UniStream™ Uni-I/O™ Modules

This guide provides specifications for Unitronics' Uni-I/O™ module UIS-04PTN. This module comprises:

- 4 RTD inputs

Uni-I/O modules are compatible with UniStream™ family of Programmable Logic Controllers. They may be either snapped onto the back of a UniStream™ HMI Panel next to a CPU-for-Panel to create an all-in-one HMI + PLC controller, or installed on a standard DIN Rail using a Local Expansion Adapter.

Installation Guides are available in the Unitronics Technical Library at www.unitronics.com

RTD Inputs			
Number of inputs	4		
Input range [1]	**Input Type**	**Nominal Values**	**Over/Under-range Values ***
	PT100 0.00385 0.00392 0.00391	-200°C ≤ T ≤ 850°C (-328°F ≤ T ≤ 1,562°F)	Under-range: -220°C ≤ T < -200°C (-364°F ≤ T < -328°F) Over-range: 850°C < T ≤ 860°C (1,562°F < T ≤ 1,580°F)
	NI100 0.00618	-100°C ≤ T ≤ 260°C (-148°F ≤ T ≤ 500°F)	Under-range: -150°C ≤ T < -100°C (-238°F ≤ T < -148°F) Over-range: 260°C < T ≤ 270°C (500°F < T ≤ 518°F)
	NI120 0.00672	-80°C ≤ T ≤ 260°C (-112°F ≤ T ≤ 500°F)	Under-range: -130°C ≤ T < -80°C (-202°F ≤ T < -112°F) Over-range: 260°C < T ≤ 270°C (500°F < T ≤ 518°F)
	Resistance	0Ω ≤ R ≤ 390Ω	390Ω < R ≤ 395.85Ω
	* Overrflow or Underflow [1] is declared when an input value exceeds the Over-range or Under-range boundaries respectively.		
Sensor Type	4, 3 and 2 wire [2]		
Absolute maximum rating	±50V at any pin relative to power-supply 0V		
Isolation	None		
Conversion method	Delta-sigma		
Resolution	RTD – 0.1°C (0.1°F) [3] Resistance – 14 bits		
Accuracy 25°C / -20°C to 55°C (77°F / -4°F to 131°F)	RTD – ±0.5°C / ±1.0°C (±0.9°F / ±1.8°F) Resistance – ±0.05% / ±0.1% of full scale		
Noise rejection	50Hz, 60Hz		

Step response [4] (0 to 100% of final value)	Smoothing (filter)	Noise Rejection Frequency	
		60Hz	**50Hz**
	None	465ms	535ms
	Weak	930ms	1070ms
	Medium	1860ms	2140ms
	Strong	3720ms	4280ms
Update time [4]	Noise Rejection Frequency		Update Time
	60Hz		465ms
	50Hz		535ms
Cable	Shielded, see installation guide for details		
Diagnostics [1] [5]	Input Overflow or Underflow, sensor connection fault [6] [7]		

IO/COM Bus	
Bus current consumption	90mA maximum

| LED Indications			
Input LEDs	Red	On: Input value is in Overflow, Underflow, or a connection fault occurs	
Status LED	A triple color LED. Indications are as follows:		
	Color	LED State	Status
	Green	On	Operating normally
		Slow blink	Boot
		Rapid blink	OS initialization
	Green/Red	Slow blink	Configuration mismatch
	Red	Slow blink	No IO exchange
		Rapid blink	Communication error
	Orange	Rapid Blink	OS Upgrade

| Environmental	
Protection	IP20, NEMA1
Operating temperature	-20°C to 55°C (-4°F to 131°F)
Storage temperature	-30°C to 70°C (-22°F to 158°F)
Relative Humidity (RH)	5% to 95% (non-condensing)
Operating altitude	2,000 m (6,562 ft)
Shock	IEC 60068-2-27, 15G, 11ms duration
Vibration	IEC 60068-2-6, 5Hz to 8.4Hz, 3.5mm constant amplitude, 8.4Hz to 150Hz, 1G acceleration

Dimensions	
Weight	100 g (0.220 lb)
Size	Refer to the images below

Bottom View

115.7 mm (4.56")

118.0 mm (4.65")

135.0 mm (5.31")

