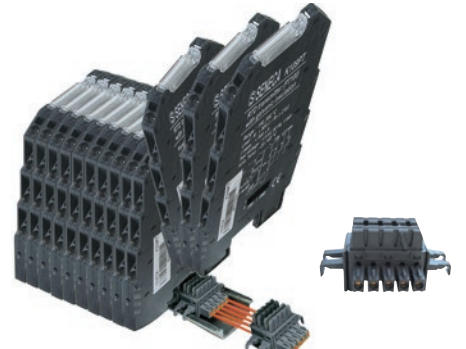
Quick Link
api-usa.com/k-line



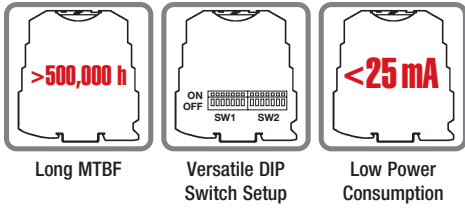
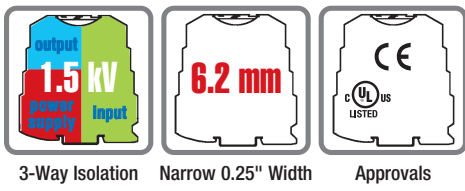
Actual Size



K-Bus Power



K-BUS Backplane power connection snaps into DIN rail.



Call 1-800-942-0315 to place your order!

Model	Description
K107A	RS-485/RS-485 bidirectional repeater, isolator, amplifier. 19.2-30 VDC powered
K107B	RS-232/RS-485 bidirectional repeater, isolator, amplifier. 19.2-30 VDC powered
K-BUS	DIN rail power connector system. See api-usa.com/kbus

More Slim Transmitters

- K109TC** Thermocouple to DC transmitter
- K109PT** 100 Ohm RTD to DC
- K121** Universal temperature/mA/V/Ohm to DC
- K109UI** DC to DC isolator/converter
- K107USB** USB to RS-485 isolator/converter

Precautions

WARNING! All wiring must be performed by a qualified electrician or instrumentation engineer. See diagram for terminal designations and wiring examples. Consult factory for assistance.

WARNING! Avoid shock hazards! Turn signal input, output, and power off before connecting or disconnecting wiring, or removing or installing module.

Précautions

ATTENTION! Tout le câblage doit être effectué par un électricien ou ingénieur en instrumentation qualifié. Voir le diagramme pour désignations des bornes et des exemples de câblage. Consulter l'usine pour assistance.

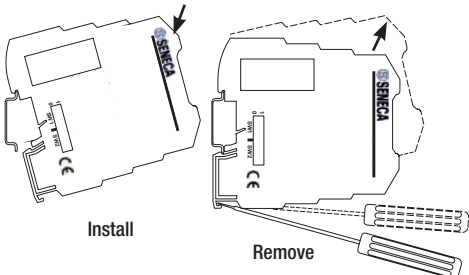
ATTENTION! Éviter les risques de choc! Fermez le signal d'entrée, le signal de sortie et l'alimentation électrique avant de connecter ou de déconnecter le câblage, ou de retirer ou d'installer le module.

DIP Switch Settings

Set the SW1 DIP switches for your application as indicated in the table at right.

Installation and Removal

The housing clips to a standard 35 mm DIN rail and requires installation in a protective enclosure. Install module in a vertical orientation and position in the lower part of the panel away from heat sources or objects that may block air flow.

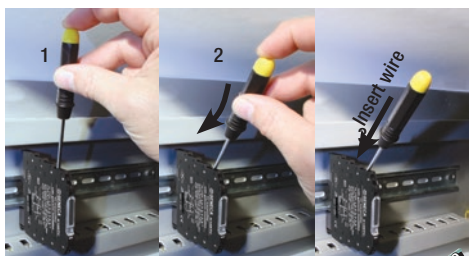


1. Tilt the front of module upward and clip the upper mount to the top edge of the DIN rail.
 2. Push front of module downward until lower mount snaps in place.
- To Remove: Avoid shock hazards! Turn input, output, and power off before removing module.
1. Use small screwdriver to pry to lower clip away from the DIN rail.
 2. Tilt the front of module upward to remove.

