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# DPi1701 Temperature & Process Input Graphic Display Panel Meter and Data Logger with Wireless Option



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DPi1701 Temperature & Process Input Graphic Display Panel Meter

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#### **Safety Considerations**

This device is marked with the international caution symbol. It is important to read this manual before installing or commissioning this device as it contains important information relating to Safety and EMC (Electro-magnetic Compatibility).

This instrument is a panel mount device protected in accordance with EN 61010-1:2010, electrical safety requirements for electrical equipment for measurement, control and laboratory. Installation of this instrument should be done by qualified personnel. In order to ensure safe operation, the following instructions should be followed.

This instrument has no power-on switch. An external switch or circuit breaker shall be included in the building installation as a disconnecting device. It shall be marked to indicate this function, and it shall be in close proximity to the equipment within easy reach of the operator. The switch or circuit breaker shall meet the relevant requirements of IEC 947–1 and IEC 947-3 (International Electrotechnical Commission). The switch shall not be incorporated in the main supply cord.

Furthermore, to provide protection against excessive energy being drawn from the main supply in case of a fault in the equipment, an over current protection device shall be installed.

- Do not exceed voltage rating on the label located on the top of the instrument housing.
- Always disconnect power before changing signal and power connections.
- Do not use this instrument on a work bench without its case for safety reasons.
- Do not operate this instrument in flammable or explosive atmospheres.
- Do not expose this instrument to rain or moisture.
- Unit mounting should allow for adequate ventilation to ensure instrument does not exceed operating temperature rating.
- Use electrical wires with adequate size to handle mechanical strain and power requirements. Install without exposing bare wire outside the connector to minimize electrical shock hazards.
- Do not touch the AC power terminal block when connected to live voltage.

#### **EMC Considerations**

- Whenever EMC is an issue, always use shielded cables.
- Never run signal and power wires in the same conduit.
- Use signal wire connections with twisted-pair cables.
- Install Ferrite Bead(s) on signal wires close to the instrument if EMC problems persist.
- For best results on RTD measurement, use shielded wiring. Connect the shield to Pin 7 of the input terminal block.
- For best RF conducted immunity on Current measurement, use Fair-Rite #2675102002 and put the input cable through 3 turns.
- For best RF conducted immunity on Voltage measurement, use Fair-Rite #0443167251 and put the input cable through 3 turns.

Failure to follow all instructions and warnings may result in injury!

# Section 1 - Introduction

The DPi1701 is a 1/8 DIN panel meter with graphic backlit (240 x 64) dot matrix display. It provides unparalleled display functionality. You can display your input either in digital format, horizontal bar graph, or line graph charting. You can store up to 85,000 input data points in the internal memory of the panel meter with time & date stamping. The unit has a capacitor charged backed real time clock. You can review and scroll through the recorded data on the display screen, or download the data to PC through the serial connection (USB or RS232). The unit accepts different Thermocouple inputs such as J, K, T, E, R, S. It accepts 2 or 3 wire RTD. It also accepts process voltage or current inputs. The unit offers an isolated 24Vdc excitation voltage output to power external transmitters.

The DPi1701 offers two relay contact closure outputs, and an isolated analog output (0 to 5 Vdc, 0 to 10 Vdc, or 4 to 20 mA) for signal re-transmission as an option. The alarm output can be used for simple on/off control. There is no PID control.

The unit offers standard isolated PC serial interface (either RS232 or USB). With RS232 interface option, 24Vdc excitation and analog output will not be available. The unit also offers wireless option where it can receive wireless signal from our family of 2.4 GHz wireless transmitter product line such as:

- UWTC wireless thermocouple connectors
- UWRTD wireless RTD transmitters
- UWRH Temperature/RH transmitters
- UWIR Infrared transmitters
- UWPH pH transmitters
- UWPC Process input transmitters
- Wireless HHF1000 air velocity meter

A list of all the models is below.

