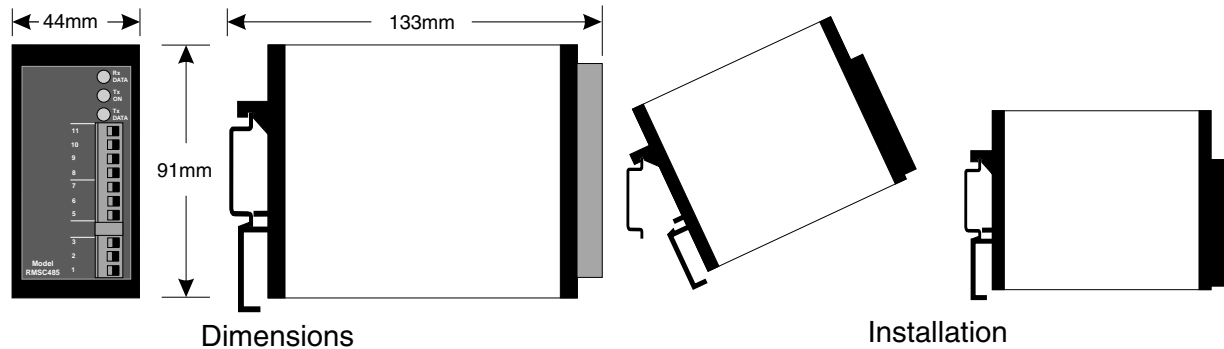# RMSI485 & RMSI422

RS232 to RS485 or RS422
Converter
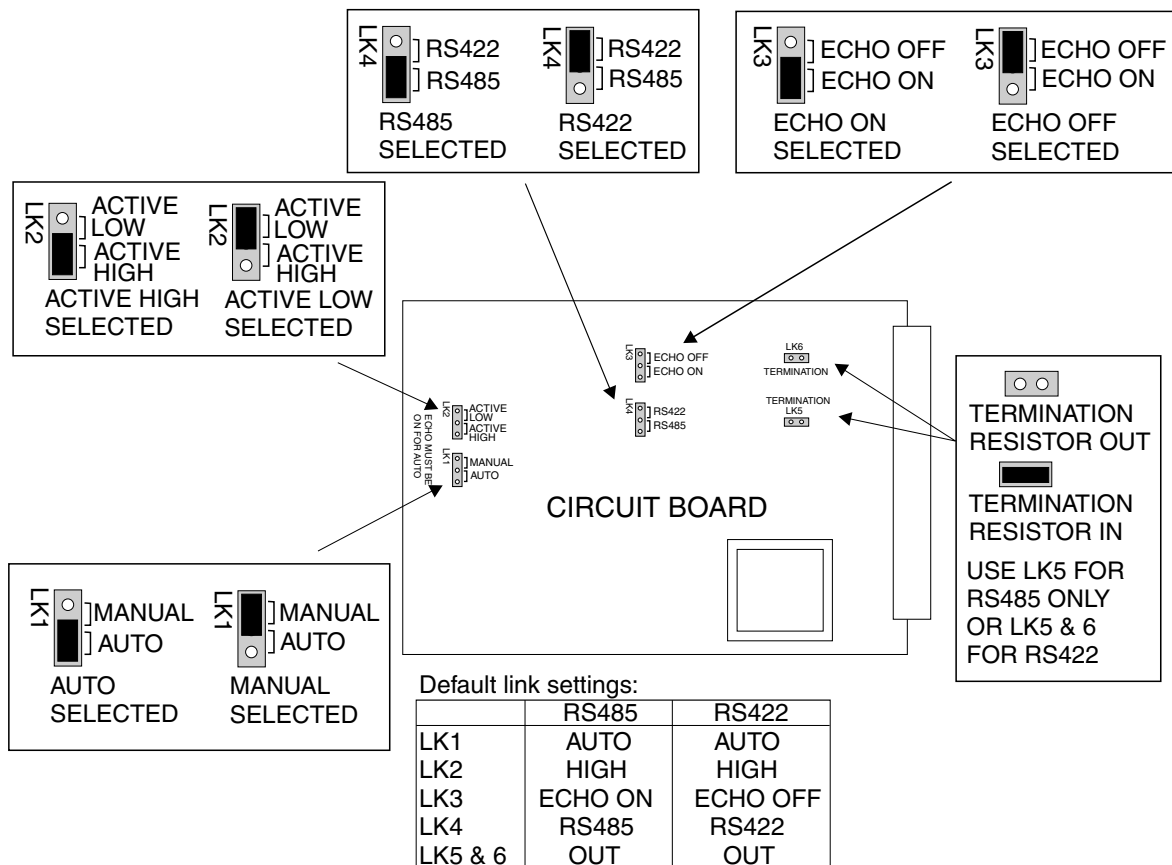Operation and
Instruction Manual