Inserting Wires

Use a flat blade screwdriver with a blade about 1/8" W to depress wiring spring clip for each connection.

1. Insert screwdriver at a nearly vertical angle into the square opening next to desired round terminal. Make sure the screwdriver goes under the spring clip and not into the clip opening.
2. Push the screwdriver down and in, (or up and in for lower terminals). The wire clip moves up exposing the opening in the round terminal opening.
3. Insert wire into round terminal hole, then remove the screwdriver and make sure wire is secure.

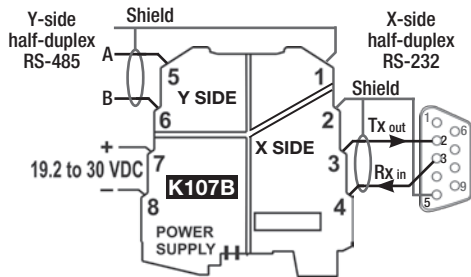
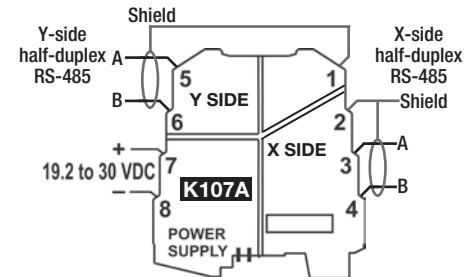


Electrical Connections

See the wiring diagrams below. Use a Class 2 power supply. When using an isolated voltage/limited power supply, a max. 2.5 A fuse must be installed.

K-Line signal conditioners can be powered by a 24 VDC power supply connected to the module terminals or the K-BUS DIN rail power supply connector that can power up to 16 devices using up to 400 mA. The K-BUS eliminates the need to connect the power supply to each module. See api-usa.com/kbus.

Polarity must be observed for output wiring connections. If the output does not function, check wiring and polarity.



K107B	DB9
2: shield	5
3: Tx out	2
4: Rx in	3

Operation

The K107A and K107B usually stay with both the communication ports in receiving state (idle status). The first transition (character) detected at one of the ports enables the corresponding communication channel, while the opposing port becomes the data outlet by repeating the stream (data flow) received on the first.

Whenever the data flow is interrupted the device returns to its previous receiving state on both ports (idle status). The time period for this to occur depends on the communication speed setting. The time for return to idle status is usually around 1.5 characters starting from the receiving line's last active status, however a different period of time can be selected whenever required by protocol. The table below indicates switching times on the basis of the transmission speed set.

Speed (bps)	Switching time (ms)
115220	0.13
57600	0.26
38400	0.39
19200	0.78
9600	1.56
4800	3.13
2400	6.25
1200	12.5

Full Duplex with Two Modules

Two modules can be used as isolator or repeater for a Full-Duplex connection. In this case, it is recommended that the module installed on the master Tx line inhibit communication direction by selecting either the X->Y direction or the Y->X direction. Having both DIP-switches ON does not cause a malfunction, but it inhibits the device when both ports are transmitting.

No indication in table = DIP switch is set to OFF.

SW1	1	X->Y Direction Inhibition		
	ON	Enabled		
		Disabled		
SW1	2	Y Terminator		
	ON	Enabled		
		Disabled		
SW1	3	4	5	Transmission speed
				115,200
	ON			57,600
	ON	ON		38,400
	ON		ON	19,200
	ON			9,600
	ON	ON		4,800
	ON	ON	ON	2,400
	ON	ON	ON	1,200
SW1	6	Y->X Direction Inhibition		
	ON	Enabled		
		Disabled		
SW1	7	X Terminator (K107A only)		
	ON	Enabled		
		Disabled		
SW1	8	Polarizer* (K107B RS-232 only)		
	ON	Enabled		
		Disabled		

* When enabled, the polarizer prevents the RS-232 line from capturing noise if left disconnected.

LED Functions

Green LED	Flashing	Steady
X side	Data present at X-port	Reversed connection at X port or X -> Y direction inhibition enabled
Y side	Data present at Y-port	Reversed connection at Y port or Y -> X direction inhibition enabled
Center	Flashes once when the device is turned on to indicate the presence of voltage	n/a

API maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.