UniStream™ Uni-I/O™ Modules

Technical Specifications UIA-0006

This guide provides specifications for Unitronics' Uni-I/O™ module UIA-0006. This module comprises:

• 6 analog outputs, 13/14 bit

Uni-I/O modules are compatible with UniStream $^{\text{TM}}$ family of Programmable Logic Controllers. They may be either snapped onto the back of a UniStream $^{\text{TM}}$ 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

Analog Outputs				
Number of outputs	6			
Output range ⁽⁰⁾	Output Type	Nominal Values	Over-range Values	Overflow Values
	0÷10VDC	0≤Vout≤10VDC	10 <vout≤10.15vdc< td=""><td>Vout>10.15VDC</td></vout≤10.15vdc<>	Vout>10.15VDC
	-10÷10VDC	-10≤Vout≤10VDC	-10.15≤Vout<-10VDC 10 <vout≤10.15vdc< td=""><td>Vout<-10.15VDC Vout>10.15VDC</td></vout≤10.15vdc<>	Vout<-10.15VDC Vout>10.15VDC
	0÷20mA	0≤Iout≤20mA	20≤Iout≤20.3mA	Iout>20.3mA
	4÷20mA	4≤Iout≤20mA	20≤Iout≤20.3mA	Iout>20.3mA
Isolation voltage				
Output to bus	500 VAC for	1 minute		
Output to output	None	None		
Output power supply to bus	None			
Output power supply to output	None			
Resolution	0 ÷ 10VDC – 14 bit			
-10 ÷ 10VDC - 13 bit + sign 0 ÷ 20mA - 13 bit				
	4 ÷ 20mA – 13 bit			
Accuracy	±0.3% / ±0.	±0.3% / ±0.5% of full scale (Voltage)		
(25°C /-20°C to 55°C)	±0.5% / ±0.	±0.5% / ±0.7% of full scale (Current)		
Load impedance	Voltage – 2kΩ minimum			
	Current – 600Ω maximum			
Settling time	$0 \div 10$ VDC – 1.8 ms (2 k Ω resistive load), 3.7 ms (2 k Ω + 1 uF load)			
(95% of new value)	-10 ÷ 10VDC – 3ms (2kΩ resistive load), 5.5ms (2kΩ + 1uF load)			
	$0 \div 20$ mA and $4 \div 20$ mA $- 1.7$ ms (600Ω load), 1.7 ms ($600\Omega + 10$ mH load)			
Cable	Shielded twis	•		
Diagnostics ⁽²⁾		e outputs are short-pen circuit indication	rotected but there isn't s	oftware indication

Power Supply	
Nominal operating voltage	24VDC
Operating voltage	20.4 ÷ 28.8VDC

09/15 UniStream™

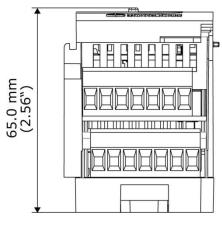
Maximum current consumption	150mA @ 24VDC
Diagnostics (2)	Supply level: Normal / Low or missing.

IO/COM Bus	
Bus current	70mA maximum
consumption	

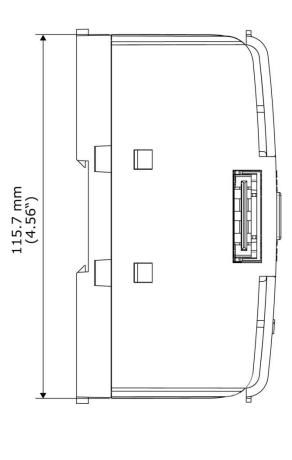
LED Indications				
Output LEDs	Red	On: Open Circuit (when set to Current mode)		
Status LED	A triple color LED. Indications are as follows:			
	Color	LED State	Status	
		On	Operating normally	
	Green	Slow blink	Boot	
		Rapid blink	OS initialization	
	Green/Red	Slow blink	Configuration mismatch	
	Red	On	Supply voltage is low or missing	
		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

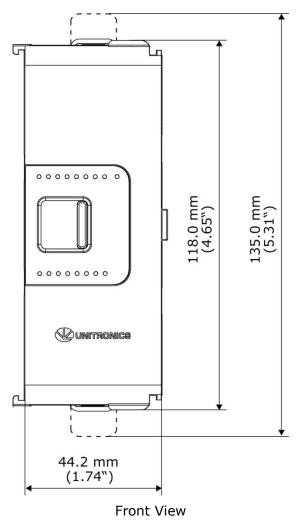
Dimensions	
Weight	0.17 Kg (0.375 lb)
Size	Refer to the images below



Top View



Side View



09/15 UniStream™

Notes:

1. The UIA-0006 will be able to output values that are up to 1.5% higher than the nominal output range (Output Over-range).

