Features

- 3KV **Optical isolation** barrier
- Wide supply range **single** DC power
- Efficient **switch-mode** regulation
- RS422/485 **lightning protection**
- Self-reseting **polyfuses**
- **ATE** - Automatic Transmit Enable
- Fast 1.5bit RS485 **line turn-around**
- Compact vertical DIN rail mounting
- Pluggable **Combicon** terminal 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-0029 isolates the RS-232 interface from the RS-422/485 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 afffect 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-0029 the perfect candiate for RS-485 networks which require a fast line-turnaround without the need for special software.

CesCom

N400
ACA approved

Din rail mounted conversion from RS232 to isolated RS422/485 with ATE

Specifications

Supply Voltage	+8V to +30VDC	**RS-232**	115.2K baud max
Current	60ma @12VDC, 25ma @30VDC	**RS-485**	115.2K baud max (limited by RS-232 speed)
Physical	80mm x 26mm x 100mm (HWD)	**Control**	ATE
Weight	200 grams (approx)	**ATE turnon**	1us max
Case Material	Polyamide 6.6	**ATE turnoff**	1.5 character bits or 1ms
Environment	-40'C to +85'C operating	**Indicators**	RS-232 TxData, RS-232 RxData, Power
Standards	IEC 1010; AS/NZS 3548 EMI/EMC; C Tick compliant		

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.

RS-485 to RS-232

As long as the RS-232 receive input is idle and the ATE is timed out then all RS-485 traffic will appear on the RS-232 transmit.

RS-232 to RS-422

This full-duplex mode works exactly like the RS-485 mode expect the receive lines are dedicated and the internal ATE permits RS-422 multidrop operation.
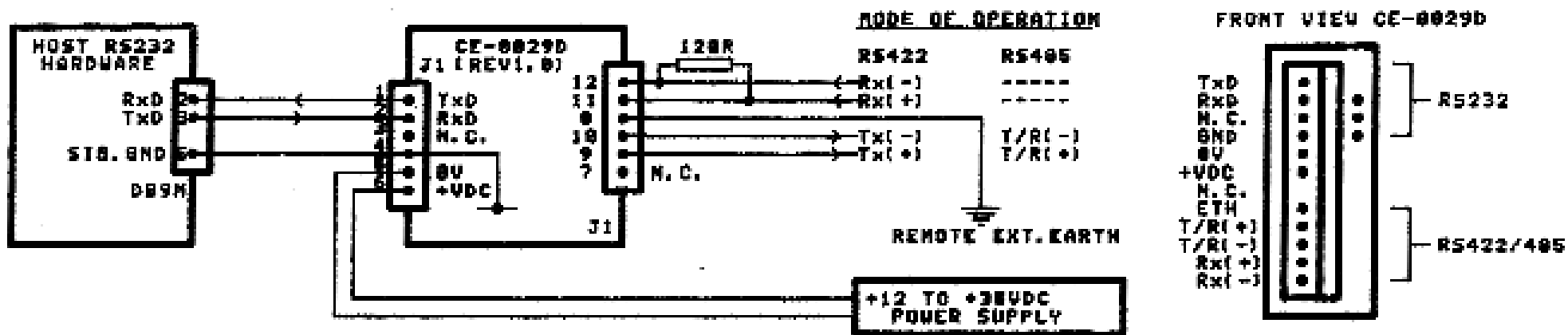
CONNECTIONS

1	TxD	RS-232 Transmit data out
2	RXD	RS-232 Receive data in
3	NC	
4	GND	RS-232 ground
5	0V	Power supply ground
6	+VDC	Power-supply positive input
7	NC	
8	EARTH	RS-422/485 common
9	TR+	RS-422 Transmit A or RS-485 Transmit/Receive A [1]
10	TR-	RS-422 Transmit B or RS-485 Transmit/Receive B [1]
11	Rx+	RS-422 Receive A [1]
12	Rx-	RS-422 Receive B [1]

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

N400
ACA approved

Din rail mounted conversion from RS232 to isolated RS422/485 with ATE

INSTALLATION NOTES

1. CONNECT THE CE-0029D TO THE **DIN RAIL**

2. CONNECT A **DC POWER** SUPPLY BETWEEN TERMINALS 5 AND 6 OF J1 AS SHOWN.

3. CONNECT PIN 8 OF TERMINAL BLOCK J1 TO AN **EXTERNAL EARTH** AT THE REMOTE RS422 SITE.

4. CONNECT THE **RS422/RS485 LINES** TO AND FROM THE CE-0029D AS PER THE ABOVE DIAGRAM.

5. CONNECT A 120 OHM **TERMINATION** RESISTOR ACROSS PINS 11 AND 12 OF J1 IF THE TRANSMISSION LINE EXCEEDS 100M FOR AN RS422 SYSTEM.

6. CONNECT THE **RS232** INPUT TO THE CE-0029D AS PER THE ABOVE DIAGRAM.

7. THE UNIT IS READY FOR OPERATION