

PC422

RS232 to RS485/RS422
Converter
Operation and
Instruction Manual

Mechanical Installation

The PC422 is housed in a through connector with 25 way DIN connectors at each end. The converter can be link configured for RS232 to RS485 or RS232 to RS422 conversion. The female end connects directly to the computer serial port. The male end is the RS485/RS422 end which connects to the RS485 or RS422 device being communicated with. Use low capacitance screened computer cables for connections to and from the PC422.

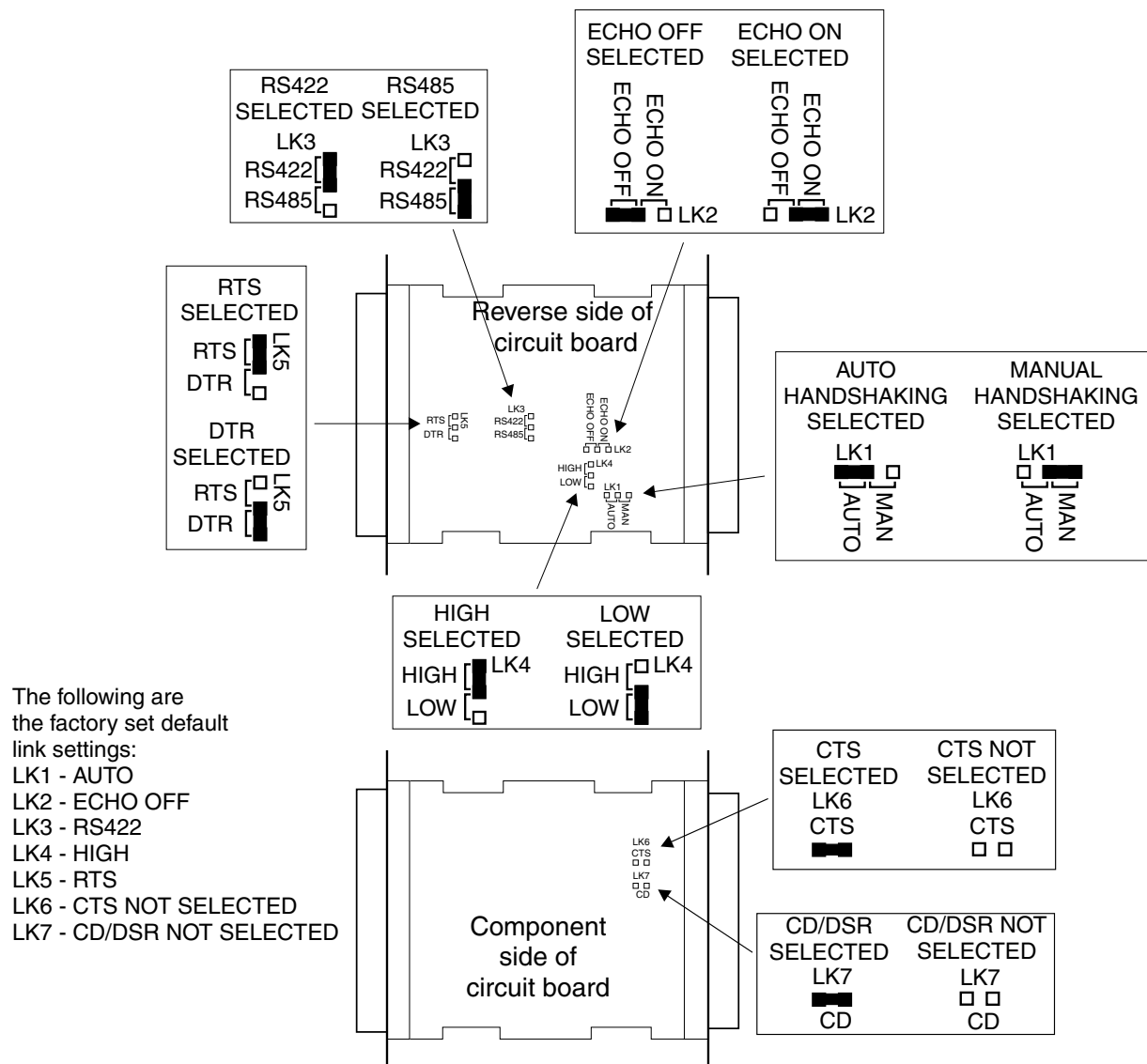
Electrical Installation

Internal Link Settings

Several internal links are fitted to the circuit board, if link settings need to be altered then disassemble the converter. The case is held together by clips at the side of the housing. Links are placed on both sides of the circuit board. All links are made using solder only. Alteration of a link involves unsoldering the existing link and placing a solder link across the required terminals. Make the link changes required then reassemble the instrument.

