DATA SHEET

ADQUIO SENSORS MODBUS

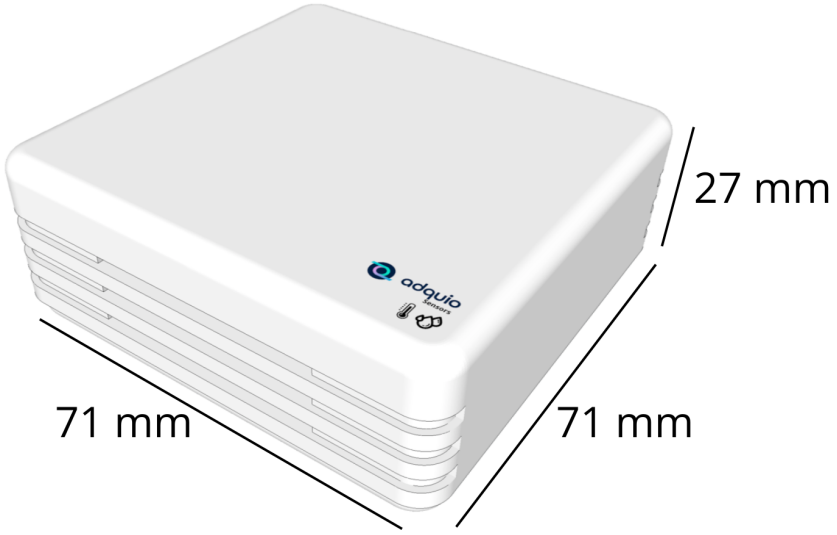
Temperature and humidity probe, Modbus RTU.

1 Information for orders

Reference	Description	Life cycle *
ADQ-STH-MBR	Adquio Sensors Modbus, Probe with 2 sensors, temperature and humidity, connectable by Modbus RTU.	Active

* For the planning and commissioning of new installations, use modules in Active state only

2 Dimensions



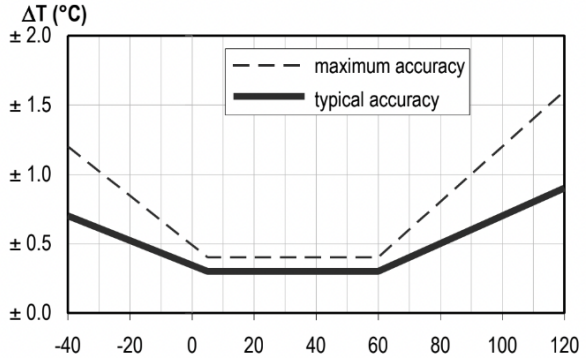
3 Technical data

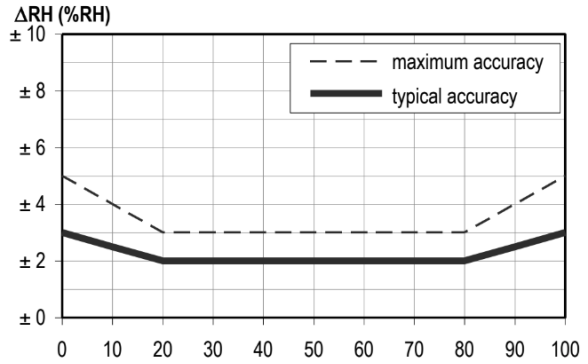
Parameter		Value
Process voltage		
	Connections	Terminal block 3.55 Pitch 4 contacts
	Connection method	Push-in
	Minimum	8 VDC
	Nominal value	24 VDC
	Maximum supported	28 VDC
	Protection against voltage inversion	Yes
	Rated protection fuse up to	3 A
Consumption		
	From a 24V power supply	30mA

CAUTION!
Exceeding the maximum power supply voltage for the process or supply voltages could cause unrecoverable damage to the system. The system could be destroyed.

WATCH OUT!!
Inadequate connection cables cause overtemperature in the terminals.
Adquio Sensors Modbus, can be destroyed if the wrong cable type, wire size, or wire temperature rating is used.

4 Probes

Parameter		**Value**
Temperature		
	Sensor type	SHT21
	Resolution	14 bit 0.01 ºC
	Accuracy tolerance	Typical ±0.3 Maximum ±1.2 
	Repeatability	± 0.1 ºC

	Operating range	-40 to 125 ºC (Normal operating range: 0-80% RH , beyond this limit, the sensor can read a reversible drift with slow kinetics (+3%RH after 60h with humidity >80%RH).)
	Response time	τ 63%, 5 to 30s
	Drift to long term	Typical < 0.02 ºC per year
Humidity		
	Sensor type	SHT21
	Resolution	12 Bits, 0.04 % RH (Relative Humidity)
	Accuracy tolerance	Typical ± 2, Maximum ± 5 
	Repeatability	± 0.1 RH
	Hysteresis	± 1 RH
	Non-linearity	< 0.1 RH
	Response time	8s (Time to reach 63% of a step function, valid at 25°C and 1m/s airflow.)
	Operating range	0 to 100%RH (Normal operating range: 0-80 %RH, beyond this limit, the sensor can read a reversible offset with slow kinetics (+3%RH after 60 hours with humidity >80%RH).
	Long Term Drift	Typical < 0.25 %RH per year