2. See LED Indications Table above for description of the relevant indications. Note that the diagnostics results are also indicated in the system tags and can be observed through the UniApps™ or the online state of the UniLogic™.

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09/15

UniStream™ Uni-I/O™ Modules

Technical Specifications UIA-0402N

This guide provides specifications for Unitronics' Uni-I/O™ module UIA-0402N. This module comprises:

- 4 analog inputs, 13 bit
- 2 analog outputs, 13/14 bit

Uni-I/O modules are compatible with UniStreamTM family of Programmable Logic Controllers. They may be either snapped onto the back of a UniStreamTM 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

Analog Inputs						
Number of inputs	4					
Input range (1) (2) Input Type Nominal Values		Over-range Values		Overflow Values		
	0 ÷ 10VDC	0 ≤ Vin ≤ 10VDC	10 < Vin ≤ 10		Vin	> 10.15VDC
	0 ÷ 20mA	0 ≤ Iin ≤ 20mA	20 < Iin ≤ 20.	.3mA	Iin >	> 20.3mA
Absolute maximum rating	±30V (Voltage), ±30mA (Current)					
Isolation	None					
Conversion method	Successive ap	proximation				
Resolution	13 bits					
Accuracy	±0.3% / ±0.5	% of full scale (Volta	ge)			
(25°C / -20°C to 55°C)	±0.3% / ±0.4	% of full scale (Curre	ent)			
Input impedence	552kΩ (Voltage), $118Ω$ (Current)					
Noise rejection	10Hz, 50Hz, 6	0Hz, 400Hz				
Step response (3)	Smoothing	Noise Reject	ion Frequency			
(0 to 100% of final		400Hz	60Hz	50Hz		10Hz
value)	None	2.7ms	16.86ms	20.2ms		100.2ms
	Weak	10.2ms	66.86ms	80.2ms		400.2ms
	Medium	20.2ms	133.53ms	160.2ms		800.2ms
	Strong	40.2ms	266.86ms	320.2ms		1600.2ms
Update time (3)	Noise Rejection Frequency Update Time					
	400Hz			1.25ms		
	60Hz			8.33ms		
	50Hz			10ms		
	10Hz			50ms		
Operational signal range (signal + common mode)	Voltage mode – IxV: -1V \div 12.5V ; CMx: -1V \div 2.5V Current mode – IxI: -1V \div 2.8V ; CMx: -1V \div 0.4V (x=0,1,2 or 3)					
Common mode rejection	30dB @ 10Hz, 50Hz, 60Hz or 400Hz noise rejection mode					
Normal mode rejection	60dB @ 10Hz, 50Hz or 60Hz noise rejection mode 45dB @ 400Hz noise rejection mode					

Cable	Shielded twisted pair
Diagnostics (4)	Analog input overflow

Analog Outputs				
Number of outputs	2			
Output range ⁽²⁾	Output Type	Nominal Values	Over-range Values	Overflow Values
	0÷10VDC	0≤Vout≤10VDC	10 <vout≤10.15vdc< td=""><td>Vout>10.15VDC</td></vout≤10.15vdc<>	Vout>10.15VDC
	-10÷10VDC	-10≤Vout≤10VDC	-10.15≤Vout<-10VDC 10 <vout≤10.15vdc< td=""><td>Vout<-10.15VDC Vout>10.15VDC</td></vout≤10.15vdc<>	Vout<-10.15VDC Vout>10.15VDC
	0÷20mA	0≤Iout≤20mA	20≤Iout≤20.3mA	Iout>20.3mA
	4÷20mA	4≤Iout≤20mA	20≤Iout≤20.3mA	Iout>20.3mA
Isolation	None	None		
Resolution	0 ÷ 10VDC - 14 bit -10 ÷ 10VDC - 13 bit + sign 0 ÷ 20mA - 13 bit 4 ÷ 20mA - 13 bit			
Accuracy (25°C /-20°C to 55°C)	$\pm 0.3\%$ / $\pm 0.5\%$ of full scale (Voltage) $\pm 0.5\%$ / $\pm 0.7\%$ of full scale (Current)			
Load impedance	Voltage – $2k\Omega$ minimum Current – 600Ω maximum			
Settling time (95% of new value)	$0 \div 10$ VDC – 1.8 ms (2 k Ω resistive load), 3.7 ms (2 k Ω + 1 uF load) - $10 \div 10$ VDC – 3 ms (2 k Ω resistive load), 5.5 ms (2 k Ω + 1 uF load) $0 \div 20$ mA and $4 \div 20$ mA – 1.7 ms (600Ω load), 1.7 ms ($600\Omega + 10$ mH load)			
Cable	Shielded twis	Shielded twisted pair		
Diagnostics ⁽⁴⁾	Voltage – Short circuit Current – Open circuit			

Power Supply	
Nominal operating voltage	24VDC
Operating voltage	20.4 ÷ 28.8VDC
Maximum current consumption	150mA @ 24VDC
Diagnostics (4)	Supply level: Normal / Low or missing.