Default link settings are:

LK1 AUTO, LK2 ECHO OFF, LK3 RS422, LK4 HIGH, LK5 RTS & LK6 neither CTS nor CD selected.



LK1 - Auto/Manual Link

In auto mode the transmitter is automatically enabled when transmit data is present and is automatically switched off when data is complete. No timing is required by the host device. The Auto mode will work at all baud rates, see "SPECIFICATIONS" for available baud rates.

In manual mode the transmitter must be manually enabled and disabled, normally via the DTR or RTS line (pins 20 and 4, female end). One of these (the one selected by LK5) must be held high (or low depending on LK4 setting) to turn the transmitter on and must go low (or high depending on LK4 setting) to turn it off. The line must be held high until the stop bit of the last data byte is sent. This normally involves complex timing and the use of interrupts on the host computer ensure the timing requirements are met.

The transmitter must be turned off before another device on the line starts to transmit.

LK2 - Echo On/Off Link

Selects echo on or echo off. LK2 must be set to "ECHO ON" for auto operation mode, it can be either on or off in manual operation mode. When set to "ECHO ON" whatever message is transmitted is returned. When set to "ECHO OFF" the receiver is disabled during the transmission and hence the message is not returned.

LK3 - RS422/RS485 Link

Selects either RS485 or RS422 operation.

LK4 - Low/High Link

LK4 sets the RTS or DTR control line input level (low or high) required to select "transmission on" when in manual mode operation. In most cases the required selection is "HIGH".

LK5 - RTS/DTR

Selects either RTS or DTR as the control input for RS232. The control input is used when "MAN" is selected at LK1.

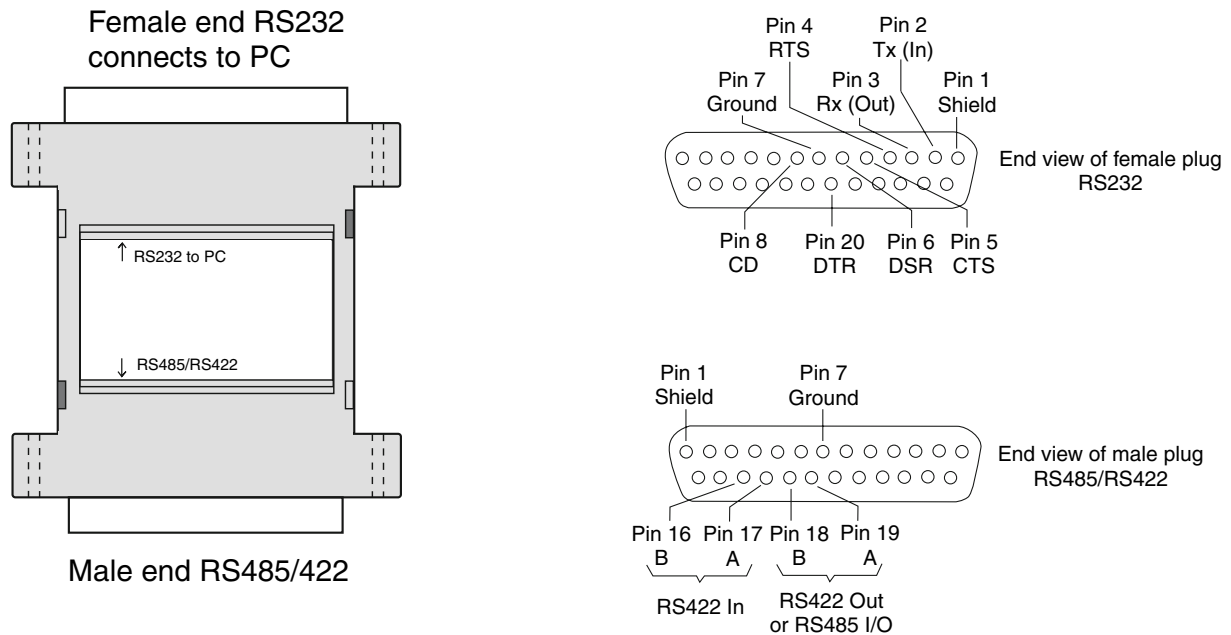
LK6 - CTS

LK6 can be used to tie the CTS control line high. Some systems require this line to be tied high.

LK7 - CD/DTR

LK7 can be used to tie CD and DSR control lines high. Some systems require one of these lines to be tied high.

