

Guide
HygroMatic Modbus RTU
StandardLine

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1. General



This document is only valid in conjunction with the operating instructions for the control of the unit. Obey all safety notes for use of HygroMatik units. You will find the safety notes in chapter 2 of the user manual delivered with the unit.

Format: Big-Endian

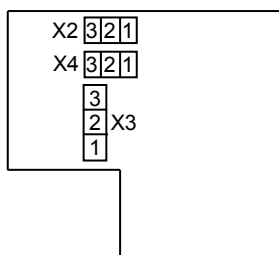
Baud rate:
Baud rate is fixed 19200

Settings of interface:
8-N-1; Data Bits: 8. Parity: None. Stop: 1

Change address of the PCB:
Menu -> Par -> Code 010 -> Chapter 5-- -> Parameter 5-6 (default 1)

2. Interface

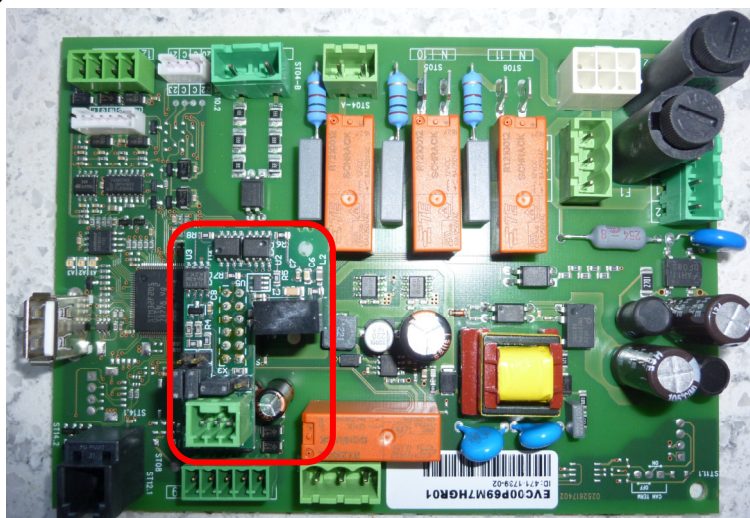
2.1. Interface EIA-485 E-2525174 (galvanically isolated)



Pin	X2	X3	X4
3			
2	Pull up 5V	120ohm	Pull down GND
1			

2.2. Plug for A.B and C E-2526102

Plug 3-core Phönix
FK-MC05/3-ST-2.5



3. Inputs

3.1. Function codes

3.1.1. (0x04) Read Input Registers

Request

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Function code 0x04	Starting address 0x0000 to 0xFFFF	Starting address 0x0000 to 0xFFFF	Quantity of inputs 1 to 0x007D	Quantity of inputs 1 to 0x007D

Response

Byte 1	Byte 2	Byte 3	Byte N
Function code 0x04	Byte count 2xN	Input register MSB	Input register LSB

N = Quantity of input registers

3.2. Address table inputs

Addr. Base 0	Addr. Base 1	Description	Value	Factor	Unit
0x0000	1	Main state of unit	0 – 255	1	state
0x0001	2	Error state of unit	0 – 999	1	error
0x0002	3	Error state of cylinder	0 – 999	1	error
0x0003	4	State of cylinder	0 – 999	1	state
0x0004	5	StandardLine not supported			
0x0005	6	Actual steam output	0 – 6553.5	10	[kg/h]
0x0006	7	StandardLine not supported			
0x0007	8	Actual external demand	0 – 100.0	10	[%]
0x0008	9	StandardLine not supported			
0x0009	10	StandardLine not supported			
0x000A	11	StandardLine not supported			
0x000B	12	StandardLine not supported			
0x000C	13	Actual internal demand	0 – 100.0	10	[%]
0x001D	30	Set point humidity	0 – 100.0	10	[%]
0x001E	31	Actual humidity	0 – 100.0	10	[%]
0x003B	60	SLE: Actual current	0 – 100.0	10	[A]
0x0046	71	SLH: Actual water level	0 – 255	1	[mm]

4. Holdings

4.1. Function codes

4.1.1. (0x03) Read Holding Registers

Request

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Function code 0x03	Starting address 0x0000 to 0xFFFF	Starting address 0x0000 to 0xFFFF	Quantity of registers 1 to 0x007D	Quantity of registers 1 to 0x007D

Response

Byte 1	Byte 2	Byte 3	Byte N
Function code 0x03	Byte count 2xN	Register value MSB	Register value LSB

N = Quantity of registers

4.1.2. (0x10) Write Multiple registers

Request

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Function code 0x10	Starting address 0x0000 to 0xFFFF	Starting address 0x0000 to 0xFFFF	Quantity of Outputs 1 to 0x007B	Quantity of outputs 1 to 0x007B

Byte 6	Byte 7	Byte N
Byte count 2xN	Register value MSB	Register value LSB

N = Quantity of Outputs / 8. if the remainder is different of 0 => **N** = **N**+1

Response

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Function code 0x10	Starting address 0x0000 to 0xFFFF	Starting address 0x0000 to 0xFFFF	Quantity of Outputs 1 to 0x007B	Quantity of outputs 1 to 0x007B

4.2. Address table holdings

Addr. Base 0	Addr. Base 1	Description	Value	Factor	Unit
0x031F	800	Maximum steam output of unit	25.0 – 100.0	10	[%]
0x0333	820	Humidity set for PI control	5.0 – 99.9	10	[%]
0x0334	821	StandardLine not supported			
0x0335	822	StandardLine not supported			
0x0336	823	KP of PI humidity controller	0.1 – 99.9	10	[%]
0x0337	824	KI of PI humidity controller	0 – 100	1	[%]
0x036A	875	Timeout value for Modbus	0 – 60	1	[sec]
0x04B2	1203	Virtually safety interlock, steam on/off	0 or 1		
0x04B6	1207	Demand via Modbus	0.0 – 100.0	10	[%]
0x04B7	1208	MODBUS time out counter	0 – 255	1	[sec]

4.2.1. Demand via Modbus

To control the StandardLine unit via Modbus the control signal parameter 1-2 has to be set to 8 = Modbus.

The demand must be cyclically written to the address 1207. Additionally the time out counter in address 1208 must be written to 0.

The time out count is counting seconds. If the time out counter is larger than address 875 the unit stops steam production. If the communication of the Modbus master is not working properly, this functionality will avoid humidification failures.

5. Units

5.1. State

For detailed description please have a look at the StandardLine documentation chapter 11.7.

Value	Description
00	Start-up
01	Stand-by
02	No demand
03	Humidification
05	Remote off
06	No Modbus
07	Stand-by heating interval
08	Stand-by heating pause
30	Filling
60	Initial blow down
61	Partial blow down
62	Full blow down
63	Dilution
64	Overcurrent blow down
65	Max level blow down
66	Stand-by blow down
67	Dead leg flushing
80	Partial blow down pending
81	Full blow down pending
90	Cylinder full
271	Service steam amount
272	Service main contactor K1 switching cycles
999	Fault

5.2. Error

For detailed description please have a look at the StandardLine documentation chapter 12.1.1.

Value	Description
000	No error
001	Sensor plug
024 / 025	Min. / max. reference for resistive control signal
029	System failure
030	Filling
061	Partial blow-down
062	Full blow-down
063	Dilution
064	Overcurrent blow-down
065	Max level blow down
066	Stand-by blow down
067	Start blow down
090	Cylinder full
091	Current measurement
092	Main contactor current
093	Main contactor cylinder full
120	Thermo switch
121	Water level sensor
122	Max level
123	Steam down time
124	Main contactor relay on PCB
210	R.h. sensor