Mechanical Installation

The RMSI485/RMSI422 are DIN rail mount instruments, that simply clip unit onto the rail as shown below. To remove from the rail insert a broad bladed screwdriver under the lower arm and lever downwards to release clip.

Dimensions   Installation

Electrical Installation

Internal Link Settings

Several internal links are fitted to the circuit board, if link settings need to be altered then remove the two plug in connectors at the instrument face, unscrew the four front bezel screws and the earth screw located at the side of the instrument. Now gently pull the front bezel away from the case. The circuit board is attached to the front bezel and will slide out. Make the link changes required and re assemble the instrument.

Default link settings:

	RS485	RS422
LK1	AUTO	AUTO
LK2	HIGH	HIGH
LK3	ECHO ON	ECHO OFF
LK4	RS485	RS422
LK5 & 6	OUT	OUT

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 via the DTR line. e.g. with LK2 set to HIGH Pin 8 must be held high to turn the transmitter on and

must go low 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 to ensure the timing requirements are met.

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

LK2 - Active Low/High Link

LK2 sets the 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".

LK3 - Echo On/Off Link

Selects echo on or echo off - used in RS485 mode only, has no effect in RS422 mode. LK3 must be set to "ECHO ON" for RS485 auto operation mode, it can be either on or off in manual operation mode. When set to "ECHO ON" whatever RS485 message is transmitted is returned. When set to "ECHO OFF" the receiver is disabled and hence the message is not returned.

LK4 - RS422/RS485 Link

Selects either RS485 or RS422 operation. Pins 9, 10 & 11 are used for RS485 i.e. send and receive lines are not separated. Pins 9, 10, 11, 12, 13 & 14 are used for RS422 i.e. separate send and receive lines are used.

LK5 & 6 - Termination Links

Termination links can be used to reduce data reflection on long wiring runs. They are used on the first or last device on a serial line. The link terminates the line preventing reflection and distortion of the signal. For RS485 communications fit LK5 if required, for RS422 fit both LK5 & 6 if required.

NO TERMINATION LINK

LINK IN

A   B   B   A   B   A   B   A

LINK IN
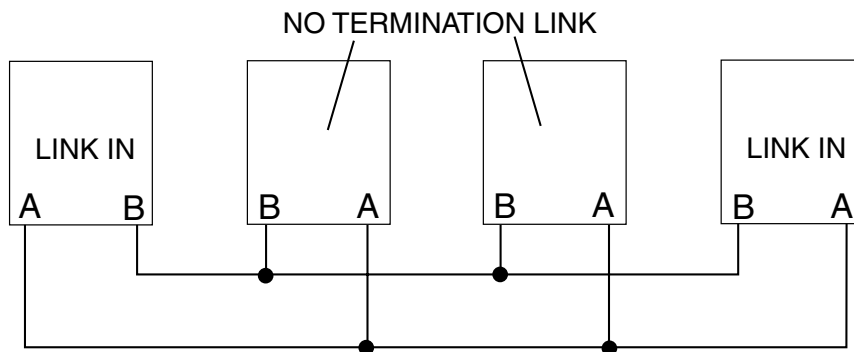
Electrical connections

Terminals 12, 13 & 14 (RMSI422 only) - RS422 IN - Lines A, B and Ground are the input lines when RS422 communication is used. A and B are differential balanced signal (RS485/RS422). Note that connections are in parallel when wiring to another instrument i.e. A is connected to A and B is connected to B.

