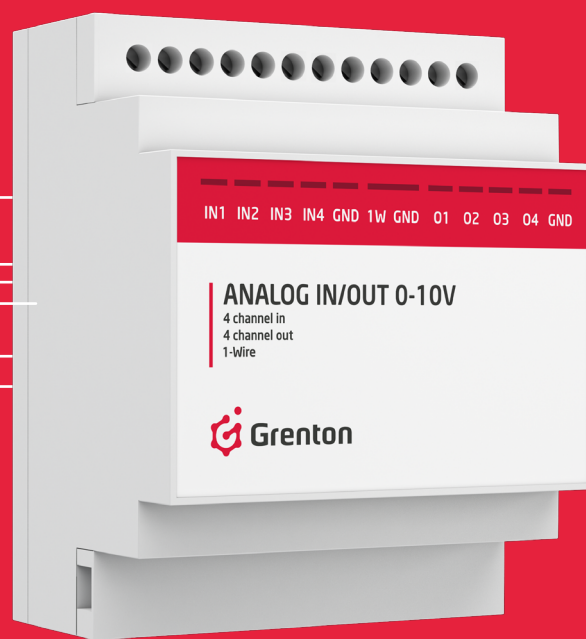


# GRENTON ANALOG IN/OUT 0-10 V

MUL-046-T-17

IN/OUT ANALOG MODULE  
FOR ASSEMBLY IN DIN RAIL



The in/out analog module for assembly in DIN rail expands the possibilities of the system and ensures support for popular communication standards used in automation: 0-10 V and 1-Wire.

- features four inputs and four outputs (0-10 V)
- fully configurable - the user can set input sensitivity, range of supported values, value scalar and inertias for input
- possible to connect any sensor operating in the 1-Wire standard
- possible to connect any sensor or receiver operating in the 0-10 V standard to the system

# CONFIGURATION PARAMETERS OF 0-10 V OUTPUTS

## CHARACTERISTICS

Name	Description
Value	Current output value (0.0 – 10.0 V)
ScaledValue	Current value multiplied by scalar
Scale	Output value scalar
Ramp	Time of output value increment (ms)
MinValue	Minimum value which Value can adopt. Attempting to set a lower value will generate an error. Range: 0.0 – 10.0 V
MaxValue	Maximum value which Value can adopt. Attempting to set a higher value will generate an error. Range: 0.0 – 10.0 V

## METHODS

Name	Description
SetValue	Sets output value (0.0 – 10.0 V)
SetScaledValue	Sets output value taking into account the scalar
SetScale	Sets scalar value
SetRampTime	Sets increments for output value
SetMinValue	Sets MinValue
SetMaxValue	Sets MaxValue
Hold	Reduces or increases the output value using a ramp specified in the parameter. If the ramp parameter is not specified, the default ramp is used
Switch	Switches output state to an opposite state. If time > 0, after a specified period it restores the previous state. The second parameter (ramp) is optional
SwitchOn	Sets output value to MaxValue (default 10.0 V). The first parameter is the time of switching (how long it is to be switched for). The second parameter (ramp) is optional
SwitchOff	Sets output value to MinValue (default 0.0 V). The first parameter is the time of switching (how long it is to be switched for). The second parameter (ramp) is optional

## EVENTS

Name	Description
OnChangeValue	Event from changing the output value (when SetValue is requested)
OnLowerValue	Event occurring when the set value is lower than the previous value
OnRiseValue	Event occurring when the set value is higher than the previous value
OnOutOfRange	Event occurring with an attempt to exceed the permissible range (MinValue .. MaxValue). (The set value is cut down to this range)
OnSwitchOn	Event occurring when MaxValue (default 10.0 V) is set at output
OnSwitchOff	Event occurring when MinValue (default 0.0 V) is set at output

# CONFIGURATION PARAMETERS OF 0-10 V INPUTS

## CHARACTERISTICS

Name	Description
Value	Current output value taking into account the scalar
Value%	Current percentage input value of the maximum value (MaxValue characteristic)
Scale	Input scalar – parameter which is used for multiplying the input value during reading
Sensitivity	Sensitivity – minimum change of input state when the OnChangeValue, OnLowerValue or OnRiseValue event is generated
Inertia	Input inertia value
MinValue	Minimum value of the Value characteristic after exceeding which the OnOutOfRange event is generate
MaxValue	Maximum value of the Value characteristic after exceeding which the OnOutOfRange event is generate

## METHODS

Name	Description
SetScale	Sets scalar value (float)
SetSensitivity	Sets input sensitivity value
SetInertia	Sets input inertia value
SetMin	Sets MinValue
SetMax	Sets MaxValue

## EVENTS

Name	Description
OnChangeValue	Event resulting from changing input state
OnLowerValue	Event occurs when a value lower than the value from the last reading appears at input
OnRiseValue	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)
OnSwitchOn	Event occurs when the input value reaches MaxValue
OnSwitchOff	Event occurs when the input value reaches MinValue

# CONFIGURATION PARAMETERS OF 1-WIRE SENSORS

## CHARACTERISTICS

Name	Description
Value	Input value
Threshold	Hysteresis size (accuracy 0.1°C or 0.1%) specifying the sensitivity with which the following events are generated: OnChange, OnLower, OnRise
Sensitivity	Time (in ms) for which the sampled values are averaged
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

## EVENTS

Name	Description
OnChange	Event resulting from changing input state
OnRise	Event resulting from exceeding the upper threshold of hysteresis
OnLower	Event resulting from exceeding the lower threshold of hysteresis
OnOutOfRange	Event resulting from exceeding any range (MinValue .. MaxValue)

## TECHNICAL SPECIFICATIONS

DC supply	5 V
max. current input	8.39 mA
weight	90 g
dimensions (H/W/D)	58/71/90 mm
max. connection wire section	≤ 2.5 mm <sup>2</sup>
size [DIN]	4
operating temperature range	0 to +40°C

# WIRING DIAGRAM

