KD485

UNIVERSAL
ISOLATED
INTERFACE
CONVERTER

KD485 - ADE
KD485-ADE Universal Isolated Interface Converter

- Automatic driver enable on RS485
- 30-115200 baud, low-EMC drivers
- Universal RS422/485 2/4-wire interface with varistor protection
- 7V to 25V DC powered
- Isolation 100% tested @ 2kV AC

Overview
The KD 485 is a multi-purpose interface converter designed to satisfy a wide range of industrial datacomms requirements. One common application is the connection of multi-dropped RS485 devices to an RS232 system. Most currently available converters require the RS232 device to control its RTS signal to enable/disable the RS485 driver, but some RS232 systems do not have this capability. The KD 485-ADE avoids RTS control:

Features
The KD 485-ADE has the following features:
- DIN-rail enclosure with screw terminals; fits 35mm symmetric and 32mm asymmetric rails
- DC power input: a regulated or unregulated DC supply in the range +7V to +25V
- Two serial ports: port 1 and port 2; port 2 is isolated (i.e. floating) from the rest of the KD 485
- Port 1 is RS232; port 2 is RS422/485; other combinations of interfaces are available to order
- Port 2 is a multi-mode port: it supports RS422 (4-wire) and RS485 (2- and 4-wire) Low-EMC RS422/485 drivers
- Internal pull-up and pull-down resistors ensure that RS485 bus floats to a valid state when not driven
The KD485-ADE inserts a CPU (with two serial ports) into the data path. Several standard application programs (Modes) are provided in a built-in ROM:

Mode 0: emulates KD485-STD; also offers baud rate and character format conversion.

Mode 1: as above, plus Auto Driver Enable. The RS485 driver is automatically controlled according to the presence of data from the RS232 host.

Mode 2: RS485-to RS232 Addressable Adaptor. This makes possible the connection of up to approximately 50 RS232 devices to a 2/4-wire RS485 bus through which they can be polled by a single Master.

PC-based configuration programs for DOS and Windows are included.

**RS232 to 2-wire RS485 (half-duplex, multidrop) conversion**

The diagram illustrates the connection between a RS32 host system and RS485 devices. The KD485-232-422 is used to convert the signals for compatibility. The diagram shows the pinout and connections for both modes. The switch allows the selection of operating modes.

- **Gain Control** (if used): RTS control is required on KD485-STD.
- **RTS connection above can be omitted on KD485-ADE/PROG.

*The standard KD485 is RS232-RS485; therefore it is not necessary to specify the -232-422 suffix when ordering.*
**Configuration**

The KD485-ADE uses a user-accessible switch to set port 1 into a 9600-baud dumb-terminal “Executive” mode where various configuration and test functions are accessible via a command-line user interface. These include a Test Slave device which interrogates any RS485 Slave and returns response, in ASCII or hex. A Windows-based configuration program with pull-down menus is also supplied. Two standard configuration files, for E1 Bisynch and Modbus protocols, are supplied on disk.

**Ordering information**

<table>
<thead>
<tr>
<th>Basic Product</th>
<th>Type</th>
<th>PSU</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>KD485</td>
<td>ADE</td>
<td>00</td>
<td>RS232</td>
<td>RS232</td>
</tr>
<tr>
<td></td>
<td>PROG</td>
<td>PS</td>
<td>RS422/RS485(2 or 4 wire)</td>
<td>RS422/RS485(2 or 4 wire)</td>
</tr>
</tbody>
</table>

**Special order KD485 versions**

The two ports can be populated in any combination of RS232 or 422/485. For example, a KD485-ADE with two RS422/485 ports is designated KD485-ADE-422-422. This product can be used to connect a 2-wire bus to an existing 4-wire bus, with both buses having multiple slaves operating.

**Specification**

- **DC power:** +7V to +25V DC, 60/100/100mA typ. (+12V DC preferred)
- **Port parameters:** baud rates: 30, 37.5, 50, 75, 100, 110, 134.5, 150, 300, 600, 1200, 2000, 2400, 3600, 4800, 7200, 9600, 19200, 38400, 115200; stop bits: 1, 2; handshakes: none, xon/xoff
- **Interfaces:** Port 1 RS232; Port 2 RS422/485; any other combination available to order
- **Isolation:** Functional; Port 2 is isolated from rest of KD485; 64V PK (100% tested at >2000V AC rms for 1s). Not authorised for use where injury could result from isolation failure
- **Environmental:** Operating 0 to +50°C; storage -25°C to +70°C; RH 0 to 90% non-condensing
- **CE compliance:** Emissions EN 50081-2 immunity EN 50082-2
- **Dimensions:** 23mm (W) x 75mm (H) x 100mm (L) approx, in rail-mounted position

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