

# PANEL-IR

Panel mounted infra-red transmitter/receiver

The PANEL-IR module converts serial data between electrical and infra-red formats. Ideal for applications that require remote control or dangerous environments where cables would be a safety risk, PANEL-IR employs the IrDA infra-red communications standard to achieve reliable transfer of data. The snap-in integral bezel makes installation quick and easy.

- 🔊 Panel mounted
- 🔊 Uses IrDA Communication Standard
- 🔊 Connects to Microcontroller, UART, or EasyLog Module
- 🔊 Half-duplex Communications
- 🔊 10-Way Pin Header



## Baud rate

Select the baud rate as shown in the table below. Where a "0" is shown, either connect the pin to 0V or leave it unconnected. Where a "1" is shown, connect the pin to V+.

Pin6	Pin7	Pin8	Baud
0	0	0	9600
0	0	1	14400
0	1	0	19200
0	1	1	28800
1	0	0	38400
1	0	1	57600
1	1	0	115200

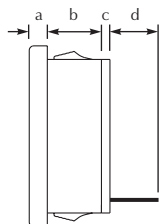
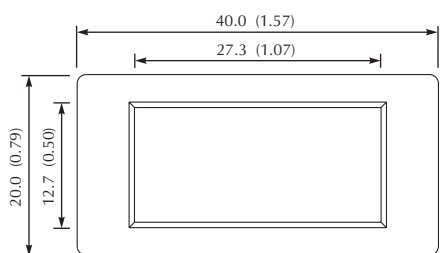
Stock Number	PANEL-IR			
Infra-red Module	Min	Typ	Max	Unit
Specification				
Power supply	3	5	5.5	V
Current consumption Receive	3	5	6	mA
Transmit <sup>1</sup>	7	12	25	mA
Communication cone		±15		°
Communication distance <sup>2</sup>	0	1/3.3		m/ft
Data rate (bits per second)	9600		115200	bps
Infra-red pulse duration		1.6		µs
Latency <sup>3</sup>	10			ms

Note 1: Depending on transmission duty cycle

Note 2: Under normal lighting conditions

Note 3: This is the time delay between receive and transmit operations

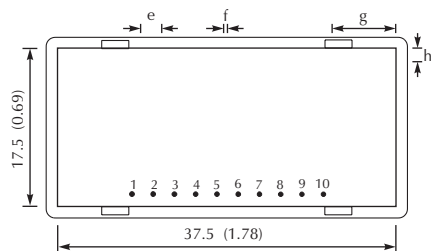
## DIMENSIONS All dimensions in mm (inches)



- a. 2.00 (0.08)
- b. 6.00 (0.24)
- c. 1.60 (0.06) max
- d. 6.00 (0.24)
- e. 2.54 (0.10)
- f. 0.50 (0.02)
- g. 6.00 (0.23)
- h. 2.00 (0.08)

Panel cut-out  
38.0 x 18.0 (1.50 x 0.71)

Panel thickness  
1.0 to 2.5 (0.04 to 0.1)



- Pin Name
1. Polarity
  2. Disable
  3. N/C
  4. 0V
  5. V+
  6. Baud 3
  7. Baud 2
  8. Baud 1
  9. RxD
  10. TxD

## PANEL FITTING

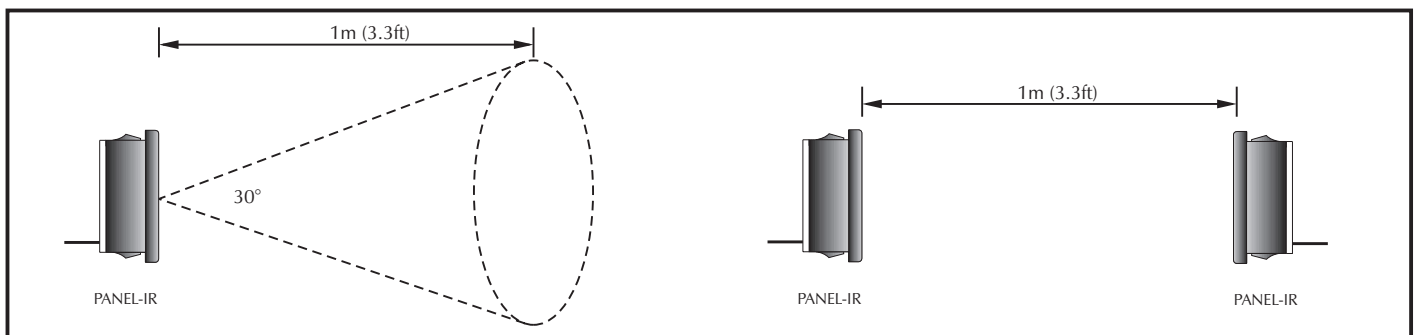
Locate the module by passing it through the front of the panel cut-out and gently push until the rear of the bezel is flush with the panel. DO NOT PUSH ON THE SCREEN. The snap-in lugs will now automatically hold the module firmly in position.