Model No.	Description
DPi1701	Graphic Panel Meter and Logger with isolated RS232
DPi1701-USB-R	Graphic Panel Meter and Logger with 2 Relays plus isolated USB & 24 Vdc excitation
DPi1701-USB-AR	Graphic Panel Meter and Logger with 2 Relays plus isolated USB & analog output
DPi1701-USB-ARW	Graphic Panel Meter and Logger with 2 Relays plus isolated USB & analog output plus wireless input

## **Section 2 - Wiring Connections**

#### 2.1 Front Panel

Figure 2-1 shows the front panel and the general dimensions of the panel meter. There are four buttons as described below:

- This is the menu button. It allows you to get into configuration menu and run through sub-menus.
- This is the up arrow button. It allows you to increment or scroll thru different parameters in the configuration menus.
- This is the down arrow button. It allows you to decrement or scroll thru different parameters in the configuration menus.
- This is the enter button. It saves the selected values of different parameters in the configuration menus.



DIMENSIONS mm (in)



#### **2.2 Rear Panel Connections**



Figure 2-2 shows the Power and mechanical relay output wiring connections.



Figure 2-2. Power & Mechanical Relay Output Connections



Connection of the power source and external load to the output relays should be made by qualified personnel only. When output relay interface is made to voltages greater than 40 VAC, the interface region should be considered live and extreme care must be taken to avoid injury. Additionally, when the DPI1701 is interfaced at the output relays the preferred load is resistive. An inductive load may be used, but the maximum current values need to be derated to the values given in the specification section of this manual. In all cases, qualified personnel should ensure that the interface is properly fused to ensure further that safe operation is optimized. If there is a need to drive a motor or other inductive load at higher currents than those specified, interface may safely be made with a solid state relay, such as Omega's SSR330DC10 or similar. Please contact Omega for support.

Figure 2-3 shows the back view of the DPi1701 panel meter. For wireless models, you need to attach the provided antenna to the mating connector on the back panel.



Figure 2-3. View of DPi1701 Back Panel With USB & Wireless Options

Figure 2-4 shows the different types of input connections such as Thermocouple, RTD (2 or 3 wires), Process voltage (0 to 10 Vdc), and Process current (0 to 20 mA).



Figure 2-4. Different Input Type Connections

Figure 2-5 shows how to use the internal isolated 24 Vdc excitation voltage to power an external two wire transmitter where the current output (4 to 20 mA) is fed into the process current input of the panel meter. It also shows the connection for the analog output. The analog output can be either a 0 to 5 Vdc or 4 to 20 mA signal. This signal can be used to re-transmit the input signal to another device.





Figure 2-5. Excitation Voltage & Analog Output Connections

Figure 2-6 shows the serial RS232 connections. With RS232 option, analog output and excitation voltage are not available. With USB interface and analog output option, the excitation voltage is not available.



Figure 2-6. RS232 Connections



# **Section 3 - Operation**

#### 3.1 Real Time (Run Mode)

This is the normal mode of operation. It displays the input parameter in real time. There is also other related information on the screen display such as Input type, status of alarm 1 and alarm 2, and status of lock/unlock. Figure 2-1 shows a typical real time display screen.

#### **3.2 Configuration Mode**

Figure 3-1 shows a typical configuration flow chart. From the Run Mode, you can get into the Configuration mode by pressing **O**. The configuration mode has 8 menu screens. Here is the description of each configuration menu:



Figure 3-1. Configuration Menu Flow Chart

#### **Configuration Menu1:**

**1- Line Graph Time Speed:** This parameter sets the speed of the line chart. It can be set from 1 to 60 seconds. This parameter also sets the recording interval for saving data to internal memory.

**2- Line/Bar Graph, Top Value:** This parameter sets the maximum (top) value of the line graph.

**3- Line/Bar Graph, Bottom Value:** This parameter sets the minimum (bottom) value of the line graph.

**4- Input Type:** This parameter selects the input type. The following input types are offered:

TC-J	RTD-2	2 wire RTD, 100 ohms, European curve
TC-K	RTD-3	3 wire RTD, 100 ohms, European curve
TC-T	0-20 mA	-
TC-R	4-20 mA	
TC-S	0-10 V	
ТС-Е	Wireless	

Figure 3-2 shows the configuration menul flow chart.