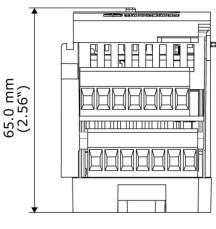
IO/COM Bus	
Bus current consumption	120mA maximum

LED Indications				
Input LEDs	Red	On: Input value is in Overflow		
Output LEDs	Red	On: Short Circuit (when set to Voltage mode) Open Circuit (when set to Current mode)		
Status LED	A triple color LED. Indications are as follows:		s:	
	Color	LED State	Status	
	Green	On	Operating normally	
		Slow blink	Boot	
		Rapid blink	OS initialization	
	Green/Red	Slow blink	Configuration mismatch	
	Red	On	Supply voltage is low or missing	
		Slow blink	No IO exchange	
		Rapid blink	Communication error	
	Orange	Rapid Blink	OS Upgrade	

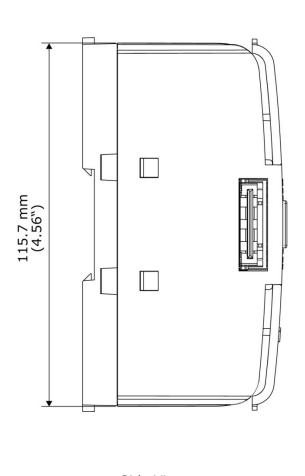
Environmental	
Protection	IP20, NEMA1
Operating temperature	-20°C to 55°C (-4°F to 131°F)
Storage temperature	-30°C to 70°C (-22°F to 158°F)
Relative Humidity (RH)	5% to 95% (non-condensing)
Operating altitude	2,000 m (6,562 ft)
Shock	IEC 60068-2-27, 15G, 11ms duration
Vibration	IEC 60068-2-6, 5Hz to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

8/13 UniStream™

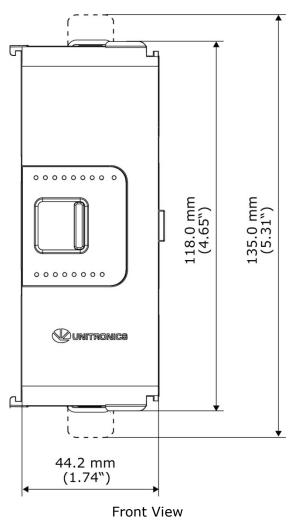
Dimensions	
Weight	0.15 Kg (0.331 lb)
Size	Refer to the images below



Top View



Side View



Unitronics 4

Notes:

- 1. The 4-20mA input option is implemented using 0-20mA input range.
- 2. The UIA-0402N measures values that are up to 1.5% higher than the nominal input range (i.e. Input Over-range). Similarly, it will be able to output values that are up to 1.5% higher than the nominal output range (Output Over-range).
 - Note that when the input overflow occurs, it is indicated in the corresponding system tag while the input value is registered as the maximum permissible value. For example, if the specified input range is 0-10V, the Over-range values can reach up to 10.15V, and any input voltage higher than that will still register as 10.15V while the Overflow system tag is turned on.
- 3. Step response and update time are independent of the number of channels that are used.
- 4. See LED Indications Table above for description of the relevant indications. Note that the diagnostics results are also indicated in the system tags and can be observed through the UniApps™ or the online state of the UniLogic™.

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DOC27005-A4 01/14

UniStream™ Uni-I/O™ Module

Technical Specifications UIA-0800N

This guide provides specifications for Unitronics' Uni-I/O™ module UIA-0800N. This module comprises:

• 8 analog inputs, 13 bit

Uni-I/O modules are compatible with UniStream $^{\text{TM}}$ family of Programmable Logic Controllers. They may be either snapped onto the back of a UniStream $^{\text{TM}}$ 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