Terminals 9, 10 & 11 - RS422 OUT (RMSI422) or RS485 I/O (RMSI485). Note that connections are in parallel when wiring to another instrument i.e. A is connected to A and B is connected to B.
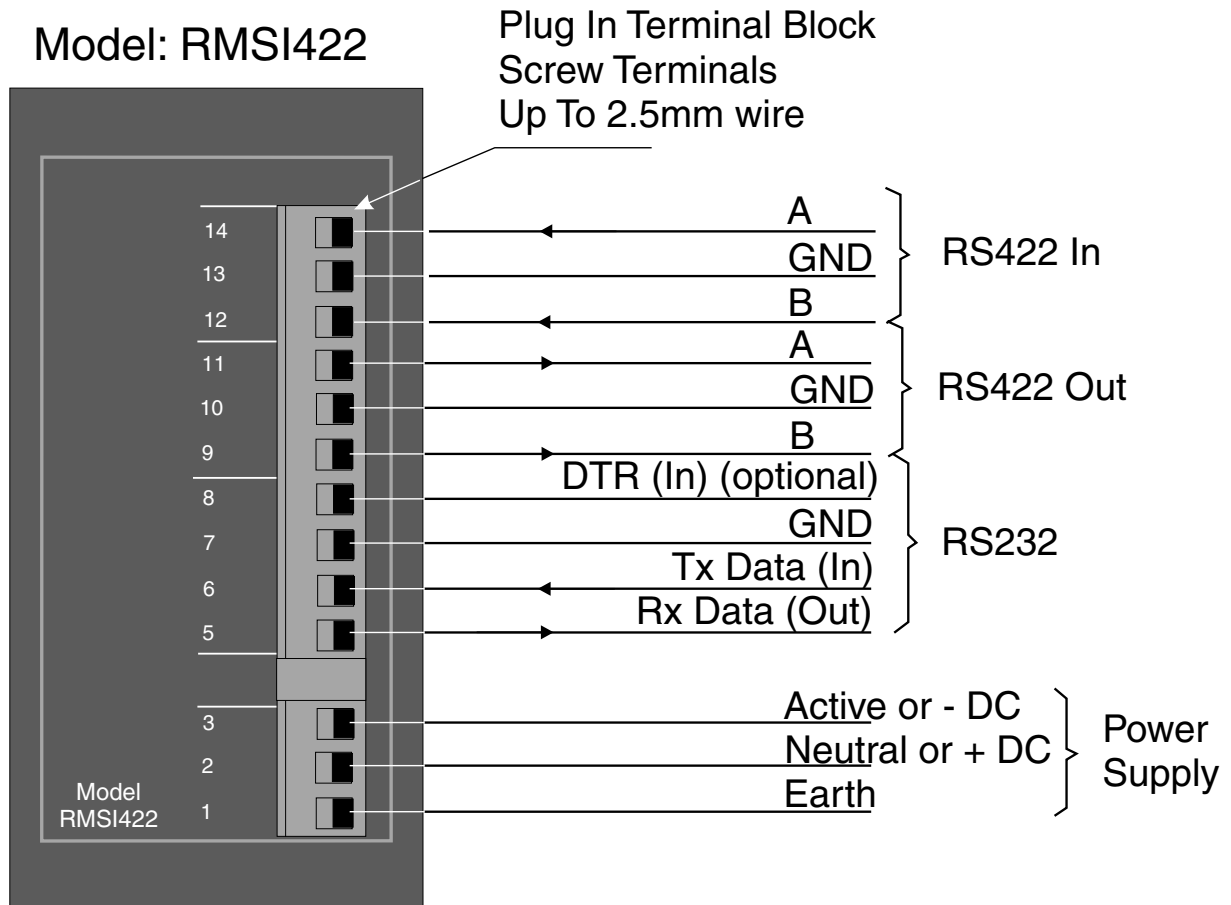
Terminal 8 DTR - Optional hardware control of RS485 transmit. Used when manual mode is selected. Pin 8 must be held high to turn the transmitter on and must go low to turn it off. The line must be held high until the stop bit of the last data byte is sent.