Figure 3-2. Configuration Menu1 Flow Chart



#### **Configuration Menu2:**

- **1. Category:** You can select the category of measurement like Temperature, Pressure, Power, pH, Humidity, etc.
- **2. Engineering Unit:** You can set the Engineering unit for the selected category.
- 3. Decimal Point: You can set the decimal point for the input display reading.
- **4. Minimum Display Value:** You can set the minimum display range for the input.
- **5. Maximum Display Value:** You can set the maximum display range for the input.

Figure 3-3 shows the configuration menu2 flow chart.



Figure 3-3. Configuration Menu2 Flow Chart

#### **Configuration Menu3:**

- **1. Set Point:** You can set the 1st alarm set point to anywhere within the display range.
- **2. Dead Band:** You can set the dead band for the 1st relay alarm.
- **3. Status:** You can enable or disable the 1st alarm. If the relay is latched previously, disabling/enabling the alarm will reset the relay.

If the alarm is enabled, you can set the relay for latch/unlatch operation. You can set the relay for either low or high alarm.

Figure 3-4 shows the configuration menu3 flow chart.



Figure 3-4. Configuration Menu3 Flow Chart



#### **Configuration Menu4:**

- **1. Set Point:** You can set the 2nd alarm set point to anywhere within the display range.
- 2. Dead Band: You can set the dead band for the 2nd relay alarm.
- **3. Status:** You can enable or disable the 2nd alarm. If the relay is latched previously, disabling/enabling the alarm will reset the relay.

If the alarm is enabled, you can set the relay for latch/unlatch operation. You can set the relay for either low or high alarm.

Figure 3-5 shows the configuration menu4 flow chart.



Figure 3-5. Configuration Menu4 Flow Chart

#### **Configuration Menu5:**

- **1. Display Zero Adjust:** You can adjust the zero of your display reading either positive or negative (From -10,00 to +10,000 Counts). A Pop up window displays the current process value as you adjust the zero. For example if temperature display is 72.5°F, four positive zero adjust counts will change the display to 72.9°F. Four negative zero adjust counts will change the display to 72.1°F.
- **2. Display Span Adjust:** You can adjust the span of your display range either positive or negative (From -10,00 to +10,000 Counts). A Pop up window displays the process value as you adjust the span.
- **3. Output Type:** You can select the analog output type either 0-5 Vdc, 0 to 10 Vdc, or 4-20 mA. The analog output corresponds to the input display range. Here is an example:

Input Type:	TC-K
Min. Display Value:	0
Max. Display Value:	500
Analog Output:	0-5 Vdc

**4. Display Mode**: You can set the display screen to Normal or Invert, depending on the screen visibility.

Figure 3-6 shows the configuration menu5 flow chart.



Figure 3-6. Configuration Menu5 Flow Chart



#### **Configuration Menu6:**

- **1. Current Time:** You can set the current time. It can be set as either AM/PM (12 Hour) or Military time (24 Hour).
- **2. Current Date:** You can set the current date. The date format can be selected. The default is MM/DD/YYYY.
- **3. Time Format:** You can set the time & date formats. The time can be set as 12 Hour/24 Hour. The date format can be set to MM/DD/YYYY, DD/MM/ YYYY, or YYYY/MM/DD.



**4. Log Mode:** You can set the logging mode. It can be set to "Stop When Full" meaning data recording will stop when it reaches the end of the internal memory, or "Circular Buffer" meaning that once it reaches the end of the memory, data recording will continue and will overwrite the oldest data in the memory.

Figure 3-7 shows the configuration menu6 flow chart.



Figure 3-7. Configuration Menu6 Flow Chart

#### **Configuration Menu7:**

1. Start Logging: You can set the condition for the start of data logging as follows:

- Key Press While in line graph mode, press 🔘 to start logging.
- Alarm 1 ON Logging will start when alarm 1 is on.
- Alarm 1 OFF Logging will start when alarm 1 is off.
- Alarm 2 ON Logging will start when alarm 2 is on.
- Alarm 2 OFF Logging will start when alarm 2 is off.
- Time/Date Logging will start when reaching a pre-set time/date. You can set the time & date for the start of logging.
- 2. Stop Logging: You can set the condition for stopping data logging as follows:
  - Key Press While in line graph mode, press 🔘 to stop logging.
  - Alarm 1 ON Logging will stop when alarm 1 is on.
  - Alarm 1 OFF Logging will stop when alarm 1 is off.
  - Alarm 2 ON Logging will stop when alarm 2 is on.
  - Alarm 2 OFF Logging will stop when alarm 2 is off.
  - Time/Date Logging will stop when reaching a pre-set time/date. You can set the time & date for stopping the data logging.

