1. FUTURA Modbus TCP Server

1.1 Decription

Document version: 5.0
Date: 13.10.2025
Device address: 1
TCP port: 502
Number of available sockets: 1
Compatible from firmware version Futura L/M/S: FUA.P.06.71
Compatible from firmware version Futura L^+: FLA.P.01.06

Important: The firmware implements data integrity protection for reading and writing Modbus TCP registers of composite data types such as uint32, int32, float32, and data arrays. Such registers must be read in a single operation using commands 4 (Input Registers) or 3 (Holding Registers), and written using command 16 (Write Multiple Holding Registers). Any attempt to read or write only part of such a register will result in an ILLEGAL_DATA_ADDRESS error.

1.2 Input registers

Adress Futura L/M/S	Adress Futura L^+	Description	Type	Units
0		**[fact_device_id]** Product identification, Futura always 39	uint16	
1-2		**[fact_serial_number]** Serial number of product (Globally unique ID)	uint32	
3-5	2-4	**[fact_ethernet_mac]** MAC address	uint16[3]	
6-7		**[fact_hw_revision]** Hardware revision of the device	uint32	
8-9	0-1	**[firm_revision]** Firmware revision of the current application image	uint32	
10-11		**[sys_build_number]** Firmware build number (obsolete)	uint32	
12-13		**[sys_regmap_version]** Version of register map.	uint32	
14		**[sys_options]** Device model (0-1=Futura L, 2=Futura M)	uint16	
15		**[fut_config]** Available features (see table bellow)	uint16	
16-17	6-7	**[fut_mode]** Operation modes (see table bellow)	uint32	
18-19	8-9	**[fut_error]** Errors (see table bellow)	uint32	
20-21	10-11	**[fut_warning]** Warnings (see table bellow)	uint32	
30	12	**[fut_temp_ambient]** Temperature of ambient air flow	int16	0.1°C
31	13	**[fut_temp_fresh]** Temperature of fresh air flow	int16	0.1°C
32	14	**[fut_temp_indoor]** Temperature of indoor air flow	int16	0.1°C
33	15	**[fut_temp_waste]** Temperature of waste air flow	int16	0.1°C
34	16	**[fut_humi_ambient]** Relative humidity of ambient air flow	int16	0.1%
35	17	**[fut_humi_fresh]** Relative humidity of fresh air flow	int16	0.1%
36	18	**[fut_humi_indoor]** Relative humidity of indoor air flow	int16	0.1%
37	19	**[fut_humi_waste]** Relative humidity of waste air flow	int16	0.1%
38	20	**[fut_t_out]** Temperature of NTC sensor, outdoor (-99 = diconnected)	int16	0.1°C

Adress Futura L/M/S	Adress Futura L+	Description	Type	Units
40	21	**[fut_filter_wear_level]** Level of filter wearing	uint16	%
41	22	**[fut_power_consumption]** Accumulated power consumption	uint16	W
42	23	**[fut_heat_recovering]** Heat recovering	uint16	W
43	24	**[fut_heating_power]** Internal heating power	uint16	W
44	25	**[fut_air_flow]** Sum of supply and exhaust air flow	uint16	m3/h
45		**[fut_fan_pwm_supply]** Supply fan power	uint16	%
46		**[fut_fan_pwm_exhaust]** Exhaust fan power	uint16	%
47		**[fut_fan_rpm_supply]** Supply fan RPM	uint16	rpm
48		**[fut_fan_rpm_exhaust]** Exhaust fan RPM	uint16	rpm
49		**[fut_uint1_voltage]** Universal input1 voltage	uint16	mV
50		**[fut_uint2_voltage]** Universal input2 voltage	uint16	mV
51		**[fut_dig_inputs]** Digital inputs (bit0 - user button, bit1 - fact button, bit2 - boost input, bit3 - uint1, bit4 – uint2)	uint16	
52		**[sys_battery_voltage]** Backup battery voltage	uint16	0.001mV
	26	**[fut_heat_cool_status]** Heating and cooling status (see table bellow)	uint16	
60-61		**[mbdev_stat_reads]** Modbus read count statistics	uint32	
62-63		**[mbdev_stat_writes]** Modbus write count statistics	uint32	
64-65		**[mbdev_stat_fails]** Modbus fail count statistics	uint32	
66		**[mbdev_connected_mk_ui]** Connected wall mounted controllers, bits 0-2	uint16	
67-68		**[mbdev_connected_mk_sens]** Connected wall mounted sensors, bits 0-7	uint32	
69		**[mbdev_connected_coolbreeze]** Connected CoolBreeze	uint16	0/1
70-71		**[mbdev_connected_valve_supply]** Connected valves (supply), bits 0-31	uint32	
72-73		**[mbdev_connected_valve_exhaust]** Connected valves (exhaust), bits 0-31	uint32	
74		**[mbdev_connected_button]** Connected buttons, bits 0-15	uint16	
75		**[mbdev_connected_alfa]** Connected UI ALFA, bits 0-15	uint16	
80		**[vzv_identify]** Supply and exhast zones identification (see table bellow)	uint16	

