# FIELD BUS EXTENSION

# BUS OR FAILSAFE RING

The IRC485 repeater allows the extension of an RS485 field bus when the maximum range is reached.

The amplitude and duration of the repeated data are recalibrated.

For more security, a failsafe ring can be created so that the failure of one unit does not interrupt the functioning of the other terminals in the ring.

The IRC485 repeater ensures the transmission of most RS485 synchronous or asynchronous field buses up to 187.5 kb/s.

## Key-features

■ 1200 b/s to 187.5 Kb/s

■ Byte repetition

■ Failsafe ring function

■ Profibus DP ,  MODBUS, DH485, UNITELWAY, SYSMACWAY...

■ RS232 / RS422 / RS485 interface

■ 2500 Vrms isolation

■ DIN rail mounting

■ Supply 9 to 40 VDC or 40 to 60 VDC

## Applications

Field bus extension.

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etic
TELECOMMUNICATIONS

# IRC485 | RS485 repeater

## High-performance field bus extension

The IRC485 regenerates and repeats the signal at its original amplitude and timing for each segment without significantly delaying transmission.

A large number of PLCs can thus be connected to the extended bus.

## Failsafe ring

When using asynchronous transmission, a failsafe ring can be created: if a module fails or a cable is cut, all the other terminals remain operational.
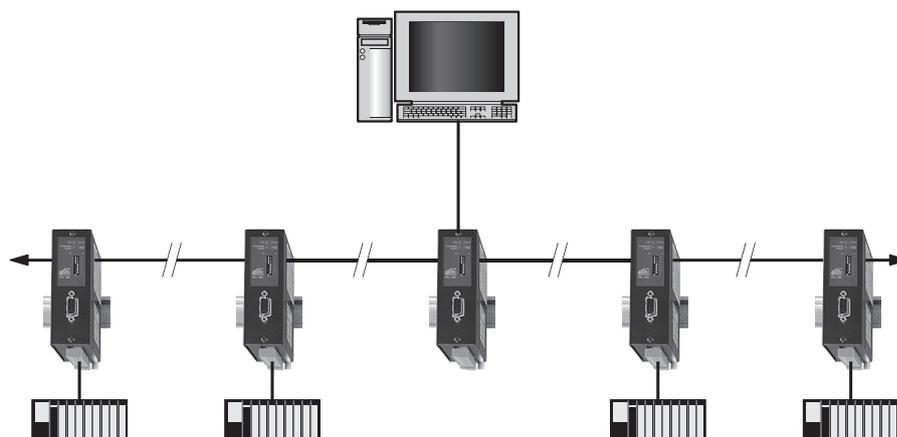
Failsafe ring

Alarm

Alarm
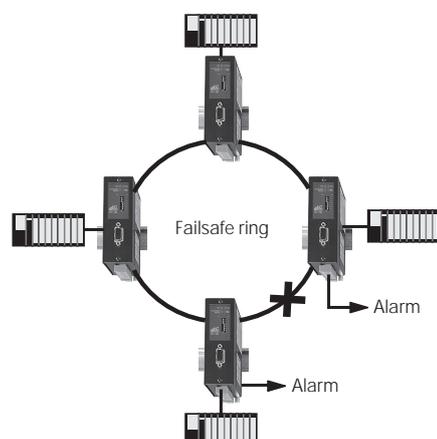
## All-in-one: repeater, isolator and interface converter

The IRC485 module brings together in a single product the functions of a repeater, a line isolator and an interface converter.

Each of the two lines is galvanically isolated, which guarantees the isolation of the local interface.

