Features

- Comes complete with Plug-in RF transceiver
- 150MHz, 433MHz and 915MHz options
- RS232 Interface
- SPI Interface
- 4 x 10-bit Analog Inputs
- 8 x Programmable Digital IO
- On-board regulated power supply
- 8K, In-circuit programmable micro controller
- Over-air communications firmware pre-programmed
- Built in “Operating System”
- Data rates up to 19.2K Baud
- Provides up to 1km typical range (433MHz)



Applications

- Industrial Control and monitoring
- Security systems
- General data telemetry
- Inventory control and monitoring
- Point-to-Point or networked wireless systems
- Stand-Alone monitoring and control
- Logging
- GPS location applications
- SCADA
- HVAC

General Description

The WD01 wireless controller has been designed to offer flexibility and ease of use while ensuring reliable point-to-point or multi-point data communications.

The WD01 can be used to create a complete wireless data network or it can function stand-alone, providing complete turn-key solutions to wireless applications.

The WD01 accepts a range of RF modules ranging from 150MHz to 915 MHz with power levels from 10mW to 100mW.

This provides flexibility for the application to be used in a variety of applications and geographical locations by simply plugging in the appropriate RF module.

An RS232 Serial link to the controller is provided that operates at 19200 Baud. This link can be used to control hardware functions on any WD01 connected to the network and to upgrade the operating firmware while the unit is running.

A dedicated ISCP connector is also available that allows direct programming of the onboard micro controller using Microchip PICSTART or similar programmer.

Absolute Maximum Ratings: Transmitter

Operating temperature: -25°C to +85°C
Storage temperature: -40°C to +125°C

Supply Voltage 20V

Electrical Characteristics: Controller

	Min	Typ	Max	Units	Notes
DC LEVELS					
Supply voltage	7	12	20	Volts	
Supply current @ V_{CC} = 5V			15	mA	1
DIGITAL IO					
Number of IO Pins					
Logic "1" Input	2.4		5	Volts	TTL levels
Logic "0" Input	0		1.2	Volts	TTL levels
Logic "1" Output	3.5	5		Volts	TTL levels
Logic "0" Output	0		0.5	Volts	TTL levels
Micro Controller	PIC16F876				
Program Space	8K Bytes				
Serial Link Format	9600: N,8,1				
Over Air Baud Rate	1.2K	9.6K	19.2	Baud	Programmable to suit RF Module used
Analog Inputs					
Analog Channels		4			
Analog Input Range	0		5	V	
Analog Accuracy		1/2		Bit	2.44mV
Analog Resolution		10		Bit	4.88mV per step
MECHANICAL					
Weight		18 g			
Mounting Holes					3mm
Dimensions					92mm X 34mm

Note 1: For controller only. Total varies according to RF module option..

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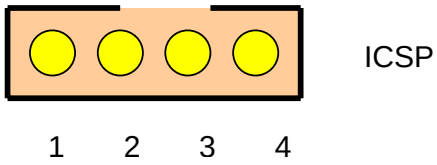
WD01-PIC01 Pin Definitions

NOTE: Designators in brackets represent IO pins on PIC16F876 micro controller

ICSP Connector

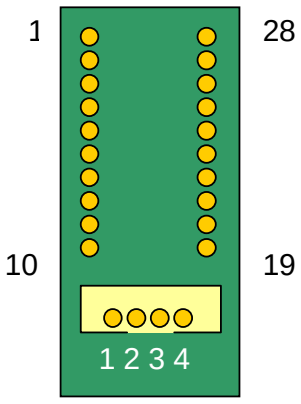
In Circuit Serial Programming, enables re-programming of micro controller Bootloader firmware or specialist user code.

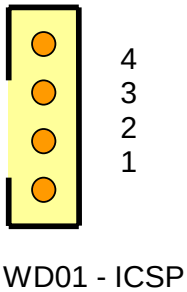
Pitch: 2mm
Style: Single in Line header



Pin No.	Pin Name	Description
1	MCLR	Micro controller reset control for programming mode (MCLR)
2	GND	Common, 0V
3	PGD	Programming Data Signal (RB7)
4	PGC	Programming Clock Signal (RB6)

WD01 ICSP to Programmer Cable





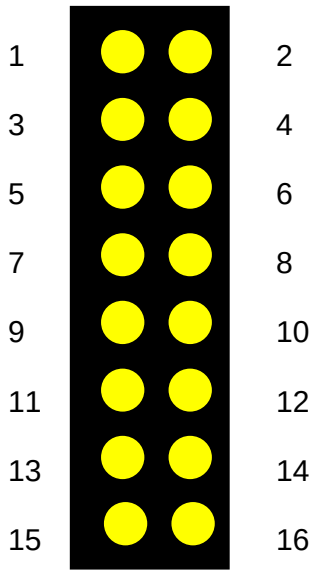
WD01 - ICSP

Adaptor plugs into top of ZIF socket on programmer. Cable is pin-to-pin

IO and ANALOG Connector

4 x 10-bit resolution Analog Input Channels. (0 – 5V unbufferred)
8 x TTL level Digital IO