Adress Futura L/M/S	Adress Futura L+	Description	Type	Units
	100, 110, ..., 170	**[zone_co2]** Measured CO2 [1 - 8]	uint16	ppm
	101, 111, ..., 171	**[zone_temp]** Measured temperature [1 - 8]	int16	0.1°C
	102, 112, ..., 172	**[zone_humi]** Measured relative humidity [1 - 8]	uint16	0.1%
	103, 113, ..., 173	**[zone_ntc_temp]** Measured NTC sensor temperature [1 - 8]	uint16	0.1°C
100,105,110		**[ui_mb_address]** Wall mounted UI, Modbus address, 0=not connected [1 - 3]	uint16	
101,106,111		**[ui_options]** Wall mounted UI, Options, bit0 - disable CO2 eval., bit1 - disable temper. eval., bit2 - disable RH eval. [1 - 3]	uint16	
102,107,112		**[ui_co2]** Wall mounted UI, Measured CO2 [1 - 3]	uint16	ppm
103,108,113		**[ui_temp]** Wall mounted UI, Measured temperature [1 - 3]	int16	0.1°C
104,109,114		**[ui_humi]** Wall mounted UI, Measured relative humidity [1 - 3]	uint16	0.1%
115, 120, ..., 150		**[sens_mb_address]** Wall mounted sensor, Modbus address, 0=not connected [1 - 8]	uint16	
116, 121, ..., 151		**[sens_options]** Wall mounted sensor, Options, bit0 - disable CO2 eval., bit1 - disable temper. eval., bit2 - disable RH eval. [1 - 8]	uint16	
117, 122, ..., 152		**[sens_co2]** Wall mounted sensor, Measured CO2 [1 - 8]	uint16	ppm
118, 123, ..., 153		**[sens_temp]** Wall mounted sensor, Measured temperature [1 - 8]	int16	0.1°C
119, 124, ..., 154		**[sens_humi]** Wall mounted sensor, Measured relative humidity [1 - 8]	uint16	0.1%
160, 170, ..., 230		**[alfa_mb_address]** ALFA, Modbus address, 0=not connected [1 - 8]	uint16	
161, 171, ..., 231		**[alfa_options]** ALFA Options, bit0 - disable CO2 eval. [1 - 8]	uint16	
162, 172, ..., 232		**[alfa_co2]** ALFA Measured CO2 [1 - 8]	uint16	ppm
163, 173, ..., 233		**[alfa_temp]** ALFA Measured temperature [1 - 8]	int16	0.1°C
164, 174, ..., 234		**[alfa_humi]** ALFA, Measured relative humidity [1 - 8]	uint16	0.1%
165, 175, ..., 235		**[alfa_ntc_temp]** ALFA Measured NTC sensor temperature [1 - 8]	uint16	0.1°C