5 System data

5.1 Environmental conditions

Parameter		Value
Temperature		
	Operation	-5 °C...+50 °C (Wall mounting)
	Storage	-10 °C...+60 °C
	Transport	-10 °C...+60 ° C
Humidity		Max. 95% non-condensing
Air pressure		
	Operation	> 800 hPa / < 2000 m
	Storage	> 600 hPa / < 3500 m
Insulation		IP20

5.2 Mechanical data

Parameter		Value
	Mounting	On the wall
	Protection level	IP20
	Casing material	ABS White
Mounting alternatives		
	Wall with double-sided tape	Only for flat surfaces, adhesives included
	Mounting with screws	For all types of surfaces, screws included

5.3 Communication protocol

Parameter		Value
	Modbus	RTU Client
	Speed	9600 bps

5.4 Modbus register configuration table

Modbus positions						
Function	**Address**	**Description**	**Read**	**Write**	**Type**	**Size**
03/06	0	N/A	Yes	No	Holding Register	16 Bits
03/06	1	N/A	Yes	Yes	Holding Register	16 Bits
03/06	2	% humidity	Yes	No	Holding Register	16 Bits
03/06	3	Adjust % humidity	Yes	Yes	Holding Register	16 Bits
03/06	4	Power LED	Yes	Yes	Holding Register	16 Bits
03/06	5	Direcc. Modbus configured	Yes	Yes	Holding Register	16 Bits
03/06	6	Temperature ºC	Yes	No	Holding Register	16 Bits
03/06	7	Temperature adjustment ºC	Yes	Yes	Holding Register	16 Bits
03/06	8	N/A	Yes	No	Holding Register	16 Bits
03/06	8	N/A	Yes	Yes	Holding Register	16 Bits
03/06	9	Error led (0-1)	Yes	Yes	Holding Register	16 Bits
03/06	10	Modbus address	Yes	No	Holding Register	16 Bits

* Probe registers must be divided by 100 to obtain the real value

5.5 Modbus address configuration table with microswitches

Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Modbus address
Off	Off	Off	Off	Off	Off	01
Off	Off	Off	Off	Off	On	02
Off	Off	Off	Off	On	Off	03
Off	Off	Off	Off	On	On	04
Off	Off	Off	On	Off	Off	05
Off	Off	Off	On	Off	On	06
Off	Off	Off	On	On	Off	07
Off	Off	Off	On	On	On	08
Off	Off	On	Off	Off	Off	09
Off	Off	On	Off	Off	On	10
Off	Off	On	Off	On	Off	11
Off	Off	On	Off	On	On	12
Off	Off	On	On	Off	Off	13
Off	Off	On	On	Off	On	14
Off	Off	On	On	On	Off	15
Off	Off	On	On	On	On	16
Off	On	Off	Off	Off	Off	17
Off	On	Off	Off	Off	On	18
Off	On	Off	Off	On	Off	19
Off	On	Off	Off	On	On	20
Off	On	Off	On	Off	Off	21

Off	On	Off	On	Off	On	22
Off	On	Off	On	On	Off	23
Off	On	Off	On	On	On	24
Off	On	On	Off	Off	Off	25
Off	On	On	Off	Off	On	26
Off	On	On	Off	On	Off	27
Off	On	On	Off	On	On	28
Off	On	On	On	Off	Off	29
Off	On	On	On	Off	On	30
Off	On	On	On	On	Off	31
Off	On	On	On	On	On	32
On	Off	Off	Off	Off	Off	33
On	Off	Off	Off	Off	On	34
On	Off	Off	Off	On	Off	35
On	Off	Off	Off	On	On	36
On	Off	Off	On	Off	Off	37
On	Off	Off	On	Off	On	38
On	Off	Off	On	On	Off	39
On	Off	Off	On	On	On	40
On	Off	On	Off	Off	Off	41
On	Off	On	Off	Off	On	42
On	Off	On	Off	On	Off	43
On	Off	On	Off	On	On	44
On	Off	On	On	Off	Off	45
On	Off	On	On	Off	On	46

On	Off	On	On	On	Off	47
On	Off	On	On	On	On	48
On	On	Off	Off	Off	Off	49
On	On	Off	Off	Off	On	50
On	On	Off	Off	On	Off	51
On	On	Off	Off	On	On	52
On	On	Off	On	Off	Off	53
On	On	Off	On	Off	On	54
On	On	Off	On	On	Off	55
On	On	Off	On	On	On	56
On	On	On	Off	Off	Off	57
On	On	On	Off	Off	On	58
On	On	On	Off	On	Off	59
On	On	On	Off	On	On	60
On	On	On	On	Off	Off	61
On	On	On	On	Off	On	62
On	On	On	On	On	Off	63
On	On	On	On	On	On	64

5.6 Certifications

Parameter	Value
Safety and Health	EN ISO 13849-1: 2015 EN ISO 13849-2: 2012 EN 62061:2005 + A1:2013 + A2:2015 EN 60950-1:2006 EN 62311:2008
EMC	EN 61000-6-4:2007 + A1:2011 EN 61000-6-2:2005 ETSI EN 301 489-1 v2.2.0 ETSI EN 301 489-17 v3.2.0
RoHS	EN 50581:2012

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