Protocol for Acond Modbus TCP

Communication protocol ModbusTCP **Date:** 19.06.2023

Port 502 **Version:** xxx.41

Data encryption Big Endian

Communication mode HP - Slave, User - Master changes from the original version are in red

Adresss (ID) slave 1 Attention - ID=2 occupied for the implementation of the HP cascade

Contact the service department to activate ModbusTCP communication.

After the communication is activated, a link to the page with the received and sent data appears on the main page between the buttons for selecting the control type and mode. To start the communication, check the box in the dark blue bar next to ModbusTCP. A communication status of "ModbusTCP false" indicates that no data was received or sent at the time of MaxCommDataRefresh. In this case, the old received data is overwritten by the values from the sensors installed in the Acond HP. When communication is restored, the values from the sensors are overwritten with the current values received from the parent system (if sent).

The communication error is evaluated after each data exchange and is displayed only until the next successful exchange (then it is overwritten with the text "No error").

The HP behaves like a Slave, i.e. it is passive and expects queries from the Master. Modbus functions 6, 16 for writing and 3, 4 for reading are supported. Only one master system (Master) can access the HP at a time.

Input registers - Read data

Modbus Address	Data Type	Signal adjustment	Tag	Units	Type	Min	Max	Description	Comment
30001	Int	x10	T_set_indoor1	°C	R	100	300	Required room temperature circuit 1	
30002	Int	x10	T_act_indoor1	°C	R	0	500	Actual room temperature, circuit 1 - sensor	
30003	Int	x10	T_set_indoor2	°C	R	100	300	Required room temperature circuit 2	
30004	Int	x10	T_act_indoor2	°C	R	0	500	Actual room temperature, circuit 2 - sensor	

30005	Int	x10	T_set_TUV	°C	R	100	460	Required DHW temperature	
30006	Int	x10	T_act_TUV	°C	R	0	900	Actual DHW temperature - sensor	
30007	Word		TC_status	-	R	-	-	Bitwise - heat pump status	Bit 0 - HP on
									Bit 1 - HP operation
									Bit 2 - HP in failure
									Bit 3 - DHW heating is in progress
									Bit 4 - Circulation heating circuit 1
									Bit 5 - Circulation heating circuit 2
									Bit 6 - solar circulation
									Bit 7 - pool circulation
									Bit 8 - defrosting
									Bit 9 - auxiliary heating
									Bit 10 - summer operation
									Bit 11 - brine circulation
									Bit 12 - cooling operation
									Bit 13 - 15 reserve
30008	Int	x10	T_set_water_back	°C	R	200	600	Desired return temperature	
30009	Int	x10	T_act_water_back	°C	R	-100	900	Actual return temperature - sensor	
30010	Int	x10	T_act_air	°C	R	-500	500	Actual outdoor temperature - sensor	
30011	Int	x10	T_act_solar	°C	R	-500	3000	Solar panel temperature - sensor	
30012	Int	x10	T_act_pool	°C	R	0	500	Pool temperature - sensor	
30013	Int	x10	T_set_pool	°C	R	-	-	Desired pool temperature	
30014	Int		rezim_pan	-	R	-	-	HP mode	0 - automatic mode
									1 - heat pump only
									2 - Unused
									3 - only auxiliary heating

									4 - Off
									5 - manual mode
									6 - cooling mode
30015	Int		typ_reg_pan	-	R	-	-	type of regulation (method of heating water temperature calculation)	0 - AcondTherm
									1 - Equiterm
									2 - Manually
30016	Int	x10	T_solanka	°C	R	-300	500	Brine temperature at the collector outlet - sensor	
30017	Int		HeartBeat	-	R	0	255	Communication verification - counter	
30018	Int	x10	T_act_water_outlet	°C	R	-100	900	Actual outlet water temperature - sensor	
30019	Int	x10	T_set_water_outlet	°C	R	10	25	Required outlet water temperature - cooling	
30020	Int		Comp_rpm_max	rpm	R	0	7000	Maximum possible compressor speed*	
	Int		Comp_capacity_max	W	R	2000	20000	Maximum possible output *	
30021	Int		err_number	-	R	0	62	Basic fault dial	
30022	Int		err_number_SECMono	-	R	0	42	SECMono fault dial	
30023	Int		err_number_driver	-	R	0	39	Driver fault dial	
30024	Int		comp_rpm_actual	rpm	R	0	7000	Actual heat pump speed*	
	Int		comp_capacity_actual	W	R	0	20000	Actual heat pump output (heating/cooling) *	
30025	Int		actual PWM	%	R	0	100	Actual speed of the primary circulation pump	
30026	Int		manual PWM	-	R	0	1	Manual PWM input mode for primary circulation pump	

*Note - the PRO series shows the power, other series have only max. compressor speed

Holding registers - Write data

Modbus Address	Data Type		Tag	Units	Type	Min	Max	Description	Comment
40001	Int	x10	T_set_indoor1	°C	R/W	100	300	Required room temperature 1st circuit	
40002	Int	x10	T_act_indoor1	°C	R/W	0	500	Actual room temperature 1st circuit - sensor	if a value is sent out of range, the value from the Acond sensor is used
40003	Int	x10	T_set_indoor2	°C	R/W	100	300	Required room temperature 2nd circuit	
40004	Int	x10	T_act_indoor2	°C	R/W	0	500	Actual room temperature 2nd circuit - sensor	if a value is sent out of range, the value from the Acond sensor is used
40005	Int	x10	T_set_TUV	°C	R/W	100	460	Required DHW temperature	
40006	Word		TC_set	-	R/W	0	65535	Bitwise - HP settings (mode, acknowledgement)	Bit 0 - automatic mode
									Bit 1 - HP mode
									Bit 2 - auxiliary heating mode
									Bit 3 - off mode
									Bit 4 - cooling mode
									Bit 5 - fault acknowledgement
									Bit 6 - solar on
									Bit 7 - pool on
									Bit 8 - summer/winter switching

40007	Int		TC_set_reg	-	R/W	0	2	Dial - HP settings (regulation)	0 - AcondTherm 1 - Equiterm 2 - Manually
40008	Int	x10	T_set_water_back	°C	R/W	100	650	Required return temperature in manual mode	
40009	Int	x10	T_air	°C	R/W	-500	500	Outdoor temperature - sensor	if a value is sent out of range, the value from the Acond sensor is used
40010	Int	x10	T_act_solar	°C	R/W	-500	3000	Actual solar panel temperature - sensor	if a value is sent out of range, the value from the Acond sensor is used
40011	Int	x10	T_act_pool	°C	R/W	0	500	Actual pool temperature - sensor	if a value is sent out of range, the value from the Acond sensor is used
40012	Int	x10	T_set_pool	°C	R/W	100	500	Required temperature in the pool	If the value is out of range, it is ignored
40013	Int	x10	T_set_water_cool	°C	R/W	150	300	Required temperature at the outlet of the HP during cooling	If the value is out of range, it is ignored
40014	Int		Comp_rpm_max*	rpm	R/W	1800	6000	Max. possible compressor speed	If the value is out of range, it is ignored
	Int		Comp_capacity_max*	W	R/W	2000	20000	Required maximum possible output of the HP	If the value is out of range, it is ignored
40015	int		PWM	%	R/W	0	100	Current speed of the primary circulation pump	If the value is out of range, it is ignored

40016	int		manual PWM	-	R/W	0	1	Manual PWM input mode for the primary circulation pump	If you want to control the speed of the primary circulator, 1 must be entered in this register, otherwise the PLC takes over the control. If the value is out of range, it is ignored

*Note - the PRO series allows you to specify max. power, other series have only max. compressor speed