CesCom

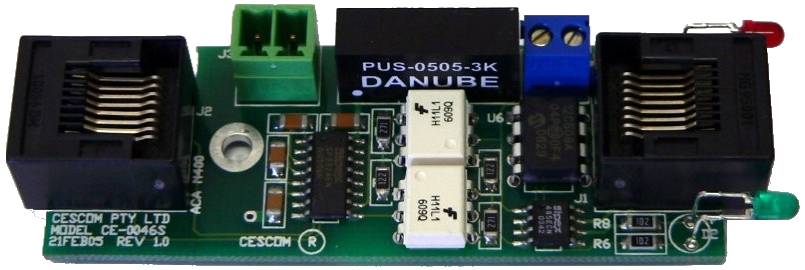
N400
ACA approved

CE0046S
RS232 – RS485 ISOLATOR

Converts and isolates RS232 to RS485 bus

Features

- 3KV **optical isolation** barrier
- Half duplex operation to 120Kbps
- >1200 metres transmission capability (at 9600 baud)
- **Single** 9V DC power
- **ATE** - Automatic Transmit Enable
- Fast 1.5bit RS485 **line turn-around**
- **Fail-safe** RS485 biasing
- 78mm x 26mm compact size
- RJ-45 Connections
- LED indicators



Overview

Many PCs and controllers are equipped with RS-232 ports which are designed for short-distance point-to-point low-speed communications whereas RS-422/485 balanced networks are designed to run long distances and permit multi-drop operation and can run at megabit speeds. Typically a simple RS-485 converter may be used to interface the PC to the balanced network.

One side effect of such long line lengths can be harmful transients and ground-loop currents which can introduce errors or disrupt communications or even damage the host. The CE-0046S isolates the RS-232 interface from the RS-485 side through an optical isolation barrier rated at over 3,000 volts. Not only does this prevent harmful voltages being coupled through to the RS-232 side but it also isolates the RS-232 ground from the RS-485 “grounds” which otherwise could affect the inherent common-mode voltage rejection, a problem on many balanced networks.

RS-485 networks are half-duplex and normally require a transmit enable signal, something akin to the “press to talk” on 2-way radios. Most systems rely on the RTS signal to control the transmit enable but this also requires that the RS-232 software be adapted if possible to do so. Cescom's range of converters feature Automatic Transmit Enable (ATE) processing based upon precise timing related to each character sent so that the transmit enable automatically engages on the reception of a character from the RS-232 side. This transmit enable stays asserted for the length of the character and deasserts if no other characters have been detected within 1.5 bits after the stop bit.

This makes the CE-0046S the perfect candidate for RS-485 networks which require a fast line-turnaround without the need for special software.

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Specifications

Power requirements	+9VDC @84ma
Physical	78mm x 26mm x 100mm (HWD)
Weight	14 grams (approx)
Isolation	3000VAC RMS
Environment	0 to +70°C operating
Standards	EIA RS232; EIA RS485; AS/NZS-3548 EMI/EMC; C Tick compliant ACA N400

Baud rate presets	9600, 19200, 38400, or fixed 1ms timeout
TX/RX Control	ATE
ATE turnon	2us typical
ATE turnoff	1.5 character bits or 1ms
Indicators	Data, Power

OPERATION

RS-232 to RS-485

In the idle condition the RS-485 transmitter is disabled and ready to receive characters from the RS-485 side. When a character is received from the RS-232 side the RS-485 transmitter is turned on with the detection of the start-bit and stays enabled for the length of the character plus 2.5 stop bits. The ATE is able to time the character if the baud-rate is set accordingly via an internal factory jumper on the ATE processor. Once the RS-232 receive input falls idle and the ATE times out the unit will be able to receive data from the RS-485 bus again.

CONNECTIONS

PIN	RS-232	RS-485
1	nc	nc
2	Connected to pin 7	nc
3	nc	nc
4	RxData input	TR-
5	TxData output	TR+
6	Signal Ground	nc
7	Connected to pin 2	nc
8	nc	nc

Notes: [*1] Ensure lines are terminated (usually 120ohms)

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