Analog Inputs						
Number of inputs	8					
Input range (1) (2)	Input Type	Nominal Values	Over-rang Values	je	Overflow Value	es
	0 ÷ 10VDC	0 ≤ Vin ≤ 10VDC	10 < Vin ≤ 10.15VDC		Vin > 10.15VDC	
	0 ÷ 20mA	0 ≤ Iin ≤ 20mA	20 < Iin ≤ 20.3mA		Iin > 20.3mA	
Absolute maximum rating	±30V (Voltag	e), ±30mA (Curre	ent)			
Isolation	None					
Conversion method	Successive a	proximation				
Resolution	13 bits					
Accuracy (25°C / -20°C to 55°C)	$\pm 0.3\%$ / $\pm 0.5\%$ of full scale (Voltage) $\pm 0.3\%$ / $\pm 0.4\%$ of full scale (Current)					
Input impedence	552k Ω (Voltage), 118 Ω (Current)					
Noise rejection	10Hz, 50Hz, 60Hz, 200Hz					
Step response (3)	Smoothing Noise Rejection Frequency					
(0 to 100% of final		200Hz	60Hz	501	Hz	10Hz
value)	None	5.2ms	16.86ms	20.	2ms	100.2ms
	Weak	20.2ms	66.86ms	80.	.2ms	400.2ms
	Medium	40.2ms	133.53ms	160	0.2ms	800.2ms
	Strong	80.2ms	266.86ms	320	0.2ms	1600.2ms
Update time (3)	Noise Rejection Frequency Update Time					
	200Hz			2.5ms		
	60Hz		8.3	8.33ms		
	50Hz			10ms		
	10Hz 50ms					
Operational signal range (signal + common mode)	Voltage mode – IxV: -1V \div 12.5V ; CMx: -1V \div 2.5V Current mode – IxI: -1V \div 2.8V ; CMx: -1V \div 0.4V (x=0,1,2 or 3)					
Common mode rejection	30dB @ 10Hz, 50Hz, 60Hz or 200Hz noise rejection mode					
Normal mode rejection	60dB @ 10Hz, 50Hz or 60Hz noise rejection mode 45dB @ 200Hz noise rejection mode					

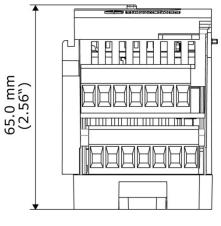
11/14 UniStream™

Cable	Shielded twisted pair			
Diagnostics (4)	Analog input overflow			
IO/COM Bus				
Bus current consumption	70mA maximum			

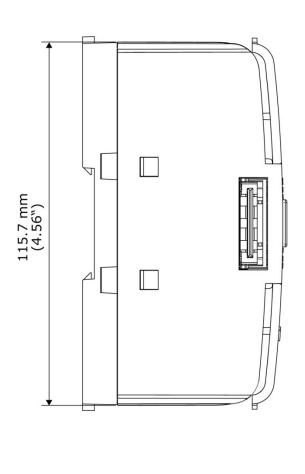
LED Indications				
Input LEDs	Red	On: Input value is in Overflow		
Status LED	A triple color	A triple color LED. Indications are as follows:		
	Color	LED State	Status	
		On	Operating normally	
	Green	Slow blink	Boot	
		Rapid blink	OS initialization	
	Green/Red	Slow blink	Configuration mismatch	
	Red	On	Supply voltage is low or missing	
		Slow blink	No IO exchange	
		Rapid blink	Communication error	
	Orange	Rapid Blink	OS Upgrade	

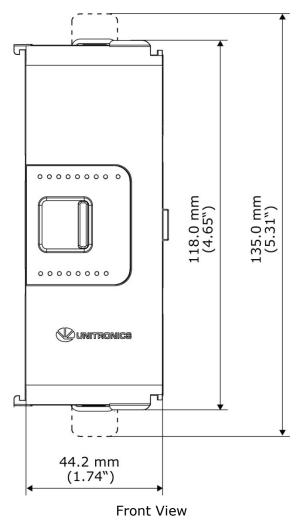
Environmental	
Protection	IP20, NEMA1
Operating temperature	-20°C to 55°C (-4°F to 131°F)
Storage temperature	-30°C to 70°C (-22°F to 158°F)
Relative Humidity (RH)	5% to 95% (non-condensing)
Operating altitude	2,000 m (6,562 ft)
Shock	IEC 60068-2-27, 15G, 11ms duration
Vibration	IEC 60068-2-6, 5Hz to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

Dimensions	
Weight	0.13 Kg (0.286 lb)
Size	Refer to the images below



Top View





Side View

11/14 UniStream™

Notes:

- 1. The 4-20mA input option is implemented using 0-20mA input range.
- 2. The UIA-0800N measures values that are up to 1.5% higher than the nominal input range (i.e. Input Over-range). Note that when the input overflow occurs, it is indicated in the corresponding system tag while the input value is registered as the maximum permissible value. For example, if the specified input range is 0–10V, the Over-range values can reach up to 10.15V, and any input voltage higher than that will still register as 10.15V while the Overflow system tag is turned on.
- 3. Step response and update time are independent of the number of channels that are used.
- 4. See LED Indications Table above for description of the relevant indications. Note that the diagnostics results are also indicated in the system tags and can be observed through the UniApps™ or the online state of the UniLogic™.