Terminal 6 Tx Data In - Transmit data from RS232 device into RS485/RS422.
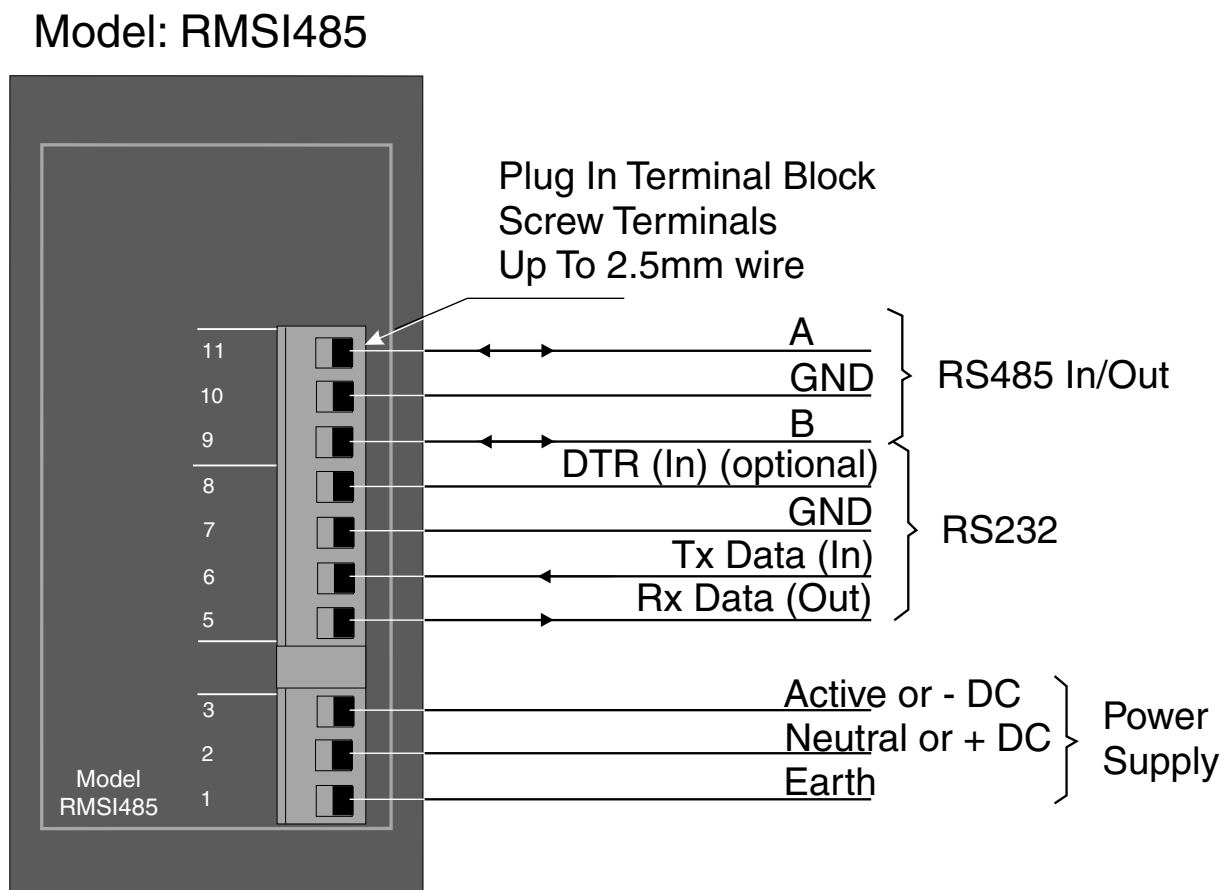
Terminal 5 Rx Data Out - Receive data from RS485/RS422 to RS232 device.

