UniStream™ Uni-I/O Modules

This guide provides specifications for Unitronics' Uni-I/O™ module UID-0808THS. This module can be set with up to 2 Shaft Encoders at 250kHz, or up to 2 High Speed PWM at 250kHz and 2 Normal Speed PWM outputs [1] [2] [3].

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 Kit.

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

Inputs	
Number of inputs	8
Type	Sink or Source
Isolation groups	Two groups of 4 inputs each
Isolation voltage	
Group to bus	500VAC for 1 minute
Group to group	500VAC for 1 minute
Input to input of the same group	None
Nominal voltage	24VDC @ 6mA
Input voltage	
Sink/Source	On state: 15-30VDC, 4mA min. Off state: 0-5VDC, 1mA max.
Nominal impedance	4kΩ
Filter	Settable between 1 to 32ms (individually per group)
High speed inputs [1]	
Frequency / Period	Quadrature mode: 200kHz max. / 5μs min. (t_p in the Quadrature Mode figure below) Pulse/Direction mode: 250kHz max. / 4μs min. (t_p in the Pulse/Dir Mode figure below)
Pulse width	Quadrature mode: 0.8μs min. for each state (t_w in Quadrature Mode figure below). Pulse/Direction mode: 1.5μs min. for each state (t_w in Pulse/Dir Mode figure below).
Cable	Shielded twisted pair
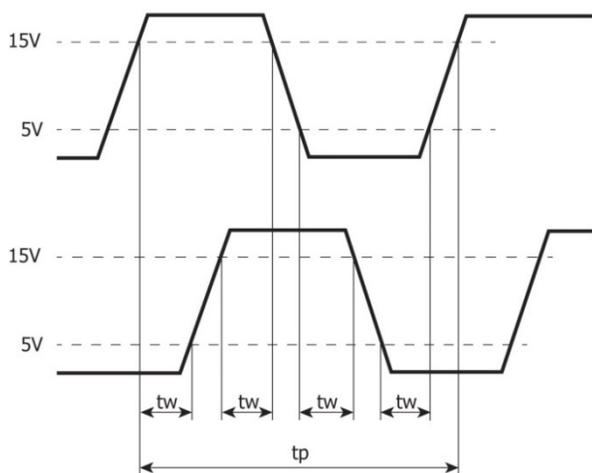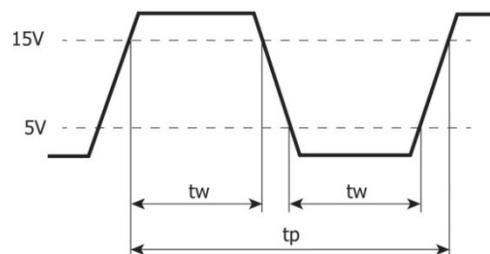
Quadrature Mode   Pulse/Direction mode

| Outputs	
Number of outputs	8
Output type	Transistor, Source
Isolation groups	One group of 8 outputs
Isolation voltage	
Output to bus	500VAC for 1 minute
Output to output	None
Output power supply to bus	500VAC for 1 minute
Output power supply to output	None
Current	0.5A max. per output
Voltage	See Outputs Power Supply specfication
On state voltage drop	O0, O1: 0.2V max O2 – O7: 0.5V max
Off state leakage current	10µA max
Short circuit protection	O0, O1: None O2-O7: Yes

Switching times	O0, O1:
	    Turn-on: 0.4µs max. (470Ω and 4kΩ load)
	    Turn-off: 1.1µs max. (470Ω load), 3.4µs max. (4kΩ load)
	O2-O7:
	    Turn-on/off: 80µs max. (Load resistance < 4kΩ)

PWM Frequency [5] [6]	O0, O1:
	    250kHz max. (470Ω load)
	    100kHz max. (4kΩ load)
	O4, O5:
	    3kHz max. (Load resistance < 4kΩ)

Cable (PWM mode)	O0, O1: Shielded twisted pair O4, O5: Shielded or unshielded

Outputs Power Supply	
Nominal operating voltage	24VDC
Operating voltage	20.4 – 28.8VDC
Maximum current consumption [7]	30mA@24VDC

IO/COM Bus	
Bus current consumption	120mA max.

LED Indications			
Input LEDs	Green	Input state	
Output LEDs	Green	Output state	
Status LED	A triple color LED. Indications are as follows:		

Color	LED State	Status
Green	On	Operating normally
Green	Slow blink	Boot
Green	Rapid blink	OS initialization
Green/Red	Slow blink	Configuration mismatch
Red	On	Output short-circuit
Red	Slow blink	No IO exchange
Red	Rapid blink	Communication error
Orange	Rapid blink	OS Upgrade