**PIN FUNCTION**

- 1. Polarity      Selects whether the transmit/receive lines use positive or negative logic.  
                     Connect to 0V for positive logic. Connect to V+ or leave unconnected for negative logic.
- 2. Disable       Disables the receiver/transmitter. Connect to 0V to disable.  
                     Connect to V+ or leave unconnected to enable.
- 3. N/C            No connection. Do not connect anything to this pin.
- 4. 0V             0V Power supply.
- 5. V+             5V Power supply.
- 6. Baud 3        }  
 7. Baud 2        }      Baud rate select (see table overleaf).  
 8. Baud 1        }
- 9. RxD            Receive data - received data appears on this pin.
- 10. TxD           Transmit data - apply data to be transmitted to this pin.  
                     If the PANEL-IR is solely used for receiving data then TxD should be connected to V+ via a 47k resistor.

**APPLICATION NOTES**

Communication can take place at distances from 0m (i.e. "nose-to-nose") to 1m. The red window of the PANEL-IR module should be pointed at the window of the device at the other end of the infra-red link. The infra-red light beam spans approximately 30°, so the two devices do not have to be directly aligned. There should however be a clear line of sight between the two devices. At close range, communication is more forgiving and small obstacles will not affect the link.

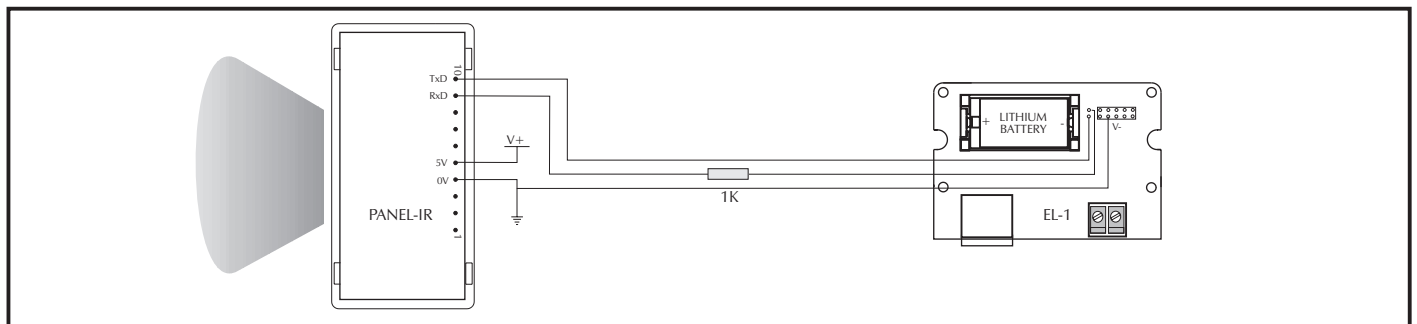


**Protocol**

The PANEL-IR module acts as a "transparent" data translator i.e.: there is no built-in communications protocol to adhere to. The device works by transmitting an IR pulse for "Low" bits, and not transmitting anything for "High" bits. Since the first bit of the serial byte (the start bit) is always "Low", this marks the start of the byte. Subsequent bits are synchronised from there. Take care to set the Polarity pin (pin 1) correctly. For more detailed application advice, contact Lascar Electronics.

**Connection to EasyLog Data Logging Modules (EL-1 issue 9 and above)**

Connect as shown below to give your EL-1 infra-red communication capability. The flying leads should be soldered into the two PCB holes on the EL-1 module, at the left hand end of the 10-way pin header. A 1K resistor must be fitted as shown if a serial communication cable is used in addition to the infra-red link, otherwise it can be omitted.



**Typical application: industrial controller**

The PANEL-IR module forms part of an infra-red communications link between two totally isolated systems.

The PANEL-IR module will communicate with any computer featuring an IrDA compatible serial port, or any other PC fitted with a Lascar EASYLINK-IR adapter.