Terminals 1, 2 & 3 Power supply lines - The RMSI485 is available with either 240, 110, 24VAC or wide range 12 - 48VDC supply (factory configured).

Electrical connections for RMSI422

Model: RMSI422

Plug In Terminal Block
Screw Terminals
Up To 2.5mm wire

Terminal	Signal	Group
14	A	RS422 In
13	GND	RS422 In
12	B	RS422 In
11	A	RS422 Out
10	GND	RS422 Out
9	B	RS422 Out
8	DTR (In) (optional)	RS232
7	GND	RS232
6	Tx Data (In)	RS232
5	Rx Data (Out)	RS232
3	Active or - DC	Power Supply
2	Neutral or + DC	Power Supply
1	Earth	Power Supply

Model RMSI422

Electrical connections for RMSI485

Model: RMSI485

Plug In Terminal Block
Screw Terminals
Up To 2.5mm wire

Terminal	Signal	Group
11	A	RS485 In/Out
10	GND	RS485 In/Out
9	B	RS485 In/Out
8	DTR (In) (optional)	RS232
7	GND	RS232
6	Tx Data (In)	RS232
5	Rx Data (Out)	RS232
3	Active or - DC	Power Supply
2	Neutral or + DC	Power Supply
1	Earth	Power Supply

Model RMSI485

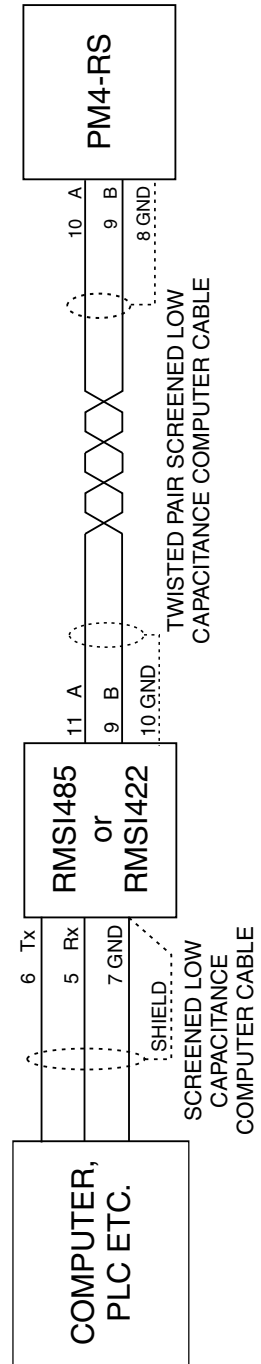# Interconnection examples

RS422 communication, computer to computer - see also more detailed drawing which follows.
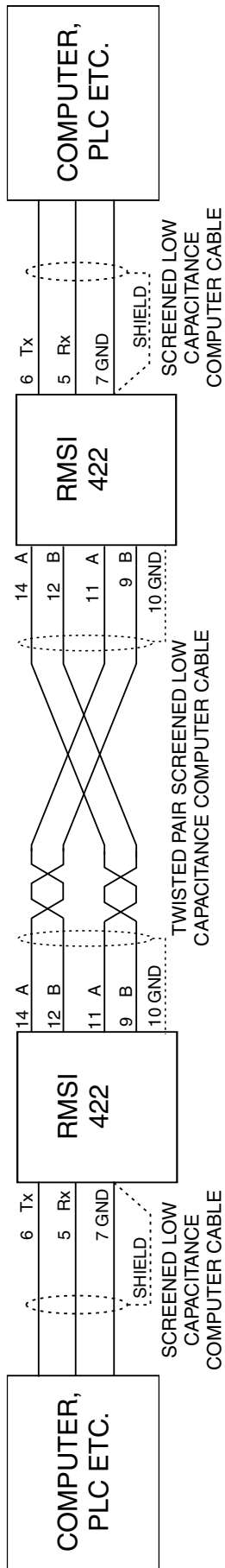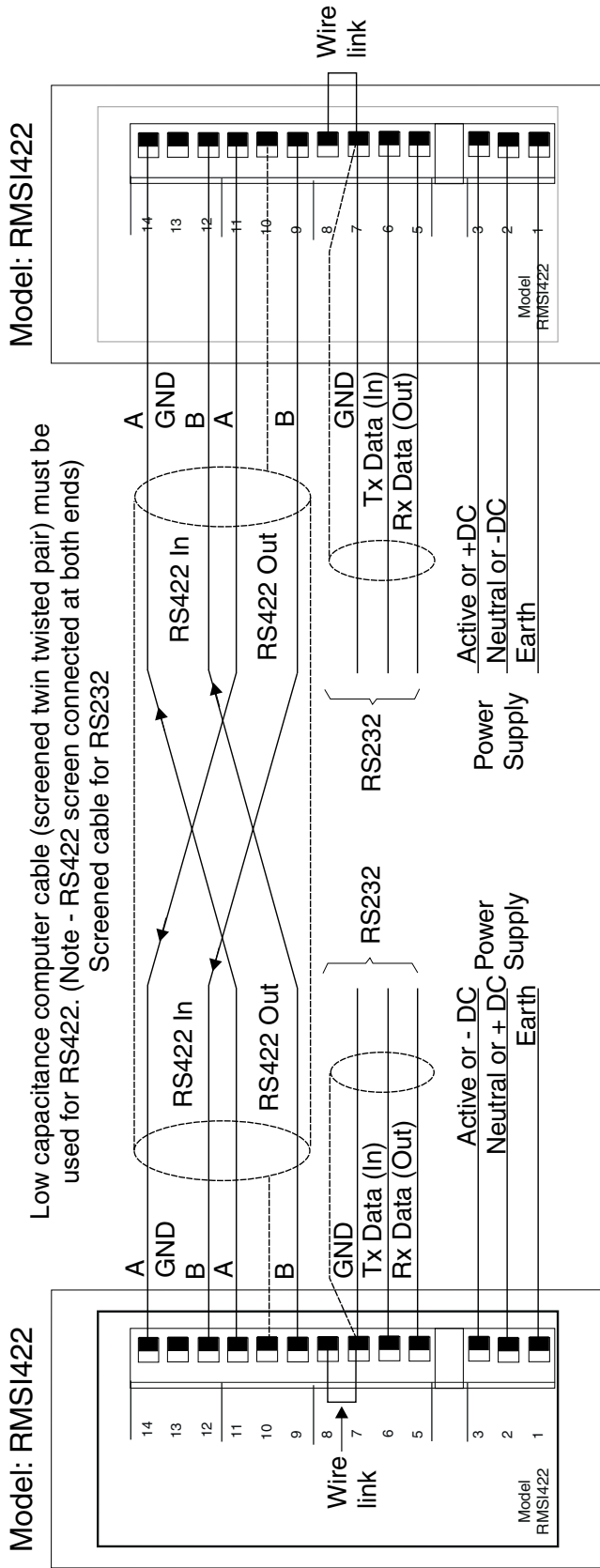

