

MB-TH-9K6-Sxx

Active temperature and humidity sensors, MODBUS

Description

MB-TH sensors are active sensors with microprocessor to measure temperature and relative humidity provided for installation with coordinated design with the main flush-mounted civil series (BTicino, Vimar, Gewiss, ABB etc.). Using Modbus RTU (RS485) it is possible to read the temperature and the relative humidity of the room. The sensors have the following characteristics:

- the resolution of the temperature measurement is 0.1°C, the typical accuracy is +/- 0.4°C;
- the resolution of the humidity measurement is 0.1% RH, the typical accuracy is +/- 3%RH;
- the communication parameters are 9600, N, 8, 1;
- the configurable slave address goes from 1 to 255.

Inside the 503 box they occupy 1 position.

Main features

Installation	box (503)	Storage and usage humidity	10...90% HR
Box modules	1	Power supply	12-24 V ac/dc
Dimensions (WxHxD)	depends on series	Maximum consumption	20 mA
Storage temperature	-40...+85°C	Protection class IP	IP00
Temperature of use	-20...+55°C	Safety class	A

There are 2 dip switches that allow to set the address of the sensor from 1 to 255 using hexadecimal conversion shown in the table in the next page with the Modbus register map.

Terms of Use

For safety reasons, the sensor must be installed and used in accordance with the manufacturer's instructions. The sensor must be adequately protected from water and dust. Have all installation and maintenance work carried out by qualified personnel.

Safety and maintenance information

If the sensor is damaged when the box is opened or if liquid substances have penetrated inside, have it checked by an authorized service centre. Report any faults and/or anomalies immediately. Before carrying out installation, maintenance and repair work on the system, remember to switch off the power supply. Responsibility for installation, maintenance and repair work is in charge on the person or organisation carrying out the work. The manufacturer of the system in which the sensor is installed is responsible for arranging the system parts adequately to avoid any possibility of the operator coming into contact with live utilities. It is the task of the manufacturer of the system on which the sensor is installed: to evaluate the risks and potential dangerous situations, preparing any devices for the safety of the operator. All modifications and/or tampering of a hardware and/or software nature carried out on the probe shall void any responsibility of the manufacturer regarding the conformity "CE".

We decline all responsibility in the event that:

- the above-mentioned rules are not complied with;
- anomalies or damage to persons and / or things due to improper use of the product occur;
- anomalies or damage to persons and / or things occur due to improper use of the information contained in the manual;
- anomalies or damage to persons and / or things occur due to non-compliance with the rules and instructions indicated in this documentation.

