Datasheet I/O Module
INO-288-D-01

Grenton I/O Module allows you to control up to 8 outputs (max.360VA) and 8 digital inputs.

1. Parameters - DOUT

Characteristics:	
Value	Returns 1 for output set at On and 0 for output set at Off state
DistributedLogicGroup	Distributed Logic group - broadcast group for distributed logic
Methods:	
SetValue	Sets output state to 1 or 0
Switch	Changes the output value from 0 to 1 or from 1 to 0. The first parameter is the time of change: 0 - switches output to continous mode, number - switches output for a time specified by a parameter (in milliseconds)
SwitchOn	Sets output value to 1
SwitchOff	Sets output value to 0
Events:	
OnValueChange	Occurs when a change in the state takes place (regardless of the value)
OnSwitchOn	Occurs when On(1) is set at output
OnSwitchOff	Occurs when Off(0) is set at output

2. Parameters - DIN

Characteristics:	
Inertion	Inertion
HoldDelay	Time in milliseconds after which, when pressing and holding a button, the OnHold event occurs
HoldInterval	Cyclical interval in milliseconds after which, when pressing and holding a button, the OnHold event occurs
Value	Returns input state as 0 or 1
DistributedLogicGroup	Distributed Logic group - broadcast group for distributed logic
StatisticState	Load measurement type: Off - turned off, Continuous - load mesurement for the whole device's period operation, Pulse - load measurement counted at the moment of a high state appearing on the input
Load	The measured value multiplier. For StatisticState: Continuous - load measurement value in the unit of time, Pulse - load measurement value for the single impulse (e.g. 1kW)
Methods:	
SetInertion	Minimum interval in milliseconds which has to pass between presses of a button so that it is interpreted as a new pressing activity
SetHoldDelay	Sets HoldDelay value
SetHoldInterval	Sets HoldInterval value
Events:	
OnValueChange	Occurs when a change in the input state takes place (regardless of the value)
OnSwitchOn	Occurs when the high state is set at input
OnSwitchOff	Occurs when the low state is set at input
OnShortPress	Occurs after pressing the button for 500 - 2000ms
OnLongPress	Occurs after pressing the button for at least 2000ms
OnHold	Occurs for the first time after HoldDelay time and then cyclically every HoldInterval value
OnClick	Occurs after pressing the button for less than 500 ms

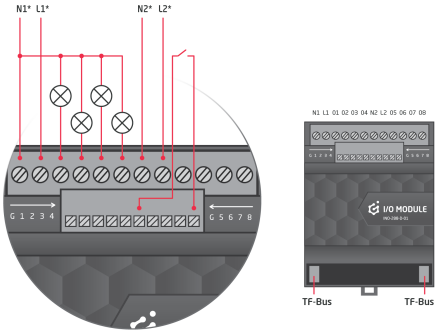
3. Parameters - PowerSupplyVoltage

Characteristics:	
Value	Current output value taking into account the scalar
Value %	Current percentage input value of the maximum value (MaxValue characteristic)
Sensitivity	Minimum change of input state when the OnValueChange, OnValueLower or OnValueRise event is generated
MinValue	Minimum value of the Value characteristic after exceeding which the OnOutOfRange event is generated
MaxValue	Maximum value of the Value characteristic after exceeding which the OnOutOfRange event is generated
Methods:	
SetSensitivity	Sets input sensitivity value
SetMinValue	Sets MinValue
SetMaxValue	Sets MaxValue
Events:	
OnValueChange	Event resulting from changing input state
OnValueLower	Event occurs when a value lower than the value from the last reading appears at input
OnValueRise	Event occurs when a value higher than the value from the last reading appears at input
OnOutOfRange	Event resulting from exceeding the permissible range (MinValue : MaxValue)
OnInRange	Event occurs when value returns to MinValue/MaxValue range