RS422 communication using PC422 to RMSI422
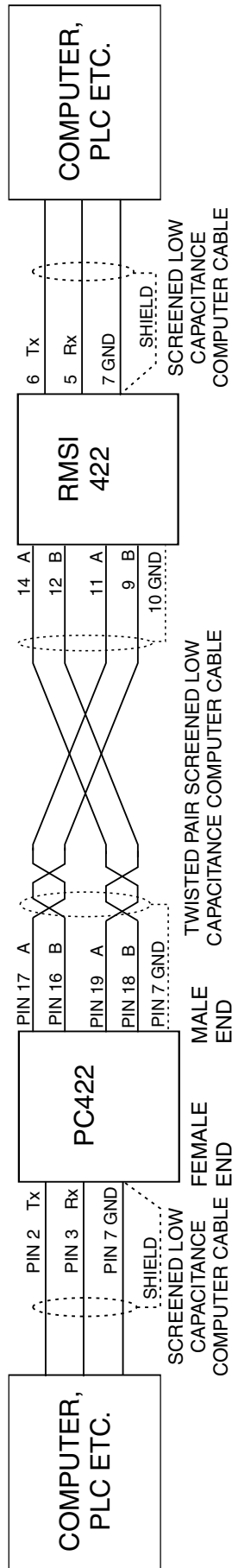
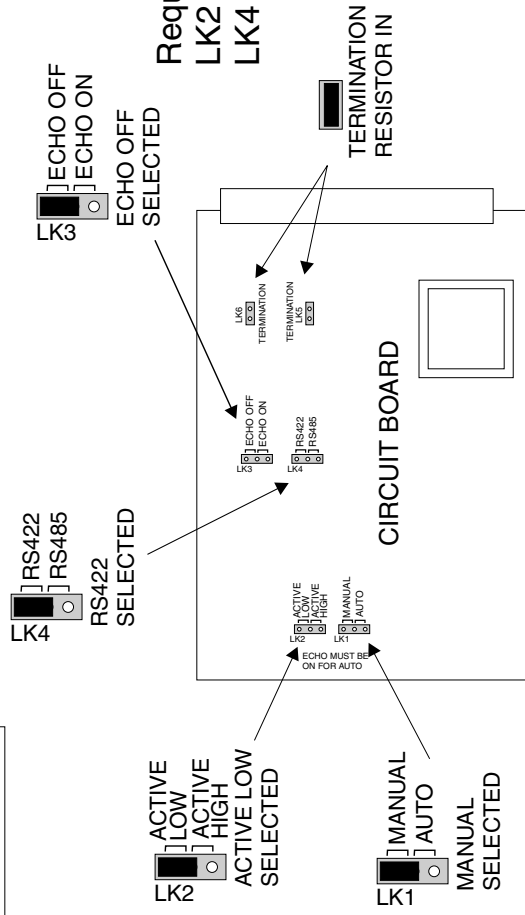## RS485 communication to panel meter model PM4-RS

Detailed wiring and link setting example - RS232 to RS422 followed by RS422 to RS232 conversion

Model: RMSI422

Wire link

Model: RMSI422

14 13 12 11 10 9 8 7 6 5 3 2 1

A
GND
B
A

B

RS422 In

RS422 Out

GND
Tx Data (In)
Rx Data (Out)

RS232

Active or +DC
Neutral or -DC
Earth

Power Supply

Low capacitance computer cable (screened twin twisted pair) must be used for RS422. (Note - RS422 screen connected at both ends) Screened cable for RS232

A
GND
B
A

B

RS422 In

RS422 Out

GND
Tx Data (In)
Rx Data (Out)

RS232

Active or - DC
Neutral or + DC
Earth

Power Supply

Wire link

Model RMSI422

14 13 12 11 10 9 8 7 6 5 3 2 1

Required link settings: LK1 - Manual, LK2 - Active low, LK3 - Echo off, LK4 - RS422, LK5 - In, LK6 - In

LK3
ECHO OFF
ECHO ON
ECHO OFF SELECTED

TERMINATION RESISTOR IN

LK4
RS422
RS485
RS422 SELECTED

LK6 TERMINATION
LK5 TERMINATION

CIRCUIT BOARD

LK3 ECHO OFF / ECHO ON
LK4 RS422 / RS485

LK2 ACTIVE LOW / ACTIVE HIGH
LK1 MANUAL / AUTO
ECHO MUST BE ON FOR AUTO

LK2
ACTIVE LOW
ACTIVE HIGH
ACTIVE LOW SELECTED

LK1
MANUAL
AUTO
MANUAL SELECTED

RMSI422MAN-1.0-2

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 metres
Baud range (RS232 limited):	300 to 38400 baud
Power supply:	240, 110, 24VAC or wide range 12 to 48VDC
Isolation:	500V input to output 2kV for AC supply to input/output 100V for DC supply to input/output
Weight:	400 gms.
Temperature range:	-40 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 or damaged due to incorrect 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 manufacturer 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 and the mode of operation used when the product failed must be given.

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.