Environmental	
Ingress Protection	IP20, NEMA1
Operating temperature	-20℃ to 55℃ (-4℉ to 131℉)
Storage temperature	-30℃ to 70℃ (-22℉ to 158℉)
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	0.13 Kg (0.287 lb)
Size	Refer to the images below
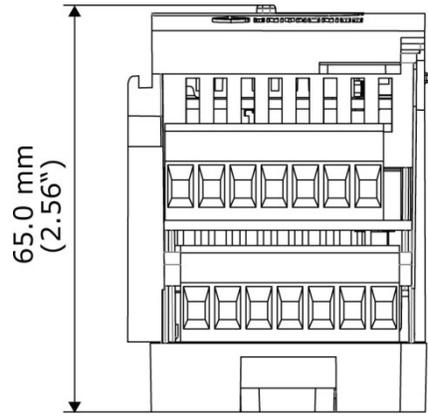
Top View
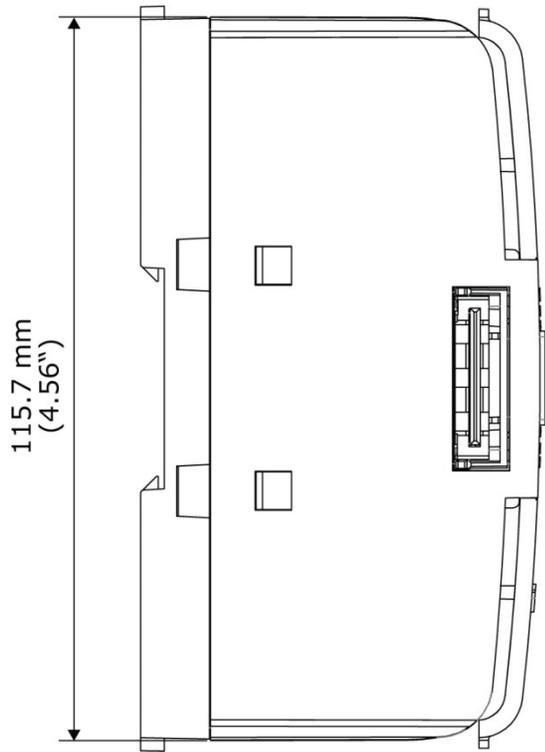
Side View
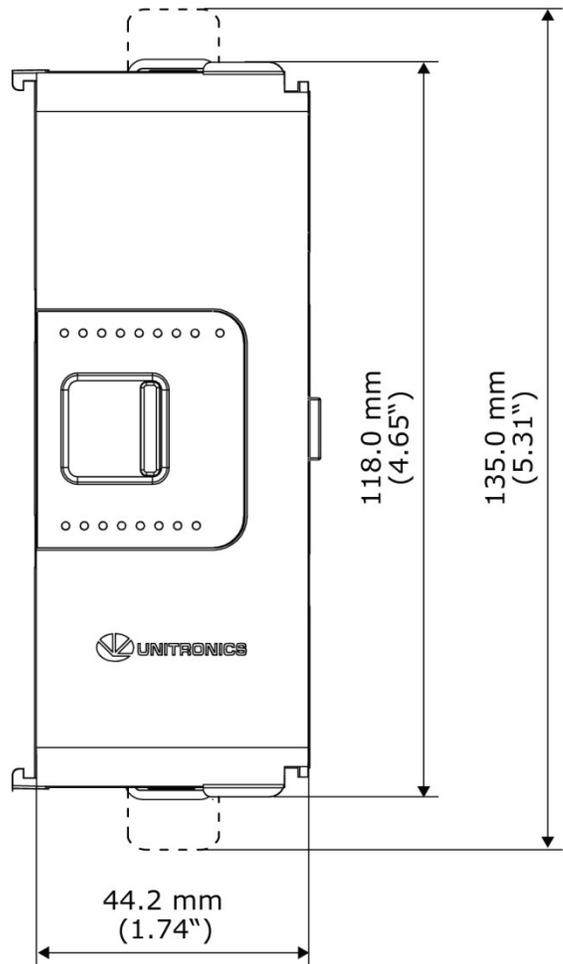
Front View

Notes:

1. The UID-0808THS utilizes two high speed blocks that can each be assigned either to the inputs or to the outputs.
2. Four inputs may be configured to function either as normal, or as high speed digital inputs, and can support a total of two shaft encoders.
3. Two outputs are high speed, up to 250kHz, and may function as normal or high-speed PWM outputs (same frequency and different duty-cycles). Two outputs are normal speed, and may function as normal-speed PWM outputs (same frequency but different duty-cycles).
4. Inputs I0, I1, I4, and I5 can be configured as either normal digital inputs or as high speed inputs that can receive high speed pulse signals from sensors or shaft encoders. High speed inputs specifications apply only when inputs are configured as high speed inputs.
5. Outputs O0 and O1 can be configured as either normal digital outputs or as high speed PWM outputs. Outputs O4 and O5 can be configured as either normal digital outputs or as normal PWM outputs. PWM outputs specifications apply only when outputs are configured as PWM outputs.
6. Outputs O0 and O1 share the same frequency but capable of producing different duty-cycles; Outputs O4 and O5 share the same frequency but capable of producing different duty-cycles.
7. Current consumption does not include load current.

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