Pitch: 2.54mm
Style: 7 + 7 D.I.L



Pin No.	Pin Name	Description
1	D1	Digital IO (RC1)
2	+5V	VCC, DC Power source (200mA max)
3	D2	Digital IO (RC2)
4	A1	Digital IO (RB7)
5	D3	Digital IO (RC3)
6	A2	Digital IO (RB6)
7	D4	Digital IO (RC4)
8	A3	Digital IO (RB5)
9	D5	Digital IO (RC5)
10	A4	Digital IO (RB4)
11	D6	Digital IO (RB5)
12	GND	Common, 0V
13	D7	Digital IO (RB6)
14	GND	Common, 0V
15	D8	Digital IO (RB7)
16	GND	Common, 0V

RS232 Interface Connector

Provides 9600 OR 19200 Baud RS232 level interface to PC or other equipment.

Pin No.	Pin Name	Description
2	TXD	Transmit Data output (RB4)
3	RXD	Receive Data Input (RB0)
5	GND	Common
7	RTS	Ready To Send Input (RC0)

RF Interface

Provides power and control signals for plug-in RF module.

Pitch: 2.54mm
Style: 2 x 6 Way SIL connector

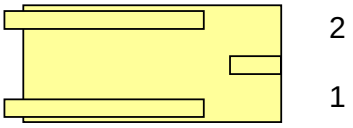


Pin No.	Pin Name	Description
1	TX EN	Transmit Enable Signal (RB1)
2	TXD	TTL level Transmit Data output (RC6)
3	NC	No Connection
4	NC	No Connection
5	NC	No Connection
6	GND	Common,0V
7	VCC	+5V output
8	NC	No Connection
9	RX EN	Receiver Enable Signal (RB2)
10	CD	Carrier detect, Low indicates carrier detected (RB3)
11	RSSI	Received Signal Strength Voltage (RA5)
12	RXD	TTL level Receive Data input (RC7)

Power Connector

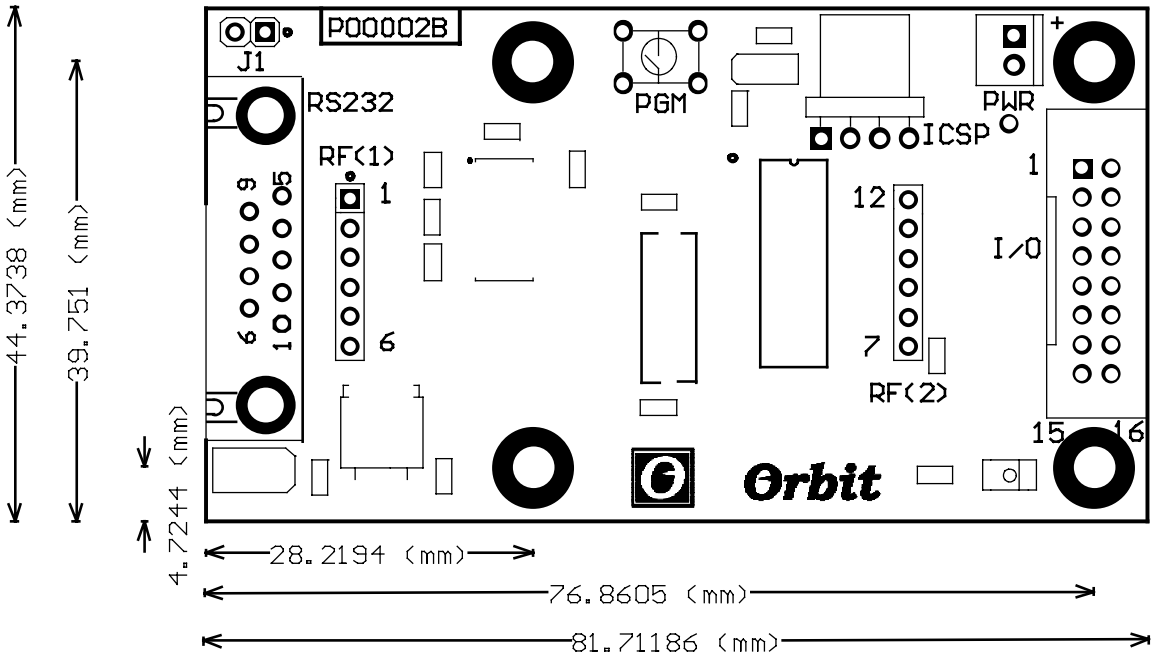
7V to 20V DC input. 130mA max.

Pitch: 2.54
Style: S.I.L header



Pin No.	Pin Name	Description
1	VCC	7 to 24V DC power supply input
2	GND	Common, 0V

MECHANICAL DETAILS



Ordering Information

Standard Product;

Part No	Description
WD01-150	Wireless controller with 151.625 MHz transceiver
WD01-433	Wireless controller with 433.92 MHz transceiver
WD01-915	Wireless controller with 915.4 MHz transceiver

Please consult our sales department for further information.

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