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
- **TE 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.

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

CONNECTIONS

PIN	RS232	RS485
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

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CE-0046S MODULE

RS232 PORT
J2
RxD
TxD
GND

J1
RS485 PORT
TR-
TR+

J3
TR (-)

J4
TR (+)

GND   FROM CE-0046M
+9VDC   FROM CE-0046N

RJ45 SOCKET PINS

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