4. Technical data

Device power supply	24 V_{dc}
Maximum power consumption	1,8 W (200 mW/ch)
Maximum device current	75 mA (for 24V_{dc})
Rated load voltage	230 V_{ac} or 24 V_{dc}
Rated circuit load (4 channels) AC1:	6 A / 230 V_{ac}
Rated load current per channel:	
AC1	1,5 A / 230 V_{ac}
AC15	0,4 A / 230 V_{ac}
DC1	1,5 A / 24 V_{dc}
DC13	0,22 A / 24 V_{dc}
Maximum breaking capacity AC1	360 VA
Relay type	NO, inrush
Maximum wire cross section for outputs	2,5mm^2
Maximum wire cross section for inputs	1,5mm^2
Weight	170 g
Size [DIN]	4
Fixing	electrical box, rail DIN-3 / TH 35 / TS 35
Dimensions (H/W/D)	58/71/90 mm
Operating temperature range	0 to +45 °C

5. Wiring diagram



G	ground signal for digital inputs
1-4	digital inputs 1-4
G	ground signal for digital inputs
5-8	digital inputs 5-8
N1*	'Neutral' signal for first circuit
L1*	'Line' signal for first circuit
O1	first channel in circuit 1
O2	second channel in circuit 1
O3	third channel in circuit 1
O4	fourth channel in circuit 1
N2**	'Neutral' signal for second circuit
L2**	'Line' signal for second circuit
O5	fifth channel in circuit 2
O6	sixth channel in circuit 2
O7	seventh channel in circuit 2
O8	eight channel in circuit 2

Relay outputs:
- Outputs are divided into two independent circuits. Each circuit has own 'N' , 'L' and 4 outputs (channels).
- 'N' i 'L' signals are necessary for 230 V_{ac} loads for switch condition optimization.
- For loads up to 24 V_{dc} switching signal has to be connected to 'L'. 'N' is not necessary in this case.
- 'L' signal supply 4 channels in each circuit.
- For capacitive loads it is recommended to use one receiver for one output.
- For capacitive loads it is recommended to set a minimum 1500ms time interval between successive switches of the same output.
- From the firmware Version 2.0.0 on there is an extra timing limitation mechanism activated when switching an output very quickly (burst of events), the main purpose of which is to prevent overheating and potential damage of a relay. When a (first in a serie) switch takes place the subsequent one cannot occur sooner than 300ms aftewards, and if it does it gets delelayed accordingly. The 3rd and the following ones can occur not earlier than after 600ms, 900ms, 1200ms, 1500ms respectively. In case there are more events occuring within the following 1500ms all of them (7th, 8th, and so on) are ignored and only the last one in a serie is taken into account. Whenever the time spacing between events is greater than 1500ms the limitation mechanism is reset and the sequence start from the beginning.

6. Warnings and cautionary statements

ATTENTION !

- Before proceeding with the assembly, read the installation schematics and full instructions available at www.grenton.com. Failure to follow the guidelines contained in the instructions and other requirements of due care valid as a result of the nature of the equipment (device) may be dangerous to life / health, damage the device or installation to which it is connected, damage other property or violate other applicable regulations. The manufacturer of the device, Grenton Sp. z o. o. does not bear any responsibility for the damage (property and non-property related) resulting from the assembly and / or use of the equipment not in accordance with the instructions and / or due diligence in handling the equipment (device).
- Device power supply, permissible load or other characteristic parameters have to be in accordance with the device specification, described in particular in the "Technical data" section.
- The product is not intended for children and animals.
- If you have technical questions or comments about the device operation, contact Grenton Technical Support.
- Answers to frequently asked questions can be found at: www.support.grenton.pl

DANGER !

- Danger to life caused by electric current!
- The components of the installation (individual devices) are designed to work in a home electrical installation or directly in its vicinity. Incorrect connection or use may cause a fire or electric shock.
- All work related to the installation of the device, in particular works involving interference in the electrical installation, may be performed only by a person with appropriate qualifications or licences.
- When installing the device, make sure that the power supply voltage is disconnected from the circuit in which the device is connected or near which the assembly takes place.

7. CE marking

The manufacturer declares that the device is in full compliance with the requirements of EU legislation that includes the directives of a new approach appropriate for this equipment. In particular, Grenton Sp. z o. o. declares that the device fulfills the requirements on safety, specified by law, and that it conforms to the national regulations that implement the appropriate directives: The Directive on the electromagnetic compatibility (EMC - 2014/30/UE), the Low Voltage Directive (LVD 2014/35/UE) and the Directive on the limitation of the use of specific substances in electrical and electronic equipment (RoHS II - 2011/65/UE).

8. Warranty

Warranty available at: www.grenton.com/warranty

9. Manufacturer contact details

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