External Connections



RS232 End

- Pin 1 - Shield (case ground) - Connects to pin 1 at RS422 end only.
- Pin 2 - Tx(in) - Transmit data from RS232 device to RS485/RS422.
- Pin 3 - Rx(out) - Receive data from RS485/RS422 to RS232 device.
- Pin 4 - RTS(in) - Request to send control line. See LK5 link details.
- Pin 5 - CTS(out) - Clear to send control line. See LK7 link details.
- Pin 6 - DSR(out) - Data set ready control line. See LK7 link details.
- Pin 7 - Signal ground.
- Pin 8 - CD(out) - Carrier detect control line. See LK7 link details.
- Pin 20 - DTR(out) - Data terminal ready control line. See LK5 link details.

RS422 End

- Pin 1 - Shield (case ground) - Connects to pin 1 at RS232 end only.
- Pin 7 - Ground.
- Pin 16 - B - RS422 input B. Used in RS422 mode only.
- Pin 17 - A - RS422 input A. Used in RS422 mode only.
- Pin 18 - B - RS485 input/output B or RS422 output B.
- Pin 19 - A - RS485 input/output A or RS422 output A.

Powering the PC422

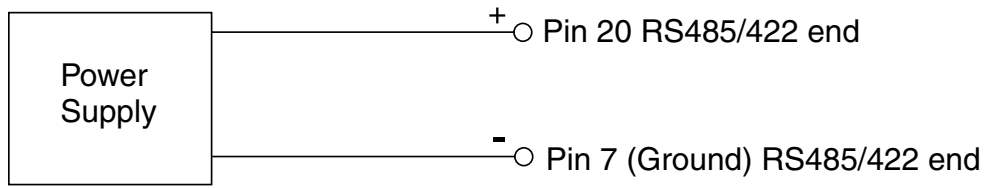
The PC422 is normally powered from the serial port of an IBM PC or compatible computer via pins 20 (+12V from PC) and 7 (GND). The PC422 is a low power device and derives its power from the hand shaking lines or the RS232 port. The power is obtained from RTS (pin 4) and DTR (pin 20). For correct operation one or both of these lines must be held high by the software. Most PC software which does not use hand shaking will hold these lines high.

Externally powering the PC422

If you are not using a PC compatible serial port which provides DTR or RTS high then an external power supply may be connected to pins 7 (GND) and 20 (+VE) at the RS485/RS422 end of the connector. The external supply needs to be between 6 and 15VDC at approximately 50mA. The supply must be regulated.

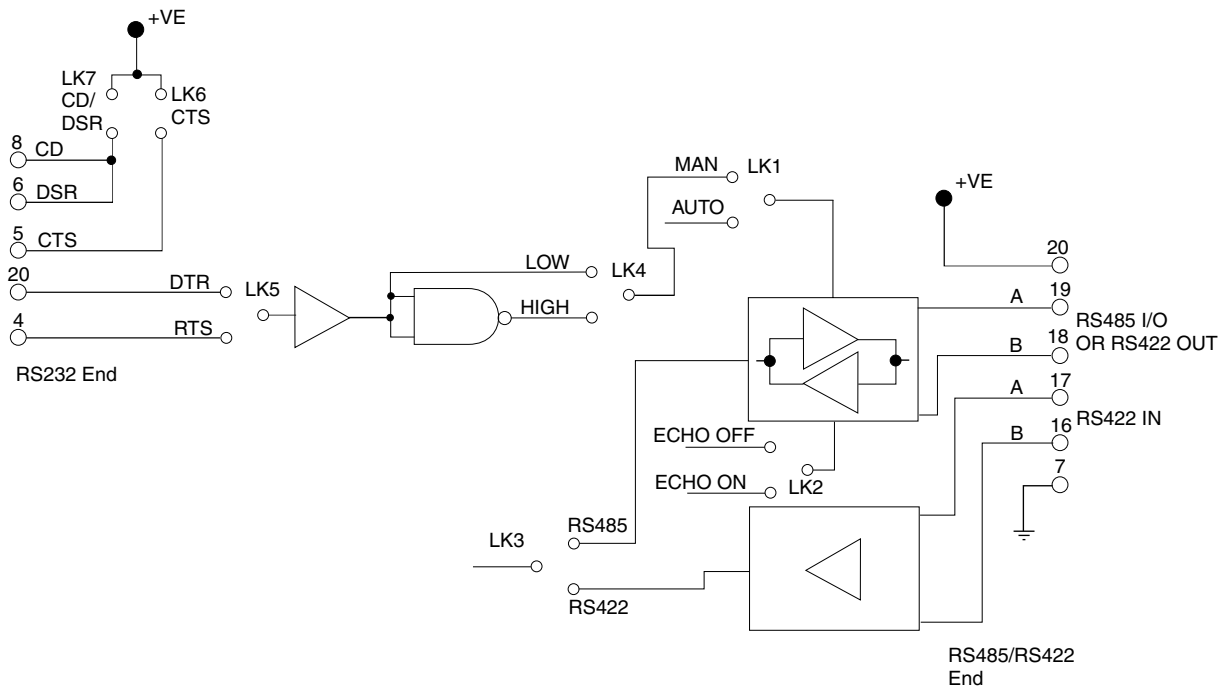
Note that an external supply may also be needed if you are using a low power serial port which may be found on lap tops etc., or are driving a large driving a large number of RS485/RS422 loads.