44.2 mm (1.74")
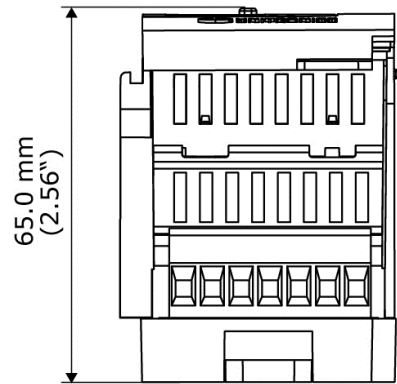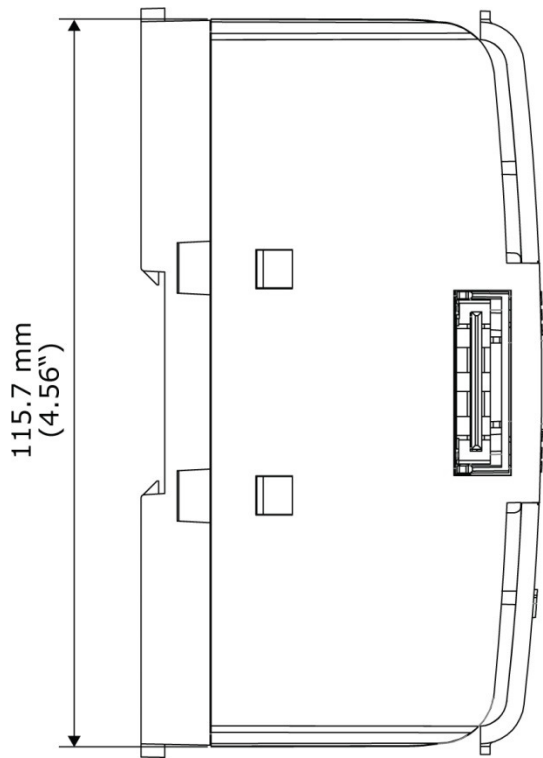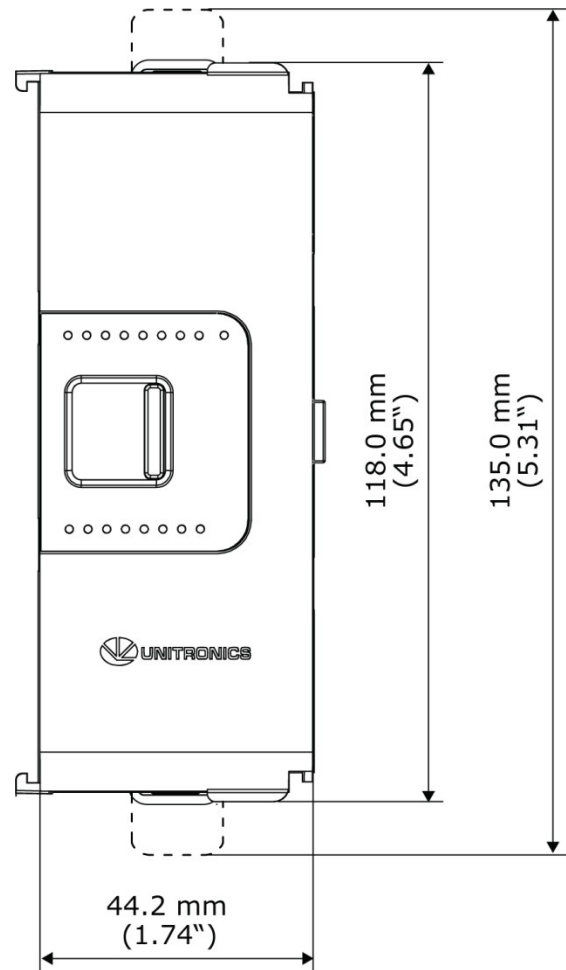
Side View   Front View

Notes:

1. The UIS-04PTN measures values that are slightly higher or lower than the nominal input range
   (i.e. Input Over/Under-range respectively).
   Note that when input Overflow, Underflow or a connection fault occurs, it is indicated in the
   corresponding I/O Status tag (refer to the UniLogic help for details) as well as by the respective
   input LED (see LED Indications), while the input value is registered as follows:

Fault Type	Registered Value in the Input Tag
Overflow	32,767
Underflow	-32,767
Connection fault	-32,768

2. The UIS-04PTN inherently supports 3-wire sensors.
   4-wire sensors may be connected by utilizing 3 of the sensor wires; in-order to achieve the
   specified performance, all sensor wires shall be of identical type and length just as with a 3-wire
   sensor connection.
   2-wire sensors may also be connected; performance in this case will degrade because of the wires`
   resistance.
   Refer to the UIS-04PTN installation guide for detailed installation instructions.
3. For temperature measurement, the value is represented in 0.1° units. For example, a temperature
   of 12.3° is represented as 123 at the Value tag.
4. Step response and update time are independent of the number of inputs that are used.
5. See LED Indications Table above for description of the relevant indications. Note that the
   diagnostics results are also indicated in the I/O tags and can be observed through the UniApps™
   or the online state of the UniLogic™.
6. Sensor connection fault check is active by default for both temperature and resistance
   measurements.
7. Sensor connection fault check may interfere with some test equipment like resistance/RTD
   simulators and thus may induce reading errors or cause malfunction of the test equipment and/or
   the UIS-04PTN.
   In order to interoperate correctly with such equipment, you may set the Disable Fault Detection I/O
   tag. This will disable connection fault check for all inputs.
   Note that when this tag is set, the UIS-04PTN will not check, or report, connection faults; thus, the
   reading in such case is unpredictable.