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DOC27024-A3 11/14

UniStream[®] Uni-I/O™ Module

Technical Specifications UIA-0800NH

This guide provides specifications for Unitronics' Uni-I/O™ module UIA-0800NH. This module comprises:

• 8 analog inputs, 12 bit, supports HART protocol

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.unitronicsplc.com

Analog Inputs					
Number of inputs	8				
Input range (1) (2)	Input Type	Nominal Values	Over-range Values	e Overflow Val	lues
	0 ÷ 20mA	0 ≤ Iin ≤ 20mA	20 < Iin ≤ 20.3mA	Iin > 20.3mA	
Absolute maximum rating	±30mA (Current)				
Isolation	None				
Conversion method	Successive a	proximation			
Resolution	12 bits				
Accuracy (25°C / -20°C to 55°C)	±0.5% / ±0.	±0.5% / ±0.7% of full scale (Current)			
Input impedence	251Ω (Currer	nt)			
Noise rejection	10Hz, 50Hz, 60Hz, 200Hz				
Step response (3)	Smoothing	Noise Rejec	tion Freque	ncy	
(0 to 100% of final		200Hz	60Hz	50Hz	10Hz
value)	None	48ms	67ms	70ms	150ms
	Weak	63ms	117ms	130ms	450ms
	Medium	83ms	184ms	210ms	850ms
	Strong	123ms	317ms	370ms	1650ms
Update time (3)	Noise Rejection Frequency Update Time				
	200Hz			2.5ms	
	60Hz			8.33ms	
	50Hz			10ms	
	10Hz 50ms				
Operational signal range (signal + common mode)	Current mode - IxI: -1V ÷ 5.4V ; CMx: -1V ÷ 0.4V (x=0,1,2 or 3)				
Common mode rejection	30dB @ 10Hz	30dB @ 10Hz, 50Hz, 60Hz or 200Hz noise rejection mode			
Normal mode rejection	60dB @ 10Hz, 50Hz or 60Hz noise rejection mode 45dB @ 200Hz noise rejection mode				
Cable	Shielded twisted pair				
Diagnostics (4)	Analog input overflow				

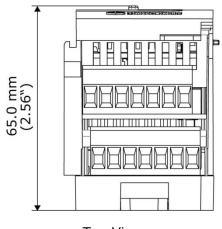
11/18 UniStream™

IO/COM Bus		
Bus current consumption	85mA maximum	

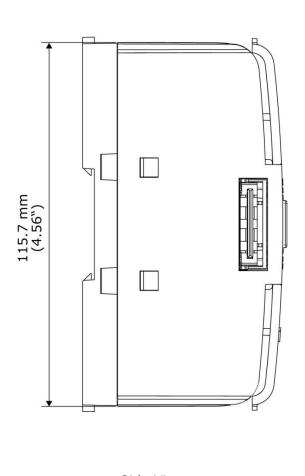
LED Indications				
Input LEDs	Red	On: Input value is in Overflow		
Status LED	A triple color LED. Indications are as follows:			
	Color	LED State	Status	
		On	Operating normally	
	Green	Slow blink	Boot	
		Rapid blink	OS initialization	
	Green/Red	Slow blink	Configuration mismatch	
	Red	On	Supply voltage is low or missing	
		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	0.13 Kg (0.286 lb)
Size	Refer to the images below



Top View



44.2 mm (1.74")

Front View

Side View

11/18 UniStream™

Notes:

- 1. The 4-20mA input option is implemented using 0-20mA input range.
- 2. The UIA-0800NH measures values that are up to 1.5% higher than the nominal input range (i.e. Input Over-range). Note that when the input overflow occurs, it is indicated in the corresponding system tag while the input value is registered as the maximum permissible value. The Over-range values can reach up to 20.3mA, and any input current higher than that will still register as 20.3mA while the Overflow system tag is turned on.
- 3. Step response and update time are independent of the number of channels that are used.
- 4. See LED Indications Table above for description of the relevant indications. Note that the diagnostics results are also indicated in the system tags and can be observed through the UniApps™ or the online state of the UniLogic™.

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11/18