The PC422 is normally powered from the computer port. If required the PC422 may be externally powered. Connections for externally powering the PC422 are shown below.



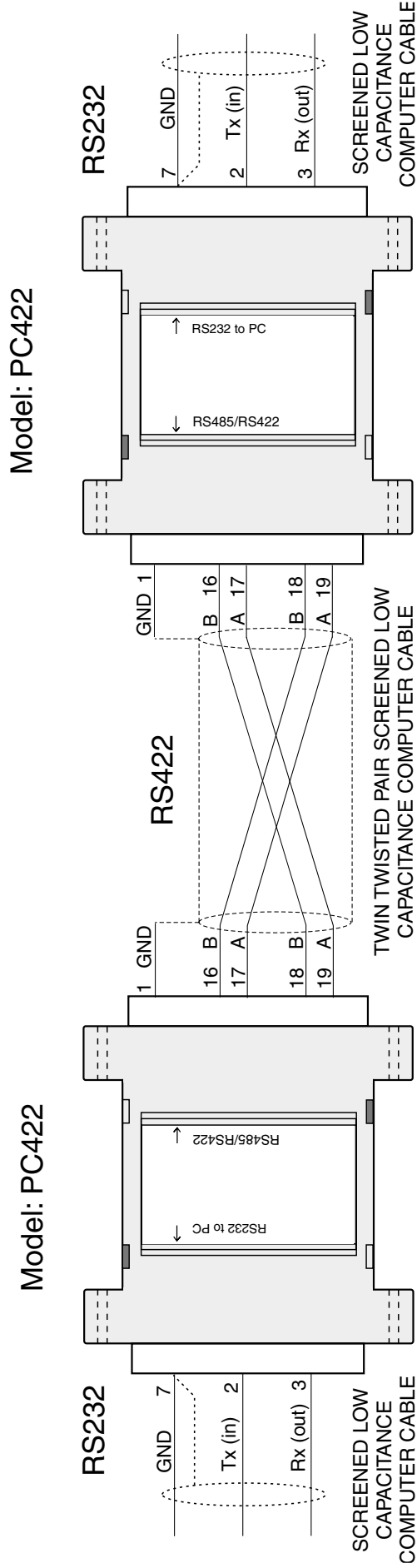
Note: Power supply must be regulated, voltage range 6-15VDC