Disposal regulations

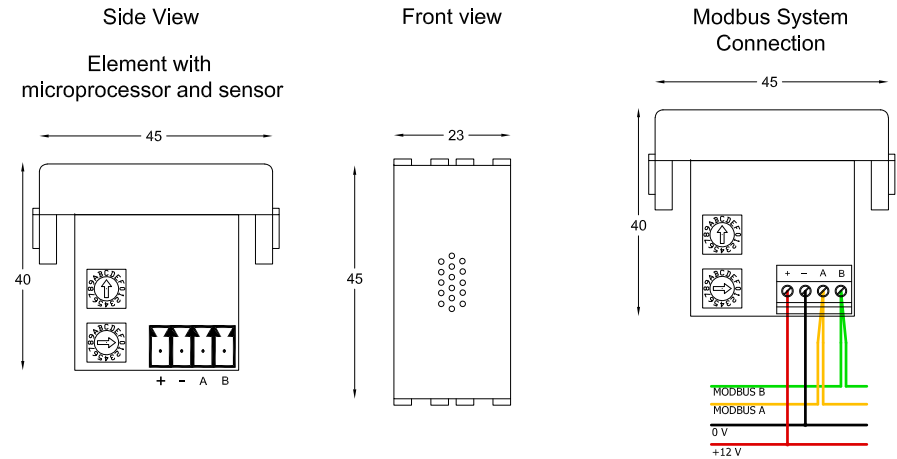


Disposal of electrical and electronic products at the end of the cycle of use

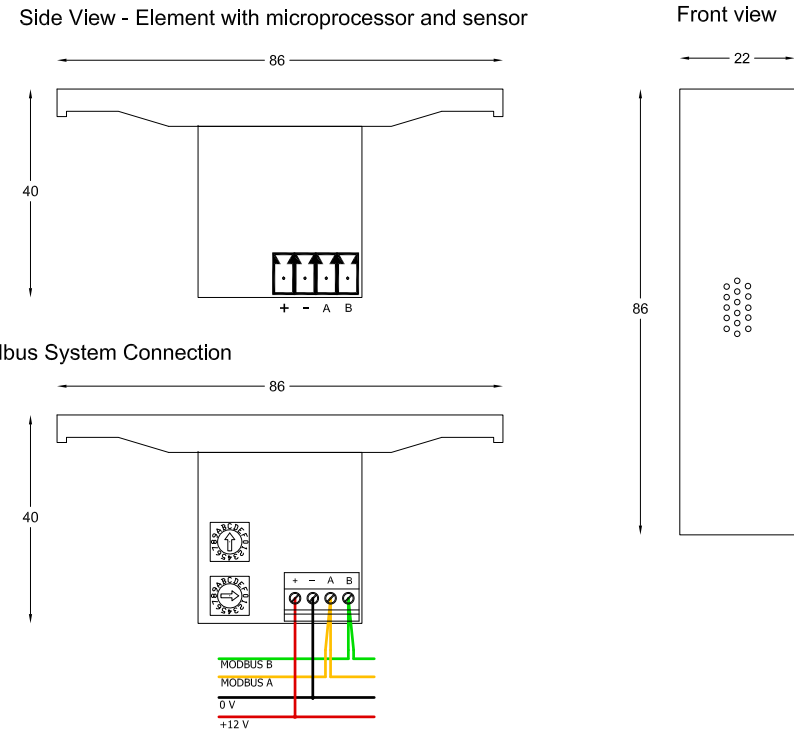
The symbol of the crossed-out bin above indicates that the product at the end of its useful life must be collected separately. Do not dispose the device in household waste bins. Check local regulations for further information on product disposal.

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MB-TH-9K6-Sxx (generic series) - Dimensions (mm) and Electrical connection



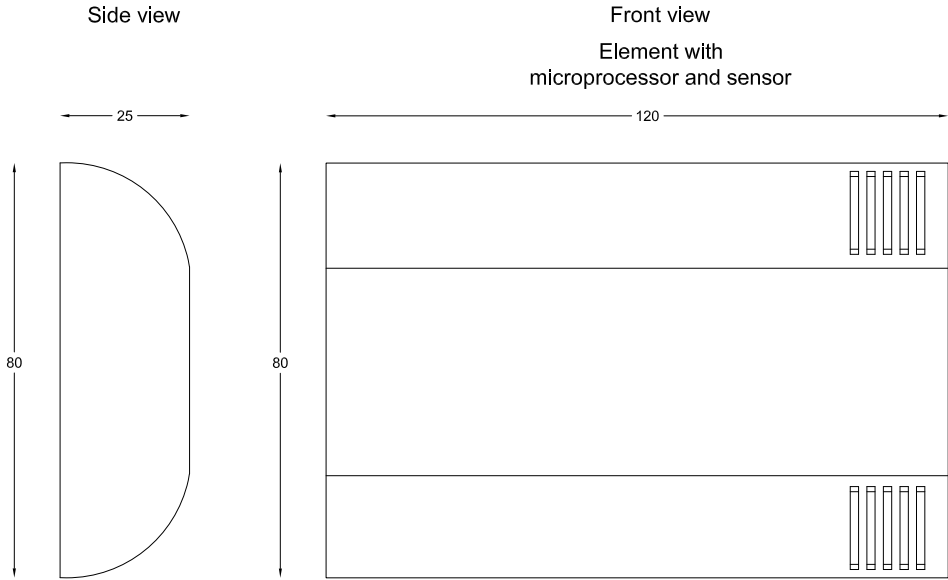
MB-TH-9K6-S77 / MB-TH-9K6-S78 / MB-TH-9K6-S79 BTicino Living Now series) Dimensions(mm)



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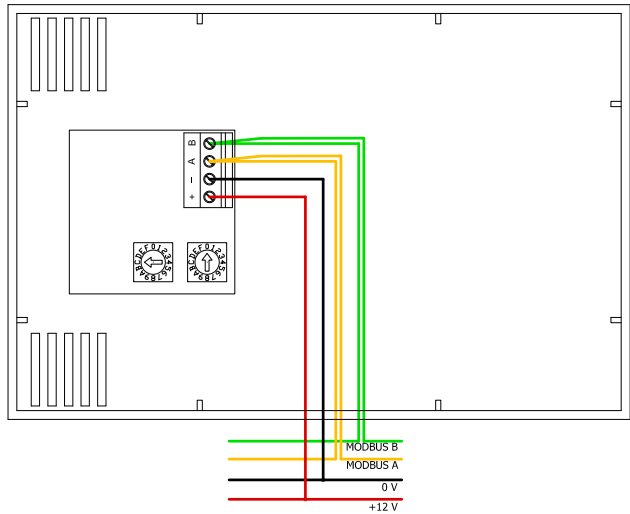
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MB-TH-9K6-S80 (in box 80 X 120 X 25) - Dimensions (mm)