1.3 Holding registers

Adress Futura L/M/S	Adress Futura L+	Description	Type	Units
0	0	**[func_ventilation]** Current ventilation mode (0=Off, 1-5=manual, 6=Auto)	uint16	
1	1	**[func_boost_tm]** Boost function: read: remaining time, write: time 0 – 7200 s	uint16	s
2	2	**[func_circulation_tm]** Circulation function: read: remaining time, write: time 0 – 21600 s	uint16	s
3	3	**[func_overpressure_tm]** Overpressure function: read: remaining time, write: time 0 – 7200 s	uint16	s
4		**[func_night_tm]** Night function: read: remaining time, write: time 0 – 28800 s	uint16	s
5		**[func_party_tm]** Party function: read: remaining time, write: time 0 – 28800 s	uint16	s
6-7		**[func_away_begin]** Away - begin, unix timestamp, local time, 0=off	uint32	
8-9		**[func_away_end]** Away - end, unix timestamp, local time, 0=off	uint32	
10	4	**[cfg_temp_set]** Prefered temperature	uint16	0.1°C
11		**[cfg_humi_set]** Prefered humidity (dry=25, comfort=50, humid=75)	uint16	0.1%
12	5	**[func_time_prog]** Timeprog enable	uint16	0/1
13	6	**[func_antiradon]** Antiradon enable	uint16	0/1
14	7	**[cfg_bypass_enable]** Automatic bypass enable	uint16	0/1
15	8	**[cfg_heating_enable]** Heating enable	uint16	0/1
16	9	**[cfg_cooling_enable]** Cooling enable	uint16	0/1
17		**[cfg_comfort_enable]** Comfort heating enable (only if heating is enabled)	uint16	0/1
18	10	**[cfg_auto_circulation_enable]** Automatic circulation enable	uint16	0/1
20		**[vzv_cb_priority_control]** Zone auto control when Coolbreeze is on (0 = temperature, 1 = CO2)	uint16	0/1
21		**[vzv_kitchehood_normally_open]** Kitchen hood is normally (0 = closed, 1 = opened)	uint16	0/1
22		**[vzv_boost_volume_per_run]** Zone boost air volume increment per run: 50 - 150 m3/h (default 50 m3/h)	uint16	m3/h
23		**[vzv_kitchenhood_volume_per_run]** Kitchen hood air volume increment per run: 50- 150 m3/h (default 120 m3/h)	uint16	m3/h

Adress Futura L/M/S	Adress Futura L+	Description	Type	Units
100,105,110		**[ui_temp_corr]** Wall mounted UI, Temperature sensor correction [1 - 3]	int16	0.1°C
115, 120, ..., 150		**[se_temp_corr]** Wall mounted sensor, Temperature sensor correction [1 - 8]	int16	0.1°C
160, 165, ..., 195		**[alfa_temp_corr]** ALFA, Temperature sensor correction [1 - 8]	int16	0.1°C
162, 167, ..., 197		**[alfa_ntc_temp_corr]** ALFA, NTC temperature sensor correction [1 - 8]	int16	0.1°C
300, 310, ..., 370	100, 110, ..., 170	**[ext_sens_present]** External sensor present [1-8]	uint16	0/1
301, 311, ..., 371	101, 111, ..., 171	**[ext_sens_invalidate]** External sensor invalidate (see table bellow) [1-8]	uint16	
302, 312, ..., 372	102, 112, ..., 172	**[ext_sens_t]** External temperature value: -20 - 100 °C [1-8]	int16	0.1°C
303, 313, ..., 373	103, 113, ..., 173	**[ext_sens_rh]** External humidity value: 0 - 100 % [1-8]	uint16	%
304, 314, ..., 374	104, 114, ..., 174	**[ext_sens_co2]** External CO2 value: 0 - 10000 ppm [1-8]	uint16	ppm
305, 315, ..., 375	105, 115, ..., 175	**[ext_sens_t_floor]** External floor temperature value: -20 - 100°C [1-8]	int16	0.1°C
400, 410, ..., 470	200, 210, ..., 270	**[ext_btn_present]** External button present [1-8]	uint16	0/1
401, 411, ..., 471	201, 211, ..., 271	**[ext_btn_mode]** External button mode, 0 = boost, 1 = kitchen hood [1-8]	uint16	0/1
402, 412, ..., 472	202, 212, ..., 272	**[ext_btn_tm]** External button coutdown timer 0 - 10800 sec [1-8]	uint16	s
403, 413, ..., 473	203, 213, ..., 273	**[ext_btn_active]** External button activation (3 hours limited) [1-8]	uint16	0/1
900	900	**[access_code]** Code to get an access to service registers	uint16	
920	920	**[user_password]** User's password. Can be changed only when logged-in. By default it is 65535 (password disabled).	uint16	
922	922	**[password_timeout]** Login timeout. Can be changed only when logged-in. By default is 300s.	uint16	s