Figure 3-8 shows the configuration menu7 flow chart.



Figure 3-8. Configuration Menu7 Flow Chart



#### **Configuration Menu8:**

This menu shows up only when the input type is selected as Wireless in Configuration Menu 1.

- **1. Transmitter Address:** You can set the wireless transmitter address from 1 to 99.
- 2. Receiver Address: You can set the receiver address from 0 to 99.
- **3. Timeout:** This is the amount of time the unit continues to check for data from a wireless transmitter, before it times out. It can be set from 6 to 360 seconds.
- **4. Wireless Channel:** You can set the wireless channel from 12 to 23. This represents the frequency channel.
- 5. Wireless Network ID: You can set the Network ID from 0 to 65533.

Figure 3-9 shows the configuration menu8 flow chart.



Figure 3-9. Configuration Menu8 Flow Chart

#### **3.3 Thermocouple Input Configuration**

After wiring the back panel for Thermocouple connection (See Figure 2-4), this is an example of how to configure the panel meter for a Thermocouple input:

Input Type:	TC-K
Category:	Temperature
Eng. Unit:	°F
Decimal Point:	XXX.X
Min. Display Value:	-148.0
Max. Display Value:	2300.0

#### **3.4 RTD Input Configuration**

After wiring the back panel for RTD connection (See Figure 2-4), this is an example of how to configure the panel meter for an RTD input:

Input Type:RTD-3Category:TemperatureEng. Unit:°FDecimal Point:xxx.xMin. Display Value:-328.0Max. Display Value:1562.0

#### **3.5 Process Voltage Input Configuration**

After wiring the back panel for Process Voltage connection (See Figure 2-4), this is an example of how to configure the panel meter for a Process Voltage input:

Input Type:	0-10 V
Category:	Flow
Eng. Unit:	GPM
Decimal Point:	XXXX
Min. Display Value:	0
Max. Display Value:	4500

#### **3.6 Process Current Input Configuration**

After wiring the back panel for Process Current connection (See Figure 2-4), this is an example of how to configure the panel meter for a Process Current input:

Input Type:	4-20 mA
Category:	Pressure
Eng. Unit:	PSI
Decimal Point:	xxx.x
Min. Display Value:	0.0
Max. Display Value:	100.0

#### 3.7 Line/Bar Graph Configuration

Here is an example of configuring the panel meter for line or horizontal bar graph displays:

Line Graph Time Speed:	1 sec
Line/Bar Graph Top value:	800.0
Line/Bar Graph Bottom Value:	300.0

The line graph time speed is the time interval the line graph gets updated. The same time speed is used for data logging time interval. The line graph bar is the average of all the input samples during the time interval (Time Speed). The line/ bar graph top and bottom values are the scaling for the line and horizontal bar graph.



#### 3.8 Alarm Output Configuration

Here is an example of configuration at the panel meter for alarm outputs (assuming thermocouple input):

[Alarm 1] Set Point: 450.0 Dead Band: 10.0 Status: Enabled Unlatch Low [Alarm 2] Set Point: 700.0 **Dead Band:** 10.0 Status: Enabled Latch High

When an alarm is disabled, the other selections (Latch/ Unlatch, High/Low) are not displayed.

#### **3.9 Display Screens**

The DPi1701 displays the input parameter in 4 different modes: Digital format, Large Display, Horizontal Bar Graph, and Line graph. Figure 3-10 shows the Display screen flow chart. You can scroll thru the display screens by pressing the key.



Figure 3-10. Display Screen Flow Chart

In Bar graph mode, the current value, input type, and the status of the alarms are also displayed. There are two arrows on the bar graph that indicates the low and high alarm set points.