## Switch configuration

The IRC 485 module can be immediately installed and configured thanks to an easily accessible bank of micro-switches.
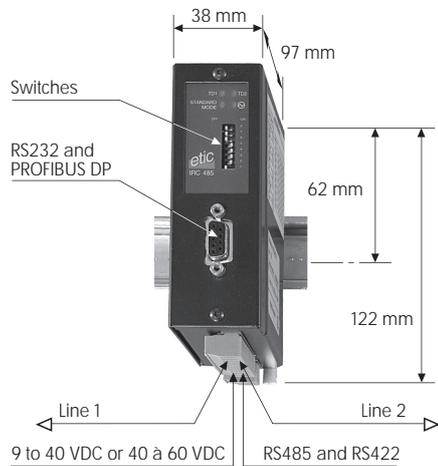
| Characteristics | |
|---|---|
| Local interface | RS485 / RS422 / RS232 |
| Field bus | PROFIBUS DP, MODBUS, UNITELWAY, DH-485, SYSMAC-WAY... |
| Type of data transmitted | ■ Synchronous or asynchronous<br>■ Asynchronous : 7 or 8 bits<br>■ Parity : none / even / odd<br>■ 1 start, 1 or 2 stops<br>■ 1200 - 2400 - 4800 - 9600 b/s<br>19.2 - 38.4 - 57.6 - 115.2 kb/s<br>93.5 - 187.5 kb/s |
| Number of segments | ■ Unlimited in theory<br>■ Only limited by error rate<br>■ Typically, 10 segments |
| Configuration | 8 micro-switches |
| Dimensions | 115 x 38 x 96 mm (h, l, d) |
| Isolation / line | ■ Each line is isolated<br>■ Isolation voltage : 2500 V rms |
| E.M.I. | EN 50082-2 |
| Electrical safety | EN 60950 |
| Lightning | EN61000-4 and -5<br>2kW common and differential modes |
| Power requirements | 9 to 40 VDC or 40 to 60 VDC |
| Power consumption | 50 mA at 24 VDC |
| Operating temperature | 0° / + 60°C |
| On-line transmission | RS485 on a shielded twisted pair<br>Regeneration of signal amplitude and timing (asynchronous) |

| Transmission range (shielded twisted pair 50 nF/Km ) | | | | |
|---|---|---|---|---|
| Network | Bus | | Ring | |
| Cable Diameter | 0.6 mm | 1 mm | 0.6 mm | 1 mm |
| 9 600 b/s | 4.5 km | 7.5 km | 4.5 km | 7.5 km |
| 115 200 b/s | 0.9 km | 1.4 km | 0.8 km | 0.8 km |
| 93 750 b/s | 1 km | 1.6 km | 1 km | 1 km |
| 187 500 b/s | 0.75 km | 1.1 km | 0.5 km | 0.5 km |

| Designation | Reference |
|---|---|
| IRC485 / 24VDC supply voltage | IRC485-0 |
| IRC485 / 48VDC supply voltage | IRC485-1 |

# Description

Switches

RS232 and
PROFIBUS DP

38 mm

97 mm

62 mm

122 mm

Line 1

Line 2

9 to 40 VDC or 40 à 60 VDC

RS485 and RS422

# Accessories

| Designation | Characteristics | Reference |
|---|---|---|
| Desktop kit | RS232 cable + AS06 power supply module + desktop adapter | KIT12 |
| RS232 cable | Length 1.5 m - DB9 M / DB9 F | CAB01 |
| Power supply modules | Refer to Power supply modules section for details | AS05 - AS06 - AS07 |
| Line surge protection | Refer to Protections for details | PS01 - PS02 |
| Power supply surge protection | Refer to Protections for details | PS05 |
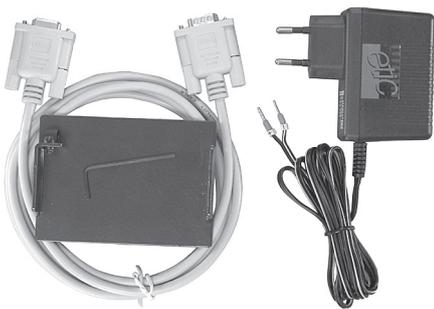
*KIT12*

# Connecting cables for PLCs

Refer to Cables section (page 41) to select the cable corresponding to your application.

# Delivery content

IRC485-0

IRC485-1

Repeater - User guide in English