IFSYS-8001

Datasheet

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Revision	**Date**	**By**	**Description of change**
1.0	17 Apr 07	CW	Document published.
1.1	1 May 07	CW	Added Static Speed Switching specification.

CONTENTS

1 Overview

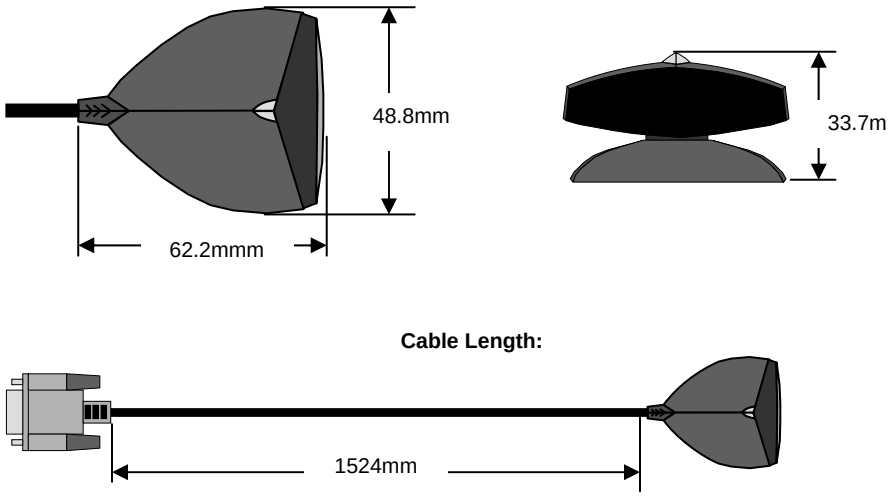
IFSYS-8001 is a serial port IrDA adapter that converts a UART bit stream into pulses of infrared light. In a transmission sequence, IFSYS-8001 receives information from the host computer through its serial port. Typically the format of data transmitted conforms to the RS232 signaling protocol. At the sending end, IFSYS-8001 modulates the data stream on a byte-by-byte basis, converting each byte into IR pulses for transmission via an optoelectronic module. Conversely, data received by the module is demodulated then converted into RS232 format. In this way, bidirectional data transfer is made possible. However, due to omnidirectionality of infrared light, transfer is *half-duplex* or in one direction at any time.

While it provides the physical communication, IFSYS-8001 is also capable of operating with IrDA protocol software, such as those which may be found in Windows, Linux or other operating systems. It may also be used in embedded designs. In such an environment, the IrDA software protocol will negotiate and lock-in communication with a selected device at the other end. The IrDA protocol is also capable of negotiating to use the best possible connection speed depending on the particular adaptor's specifications. Its IR transmission range, however, is a function of the electrical characteristics of the particular serial port to which it is attached.

2 Electrical & Dimensional Specifications

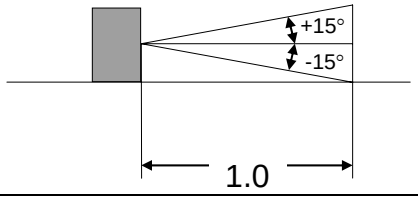
This section provides the product specifications.

2.1 Nominal Product Dimensions



2.2 Electrical & Optical Specifications

The following is provided as an example, Please modify according to the requirements of the specific product.

IrDA Transmission Characteristics			
Characteristic	**Min.**	**Max.**	**Notes**
IR transmit pulse width	1.6μs		(fixed for all baud rates)
Optical cone angle	30°		(15 degrees from optical axis each way) 
Transmission distance	1m		per IrDA specification

Supply Voltage and Current (T_a = -20°C to +70°C)			
Signal description	**Voltage**		**Notes**
	Min.	**Max.**	
RS232 Input Voltage (+V)	+6V	+12V	
RS232 Input Voltage (-V)	-12V	-6V	
Logic Drive Voltage (Vcc)	+3V	2.7V	The voltage Vcc is extracted and power conditioned to drive the main logic on IFSYS-8001, which includes the optoelectronics and the clock/modulation circuitry. The logic has been tested down to a voltage of 2.7V (communicating at 115,200 bps).
RS232 Output Level (+V)	+3V	+12V	These figures include are as per the RS232 minimum specification, though the logic has been tested down to 2.7V.
RS232 Output Level (-V)	-12V	-3V	Comment above holds.
Current consumption	-	40mA	At 3V operating voltage

Supported communication speeds	
Bit rate	**Remark**
115,200	
19,200	
9,600	

3 Mechanical Specifications

3.1 Mechanical Sub-Assembly Description

Describe the key parts of the mechanical assembly.

3.2 Mechanical Specifications

The following specifications are provided as an example. Please modify the following according to the actual product requirements

3.2.1 Casepart Specification

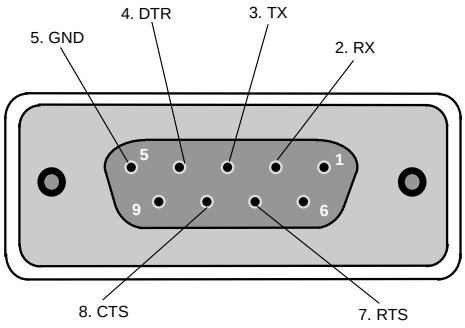
Detail	Notes
Dimensions (w/o cable)	49mm (W) x 63mm (L) x 34mm (H)
Weight (of product, incl. cable)	120g (approx.)
Colour (top and bottom)	Silver
Casepart material	ABS (refer to datasheet)
Light pipe	Transparent
IR lens material	Lexan 940 with Dye 21057 (refer to datasheet)
IR lens finish	Mirror finish
Base material	Santoprene rubber (refer to datasheet)

3.2.2 Cable Specification

Detail	Notes
Colour	Black
Length	1.5m
Core composition	AWG28 (1 pair) and AWG24 (1 pair) gauge wire
Shielding and drain wire	Not required.
Cable outer diameter	3.6mm +/-0.1mm
Connector	USB Type-A connector
Cable UL approval:	UL2725

3.2.3 DB9 connector

The “regular” DB9 (female) connector used in IFSYS-8001 has the following pinout. This pinout allows adapter to interface directly with a host PC’s serial port.