MB-TH-9K6-S80 (in box 80 X 120 X 25) - Modbus System connection

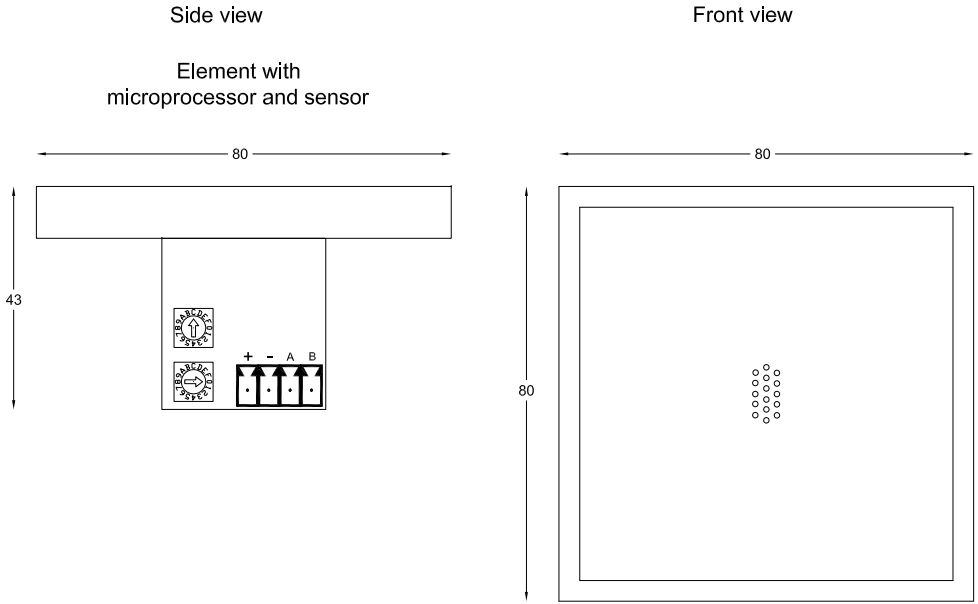
Back view (without the cover)



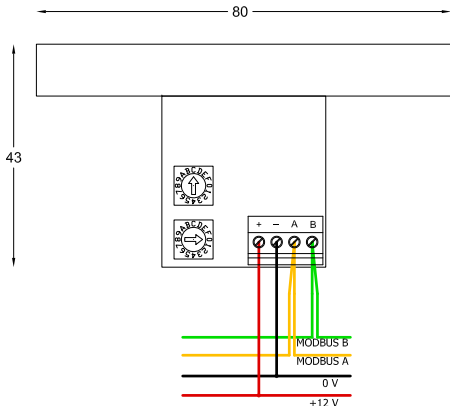
Note: the MB-TH-9K6-S80 sensors arrive with the back plastic cover to allow the installation on a wall

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MB-TH-9K6-S101 / MBS-TH-9K6-102 (JUNG LS series) - Dimensions (mm) and Electrical connection



MB-TH-9K6-S101 / MB-TH-9K6-102 (JUNG LS series) - Modbus System connection

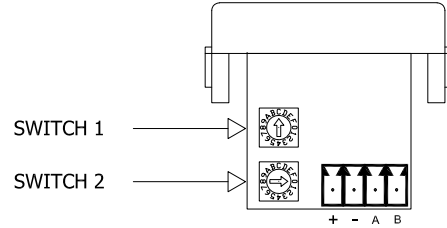


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Modbus slave address setting

The available Modbus Slave addresses are from 1 to 255, according to the switches position. In the below table you can find the hexadecimal conversion.



		SWITCH 2															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
SWITCH 1	0	-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
	3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
	4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
	5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
	6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
	7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
	8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
	9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
	B	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
	C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
	D	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
	E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
	F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

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Modbus Register Map

To read the registers use 0x03 function (Read Holding Register).
To write the registers use 0x06 function (Write Single Register).

The below table shows the available Modbus registers.

MODBUS REGISTERS					
Register Number	Description	Read / Write	Notes	Default values	
				HEX	DEC
0	Current Temperature	R	Integer Number in tenths of °C		
1	Current relative humidity	R	Integer Number in tenths of %		
2	Not used				
3	Not used				
4	Not used				
5	Not used				
6	Not used				
7	Not used				
8	Firmware version	R			
9	Modbus Address	R			
10	Not used				
11	Not used				
12	Not used				
13	Not used				
14	Not used				
15	Offset temperature	R/W	Integer Number in tenths of °C (with sign in 2's complement)	0x0000	0
16	Offset humidity	R/W	Integer Number in tenths of °C (with sign in 2's complement)	0x0000	0

Values are returned as integer word, in 2's complement, in tenths of a degree.

Example

If there is a temperature reading (register 0) = 300 that means an ambient temperature = 30,0°C.

If there is a humidity reading (register 1) = 554 that means a relative humidity = 55,4 %.

If there is a temperature reading (register 0) = 65336 that means an ambiente temperature = -20°C (negative value in 2's complement).