In line graph mode, the current value, time speed, and elapsed time (HH:MM:SS) are also displayed. The elapsed time advances per the time speed. For example if the time speed is 10 seconds, the elapsed time advances every 10 seconds.

#### 3.10 Max/Min Display Modes

You can display the Maximum & Minimum display values by pressing the key. The screen shows an Up arrow sign on the upper left hand corner to indicate maximum display mode. It shows a Down arrow sign to indicate minimum display mode. You can press the key to reset the minimum and

maximum values. Figure 3-11 shows the display screen flow chart.





#### 3.11 Lock/Unlock Panel Meter

You can lock/unlock the panel meter from un-authorized access by pressing and holding the  $\bigcirc$  +  $\bigcirc$  keys for 3 seconds. While in lock mode, you can not get

into the Configuration menus and make any changes. Figure 3-12 shows the display screen flow chart.



Figure 3-12. Lock/Unlock Flow Chart

#### 3.12 – Data Logging

You can store up to 85,000 input data points in the internal memory of the panel meter. Each recorded data is time & date stamped. The recording interval is the same as the Time Speed parameter. You can set the logging condition based on

pressing the key, alarm 1 or 2 ON, alarm 1 or 2 OFF, or a pre-set time & date. Configuration menus 6 & 7 provides all the settings for the data logging function. When logging in real time, the LOG icon and the data file number will show on the left of the screen "Stop When Full" mode. The LOG icon displays every 2 seconds (while logging) when in the main digital display screen. You can review and scroll through the recorded data on the display screen by pressing the key.

You can use the  $\checkmark$  or  $\checkmark$  keys to scroll through the last recorded data backward and forward. It shows the recorded process value with the corresponding time & date of the last logged file. Figure 3-13 shows the data logging screen flow chart.



When in data logging mode, you can always turn off data logging by pressing the key. The logging data is stored in the nonvolatile memory.



Figure 3-13. Data Logging Screen Flow Chart

- When the logging mode is set for "Stop When Full", you can log up to 8 separate logging sessions. The unit does not allow you to log more than 8 data files. You need to download the files to your PC, and erase the memory before the next logging session.
- When the logging mode is set for "Circular Buffer", the unit asks you to erase the memory before you can start logging. You can download the previous data file(s) to your PC, and then erase the memory before start logging in Circular buffer mode. Circular buffer mode is continuous logging (one data file), and the logging does not stop when at the end of the memory. It continues on writing over the oldest logged data point.

- When in logging mode, line graph time speed, input type, category, engineering unit, decimal point, min and max values, current time and date, time format, and logging mode can not be changed.
- When in circular buffer logging mode, if the main power fails, and then the power is restored, the device closes the data file and the user has to initiate a new logging section. In Stop When Full logging mode, under the same conditions, the device closes the previous data file and starts a new data file and continues logging.

#### 3.13 - PC Interface

You can perform the following tasks using the PC application software:

- 1. Download & Erase the recorded data from the panel meter
- 2. Read & Change the panel meter configuration settings

Figure 3-14 shows the menu screen for downloading the recorded data. You can download up to 8 data files from the panel meter by highlighting the file number and clicking "Save Selected File" button. You can save each data file as a .csv extension to be imported into Excel spread sheet.

You can also erase all the data files from the panel meter by clicking the "Erase All From Device" button.



EVIII VOI Re Management Configuration	
In Hangement   Contiguation   File 5 Free Space: 100.6 % For 20 Perce Patient File Lat	ID II: 1 Start Time: 5/28/2012/2013994 Recording Intervet 80 Number 00 Records: 1 Memory Uset: 003 Engineering Uset: 7 Import Type: TCX. Wrankes: Tamomitter: 1 Fie Download Peimitter:

Figure 3-14. Download Data File Menu Screen

Figure 3-15 shows the menu screen for reading and changing the configuration settings of the panel meter. You can read the panel meter settings by clicking "Read from Device" button. You can then make changes to the settings, and save back to the device by clicking "Save to Device" button. These settings are the same settings in the configuration menus of the device. The settings are categorized based on Input/ Output, Display, Alarm 1, Alarm 2, Logging, and Wireless (Optional). It might be easier to make changes to the settings from the PC application vs. changing them on the device.