4 Speed Switching Specification

This section describes how speed switching is performed for the IFSYS-8001 adaptor. Speed switching is normally carried out to effect a change in the rate at which data is transferred between the sending and receiving stations.

The adaptor uses what is called the “Static Switching” scheme which uses two lines of the UART interface (or “COM” port, on a PC), DTR# and RTS#. DTR# and RTS# are held statically at fixed voltage levels, the combination of which indicates to the adaptor to operate at the specified speed. The table below shows this relationship:

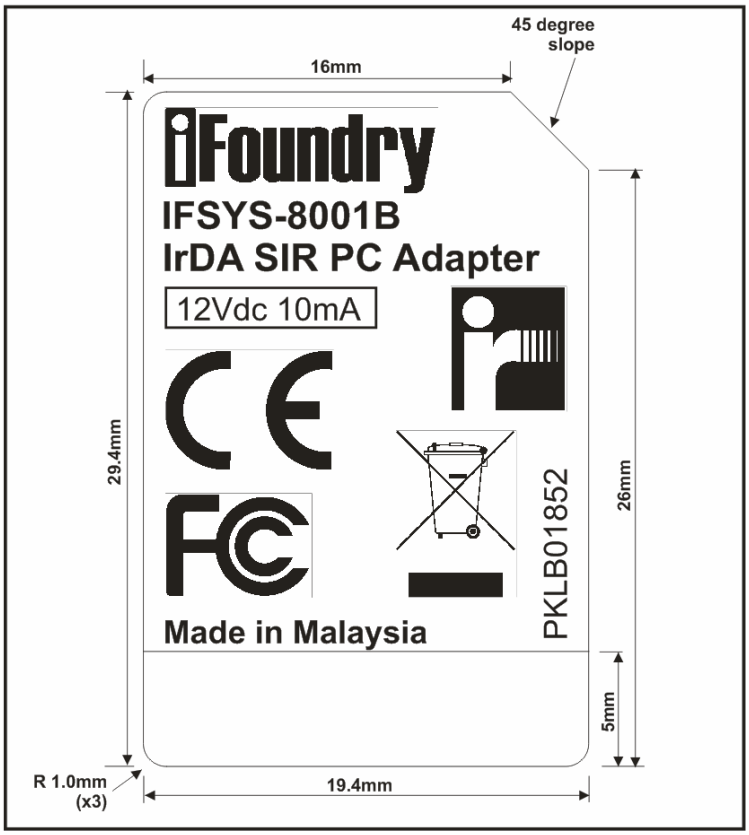
IFSYS-8001 SPEED SWITCHING SCHEME		
RS232 VOLTAGE LEVEL		SPEED (BPS)
DTR	RTS	
-12V	-12V	Powered off (see Note 1 below)
-12V	+12V	9,600 bps
+12V	-12V	19,200 bps
+12V	+12V	115,200 bps

Note 1: The adaptor draws power from the serial port, requiring either RTS# or DTR# to be high for power to the circuit. When both RTS# and DTR# are low, the adaptor is not powered.

5 Product Label Specifications

This section documents the product labels specifications.

5.1 Label Dimensions and Design



5.2 Summary Specifications

Dimensions	16mm x 19.4mm
Corners:	3 x 1mm radius,
	1 x chamfered corner 5mm length, 45° slope.
Material	Self adhesive mirror coat paper (white)
Laminate:	25μm matt polyester laminate
Printing:	Black lettering (Letterpress printing)

6 Regulatory and Environmental Specifications

For reference, this section represents the regulatory qualifications for this product. It is also possible for specific customer requirements to be added to the list of certification requirements for custom designs. Please contact iFoundry for assistance with those requirements.

6.1 Regulatory Specifications

Test Type	Test Standard	Description	Notes
FCC	FCC Part 15B:2006	Conducted and Radiated Emissions	
CE (EMC)	EN 55022:2006	Radiated Emissions	
	EN 61000-4-2:1995+A1+A2	Electro-Static Discharge (ESD)	
	EN 61000-4-3:2002+A1	Radiated Immunity	
VCCI	V-3:2006.04	Emissions	Tested for conformance only.
CISPR	CISPR 22:2005	Emissions	Tested for conformance only. Part of VCCI certifications.
Safety	EN 60950-1:2006	Safety / Low Voltage Directive specification	

6.2 Environmental Specifications

Please note that these are target specifications.

6.2.1 Temperature and Humidity

Detail	Min.	Max.	Notes
Operating temperature	0°C	+40°C	(32°F – 104°F)
Storage temperature	-22°C	+55°C	(-4°F – 131°F)
Operating Relative Humidity	90%	-	Relative humidity at 40°C (104°F)
Condensation Immunity	Operational after 5 minutes in chamber set at 40°C and 95% RH		

6.2.2 Shock and Vibration Testing

Detail	Pass Criteria
Product drop test - 1 metre drop onto 6mm plywood surface supported by concrete surface.	All six sides and two opposing corners without enclosure or functional failure
Shipping package drop test - 2 meter drop onto 6mm concrete surface.	All six sides and two opposing corners without Product enclosure or Product functional failure, or detectable cosmetic damage