1.4 Meaning of the bits in system registers

fut_mode	
bit 0	Activated Boost
bit 1	Activated Circlation
bit 2	Activated Time-prog
bit 3	Activated Overpressure
bit 4	Activated Away
bit 5	Activated Party
bit 6	Activated Night
bit 7	Activated Antiradon
bit 8	Device is on (always 1)
bit 9	Activated Filter check
bit 10	Activated Drying
bit 11	Bypass is opened
bit 12	Too low temperature
bit 13	Shutdown due to an error
bit 14	Device is going to be started
bit 15	Service mode activated
bit 16	Waste temperature under -3°C (antiicing protection condition is met).
bit 17	Antiicing protection is active.
bit 18	Emergecy shutdown
bit 19	Duct system analyze
bit 20	Stand-by
bit 21	Zone boost
bit 22	Zone analyze
bit 23	Exchanger defrost

fut_error	
bit 0	Ambient sensor error
bit 1	Indoor sensor error
bit 2	Fresh sensor error
bit 3	Waste sensor error
bit 4	Supply fan error
bit 5	Exhaust fan error
bit 6	Exchanger communication error
bit 7	Exchanger position error
bit 8	IO board error
bit 9	Supply fan blocked
bit 10	Exhaust fan blocked
bit 11	Coolbreeze communication error
bit 12	Coolbreeze outdoor unit error
bit 13	Declared airflow not reached on supply
bit 14	Declared airflow not reached on exhaust
bit 15	CoolBreeze detected. Duct analysis required.
bit 16	VarioBreeze configuration changed. Duct analysis required.
bit 17	VarioBreeze configuration changed. Duct analysis required.
bit 18	Excessive humidity
bit 19	CoolBreeze temp sensor error
bit 20	Fan out of control
bit 21	Fresh temperature too low

fut_warning	
bit 0	Uninitialized filter
bit 1	Too dusty filter
bit 2	Too old filter
bit 3	Low backup battery
bit 4	Supply fan too high RPM
bit 5	Exhaust fan too high RPM
bit 8	Outdoor temperature is too low. Ventilation function is limited.
bit 9	Incorrect configuration of an supply ventilation zone
bit 10	Incorrect configuration of an exhaust ventilation zone
bit 11	Emergecy shutdown
bit 12	SuperBreeze communication error

fut_warning	
bit 13	General SuperBreeze error
bit 14	Power supply error
bit 15	VarioBreeze valve error
bit 16	Excessive humidity
bit 17	Perform regular service maintenance

fut_config	
bit 0	Internal heating supported
bit 1	Coolbreeze cooling available
bit 2	Coolbreeze heating available
bit 3	Bypass supported
bit 4	Variobreeze supported
bit 5	Circulation supported
bit 6	Coolbreeze supported
bit 7	Exchanger control supported

vzv_identify	
bit 0	Identify supply zone 1
bit 1	Identify supply zone 2
bit 2	Identify supply zone 3
bit 3	Identify supply zone 4
bit 4	Identify supply zone 5
bit 5	Identify supply zone 6
bit 6	Identify supply zone 7
bit 7	Identify supply zone 8
bit 8	Identify exhaust zone 1
bit 9	Identify exhaust zone 2
bit 10	Identify exhaust zone 3
bit 11	Identify exhaust zone 4
bit 12	Identify exhaust zone 5
bit 13	Identify exhaust zone 6
bit 14	Identify exhaust zone 7
bit 15	Identify exhaust zone 8

ext_sens_invalid	
bit 0	Invalid temperature value of the external sensor
bit 1	Invalid humidity value of the external sensor
bit 2	Invalid CO2 value of the external sensor
bit 3	Invalid floor temperature value of the external sensor

fut_heat_cool_status	
bit 0	Inner heating active
bit 1	CoolBreeze heating active
bit 2	CoolBreeze cooling active