DP11701	
Fieldsrageneri Conguston	
Lock Settings     Set Date/Time to PC clock	
Decimal Placer 12	Display Graph May Graph May Scott Speed (Sec) Date Femal: MALCO/WWY
Span 00 Analog Output: 420 mA	Time Format: 12 Your *
Alam 1 Alam 2 F Enabled F Enabled T Latch Solpoint 2000 1 Deadhant 50 1 Direction: fluing-High	Wetwork ID: 13106
Logang Start Logging Fay Pees S Bind Time Tomate Jamain Stop Logging Fay Pees Ship Time Tomate Jamain Butter Mode Circula butter	10.2017 12000FW 2
	Pread From Save To Device Device
Hodel DP31201W Females 10528 Software 1.114	Est

Figure 3-15. Configuration Settings Screen



You might experience an error message when incrementing or decrementing the decimal places selection, you can manually enter the decimal place value to get around the possible error message on the configuration screen.

ENQ <cr></cr>	Show unit ID and Firmware version		
ERASE	Erase entire internal EEP EXAMPLE:	ROM memory, reset inte <b>Command</b> ERASE <cr></cr>	rnal file system <b>Response</b> Erased <crlf></crlf>
АМРМ	Display or Set the time for <b>EXAMPLE:</b> Display Time format Set Time to 24 Hr Set Time to 12 Hr	rmat to 24/12 hours. [0 = Command AMPM <cr> AMPM 0<cr> AMPM 1<cr></cr></cr></cr>	= 24 Hr, 1 = 12 Hr] <b>Response</b> 12 Hr <crlf> 24 Hr<crlf> 12 Hr<crlf></crlf></crlf></crlf>
TIME	Display or Set the Time [ <b>EXAMPLE:</b> Display Time Set Time to 15 Set Time to 15:30 Set Time to 15:30:10	AMPM set to 12 Hr] Command TIME <cr> TIME 15<cr> TIME 15 30<cr> TIME 15 30 10<cr></cr></cr></cr></cr>	<b>Response</b> 01:00:00 PM <crlf> 03:00:00 PM<crlf> 03:30:00 PM<crlf> 03:30:10 PM<crlf></crlf></crlf></crlf></crlf>
	Display or Set the Time [ <b>EXAMPLE:</b> Display Time Set Time to 15 Set Time to 15:30 Set Time to 15:30:10	AMPM set to 24 Hr] Command TIME <cr> TIME 15<cr> TIME 15 30<cr> TIME 15 30 10<cr></cr></cr></cr></cr>	<b>Response</b> 13:00:00 <crlf> 15:00:00<crlf> 15:30:00<crlf> 15:30:10<crlf></crlf></crlf></crlf></crlf>
DATE	Display or Set the Date EXAMPLE: Display Date Set Date to 06/04/2012 Set Date to 05 Set Date to 06/12	Command DATE <cr> DATE 06 04 2012<cr> DATE 05<cr> DATE 06 12<cr></cr></cr></cr></cr>	Response 01/05/2012 <crlf> 06/04/2012<crlf> 05/04/2012<crlf> 06/12/2012<crlf></crlf></crlf></crlf></crlf>
XD	Display process value, En EXAMPLE: In this example: Process value: -103 Engineering Unit: °F Input Type: TC-KR Lock Status: UNLOCK Alarm 1 Status: 0, meanin Alarm 2 Status: 1, meanin	ngineering unit, input tyj <b>Command</b> XD <cr> ng OFF ng ON</cr>	pe, lock status, and alarms status <b>Response</b> -103°F TC-K UNLOCK 0 1 <crlf></crlf>

PC Commands: The following is a list of PC commands to communicate with the device.

Note: <CR> means carriage return, <CRLF> means carriage return & Line feed. If there is a space in the command structure, you need to follow and can not eliminate.