Link Placement Diagram



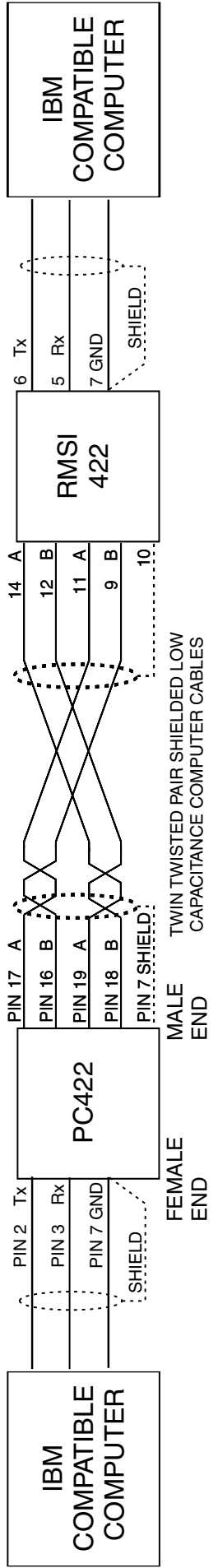
Interconnection examples

RS422 communication, computer to computer

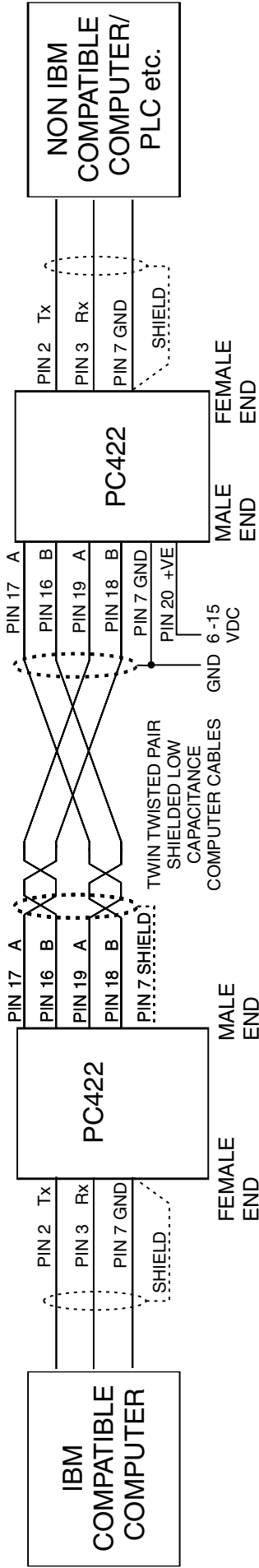


Required link settings: LK1 - Manual, LK2 - Echo off,
 LK3 - RS422, LK4 - Low,
 LK5 - Both links (DTR & RTS) out unless control via DTR or RTS is being used

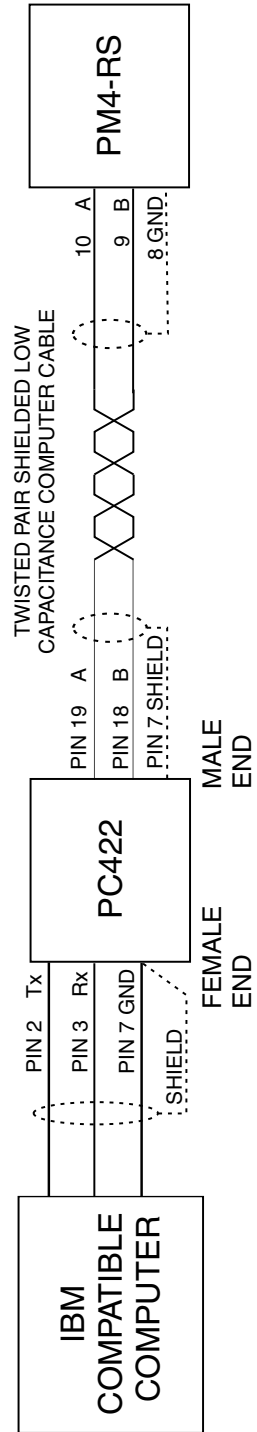
RS422 communication using PC422 to RMSI422



RS422 communication, computer to computer, externally powered PC422 at one end



RS485 communication to panel meter model PM4-RS



Specifications

Maximum number of drivers:	32 (RS485) or 1 (RS422)
Maximum number of receivers:	32 (RS485) or 10 (RS422)
Maximum cable length: (RS485/422):	1220 m
Maximum cable length: (RS232):	15m
Baud range (RS232 limited):	300 to 38400 baud
Power supply:	Powered from IBM compatible serial port or externally powered (6-15VDC)
Dimensions:	63mm (h) x 56mm (w) x 16mm (d).
Temperature range:	-20 to 60°C (5 to 95% humidity)

Guarantee & Service

The product supplied with this manual is guaranteed against faulty workmanship for a period of 2 years from the date of dispatch.

Our obligation assumed under this guarantee is limited to the replacement of parts which, by our examination are proved to be defective and have not been misused, carelessly handled, defaced, damaged due to excessive installation. This guarantee is VOID where the unit has been opened, tampered with or if repairs have been made or attempted by anyone except an authorised representative of the manufacturing company.

Products for attention under guarantee (unless otherwise agreed) **must be returned to the factory freight paid** and, if accepted for free repair, will be returned to the customers address in Australia free of charge.

When returning the product for service or repair, a full description of the fault must be given, and the mode of operation used when the product failed.

In any event the manufacturer has no other obligation or liability beyond replacement or repair of this product.

Modifications may be made to any existing or future models of the unit as it may deem necessary without incurring any obligation to incorporate such modifications in units previously sold or to which this guarantee may relate.

This document is the property of the instrument manufacturer and may not be reproduced in whole or part without the written consent of the manufacturer.

This product is designed and manufactured in Australia.