# Section 4 - Specifications

GENERAL Thermocouple Accuracy Type J: Type K: Type E: Type T: Type R & S:	0.5°C (0.9°F) 0.5°C (0.9°F) 0.5°C (0.9°F) 0.5°C (0.9°F) 1.0°C (1.8°F) or 0.5% of full scale
Thermocouple Range Type J: Type K: Type E: Type T: Type R & S:	-100 to 760°C (-148 to 1400°F) -100 to 1260°C (-148 to 2300°F) -200 to 849°C (-328 to 1560°F) -200 to 400°C (-328 to 752°F) 100 to 1760°C (212 to 3200°F)
Thermocouple Warm up Period:	45 minutes
Thermocouple Zero Drift:	0.06°C/°C
Open Thermocouple Detection:	Up scale
Thermocouple Lead Resistance:	100 ohms max.
RTD:	100 ohms Platinum, 2 or 3 wire, 0.00385 curve
<b>RTD Accuracy:</b>	0.5°C (0.9°F)
RTD Range:	-200 to 850°C (-328 to 1562°F)
Open RTD Detection:	Up scale
Process (Voltage or current) Input Accuracy:	0.1% of Rdg
Voltage Input Range:	0 to 10 Vdc
Current Input Range:	0 to 20 mA and 4 to 20 mA
Sampling Rate: Decimal Selection:	4 samples per second None, 0.1 – Temperature input None, 0.1, 0.01, 0.001 – Process input
Line Graph Time Speed:	Adjustable from 1 to 60 sec
PC Interface:	Isolated USB or RS232, 9600 Baud Rate, 8-Bit data, No Parity, 1 Stop bit - Changes to 57600 Baud Rate during data download to PC
<b>PC Software:</b> Runs on Windows <sup>®</sup> 7, 8, and 10 NOTE: For Windows 8.1, .NET Framework 3.5 needs to be installed.	
Data Logging Recorded Data: Logging Interval: Maximum Data Files: Logging Mode: Logging Start: Logging Stop:	Up to 85,000 data points Adjustable from 1 to 60 sec 8 - Only in Stop when Full Logging Mode Stop When Full or Circular Buffer Press Key, Alarm 1/2 ON, Alarm 1/2 OFF, Time/Date Press Key, Alarm 1/2 ON, Alarm 1/2 OFF, Time/Date
Real Time Clock:	Capacitor charged backed for 2 weeks when main power is removed

WIRELESS **RF Transmitter Carrier: RF Power Output: RF** Range Indoor/Urban: **Outdoor/Line of Sight: Transmitter Address: Receiver Address: Timeout:** Wireless Channel: Wireless Network ID: Alarms **Relay:** Alarm1: **Enable/Disable:** Hi/Low Alarm: Latch/Unlatch: Alarm2: **Enable/Disable:** Hi/Low Alarm: Latch/Unlatch: **Output: Output Load:** Excitation Voltage Excitation: Insulation **Power to Input/Output: Power to Relays:** Input to Output:

**USB to Inputs/Output:** 

**Analog Output to Inputs:** 

**Operating Conditions:** 

**RS232 to Inputs:** 

**General Power:** 

**Protection:** 

**Dimensions:** 

**Panel Cutout:** 

Weight:

ISM 2.4GHz. Direct sequence spread spectrum, License free worldwide (US, Canada, and Europe) 10 dBm (10 mW)

Up to 40m (130')

Up to 120m (400')

- 1-99 (Default 1)
- 0-99 (Default 0)

6 to 360 seconds

12-23 (Default 12)

0-65533 (Default 13106)

SPDT, 250 Vac or 30 Vdc @ 3A Resistive 250 Vac or 30 Vdc @ 1A Inductive

SPDT Relay Set via display screen Set via display screen Set via display screen

SPDT Relay Set via display screen Set via display screen Set via display screen

4 to 20 mA, 0 to 5 Vdc, or 0 to 10 Vdc isolated

1K - ohms Min - 0/5 Vdc 350 ohms Max - 4/20 mA

Isolated 24 Vdc @ 25 mA

3000 Vac for 1 minute
3000 Vac for 1 minute
1110 Vac for 1 minute
90/240 Vac +/-10%, 50-400 Hz
0 to 50°C (32 to 122°F), 90% RH non-condensing
NEMA-1/Type 1 Front bezel
48H x 96W x 118mm D (1.89 x 3.78 x 4.65")
45H x 92mm W (1.772 x 3.622")
295 g (0.65 lbs)