Protocol - Modbus TCP/RTU

Communication protocol	ModbusTCP		**Date:** 07.04.2026
Port	502		**Version:** AC781150_52_v4.3.3.25
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 - E. Heater Bit 10 - summer operation Bit 11 - brine circulation Bit 12 - cooling operation Bit 13 - SG1 Bit 14 - SG2 Bit 15 - enable SG ready via modbus
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		reserved	-	R	0	42	-	
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	
30027	Int		AEP	w	R	0	20000	Actual electrical power	
30028	Int		AHP	w	R	0	20000	Actual heating power	
30029	Int	x10	COP	-	R	0	999	Coefficient of Performance	
30030	Int	x10	T02_EH	°C	R	-500	1200	Actual outlet water temperature - E-Heater	
30031	Int	x10	manual_EH	-	R	0	1	Manual input for E-Heater	
30032	int		silent_mode	-	R	0	1	Silent mode activation	0 - deactive 1 - active
30033	int		silent_mode_start	min	R	0	1440	Silent mode activation time	0 - 00:00 390- 6:30 405 - 6:45 720 - 12:00 1110 - 18:30 1440 - 24:00

30034	Int		silent_mode_stop	min	R	0	1440	Silent mode deactivation time	0 - 00:00 390- 6:30 405 - 6:45 720 - 12:00 1110 - 18:30 1440 - 24:00
30035	DINT	x10	TES	kW	R	0		Thermal energy [kWh] - sum	
30037	DINT	x10	EES	kW	R	0		Electrical energy [kWh] - sum	
30039	int	x10	TED	kW	R	0	-	Thermal energy per day	the value resets after midnight
30040	int	x10	EED	kW	R	0	-	Electrical energy per day	the value resets after midnight
30041	int	x10	SCOP	-	R	0	999	Seasonal COP	
30042	int	x10	T_act_HP	°C	R	-900	3000	Condensing temperature	
30043	int	x10	T_act_LP	°C	R	-900	3000	Evaporating temperature	
30044	int		Thermal_Power	-	R	0	10	Thermal power of heatpump	1 - 12 kW 2 - 5 kW 6 - 20kW
30045	word		HP_component_status	-	R			Indicates the operational status of a component in the heat pump systém	Bit 0 – Compresor Bit 1 – Fan Bit 2 – Primary circ. pump Bit 3 – Reverse Valve
30046	int		Fan_Speed_Percent	%	R			Indicates the current fan speed as a percentage of its maximum rated speed	
30047	int		EEV_steps	%	R			Indicates the current position of the Electronic Expansion Valve	

30048	int	x10	T_act_suction	°C	R			Actual suction temperature - sensor	
30049	int	x10	T_act_discharge	°C	R			Actual discharge temperature - sensor	
30050	DINT		Compressor_hours	kW	R	0		Operating hours compressor	
30052	DINT		Compressor_min	kW	R	0		Operating min compressor	
30053	DINT		Fan_hours	kW	R	0		Operating hours fan	
30055	DINT		Fan_min	kW	R	0		Operating min fan	
30056	DINT		RV_hours	kW	R	0		Operating hours reverse ventil	
30058	DINT		RV_min	kW	R	0		Operating min reverse ventil	
30059	DINT		Pump_hours	kW	R	0		Operating hours primary pump	
30061	DINT		Pump_min	kW	R	0		Operating min primary pump	
30062	DINT		Bivalence1_hours	kW	R	0		Operating hours bivalence 1	
30064	DINT		Bivalence1_min	kW	R	0		Operating min Operating hours bivalence 1	
30065	DINT		Bivalence2_hours	kW	R	0		Operating hours bivalence 2	

30067	DINT		Bivalence2_min	kW	R	0		Operating min bivalence 2	
30068	INT		Reset_PLC	kW	R	0		RESET PLC	
30069	DINT	x10	Cooling_Energy	kW	R	0		Cooling Energy	
30071	DINT	x10	ECE	kW	R	0		Electrical cooling energy	
30073	int	x10	CED	kW	R	0	-	Coolingl energy per day	the value resets after midnight
30074	int	x10	EECD	kW	R	0	-	Electrical Cooling energy per day	the value resets after midnight
30075	DINT		CSC	-	R	0	-	Compressor switch counter	
30077	INT		SY68	-	R	0	2	Type of SG ready	0 - old way 1 - new german standard with 0 power consumption 2 - new german standard with IV26 max power kW consumption 3 - new german standard with IV27 max power % consumption
30078	INT	x10	IV26	kW		0	1000	Related to register 30077 - Max power consumption in kW	
30079	INT		IV27	%		0	100	Related to register 30077 - Max power consumption in %	

*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
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
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 Bit 13 - SG1 Bit 14 - SG2 Bit 15 - enable SG ready via modbus
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
40017	int		manual_EH	-	R/W	0	1	manual_EH input mode for the electric heater	0 - deactive
40018	int		silent_mode	-	R/W	0	1	Silent mode activation	0 - deactive 1 - active

40019	int		silent_mode_start	min	R/W	0	1440	Silent mode activation time	0 - 00:00 390- 6:30 405 - 6:45 720 - 12:00 1110 - 18:30 1440 - 24:00
40020	Int		silent_mode_stop	min	R/W	0	1440	Silent mode deactivation time	0 - 00:00
40021	int		Reset_PLC	-	R/W	0	1	Reseting PLC	This value always returns back to 0
40022	int		SY68	-	R/W	0	2	Type of SG ready	0 - old way 1 - new german standard with 0 power consumption 2 - new german standard with IV26 max power kW consumption 3 - new german standard with IV27 max power % consumption
40023	int	x10	IV26	kW	R/W	0	1000	Related to register 30077 - Max power consumption in kW	
40024	int		IV27	%	R/W	0	100	Related to register 30077 - Max power consumption in %	

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

Mdb Address	Basic Fault Dials			
	Value	Code	Description	relevance
30021	0	-	ok	-
	1	A16	FLOW THROUGH HEAT EXCHANGER LOW	Alarm
	2	A12	DEFROSTING TOO LONG	Alarm
	3	A01	HIGH PRESSURE	Alarm
	4	A02	LOW PRESSURE	Alarm
	5	A07	OUTLET TEMPERATURE LOW	Alarm
	6	A03	COMPRESSOR RUNNING FAULT	Alarm
	7	A05	SUCTION TEMPERATURE HIGH	Alarm
	8	-	reserved	-
	9	A13	TOO MANY DEFROSTS	Alarm
	10	A04	GROUND COLLECTOR TEMP. LOW	Alarm
	11	A10	FAN RUNNING FAULT	Alarm
	12	A14	SENSORS BLOCKED	Alarm
	13	A08	HEATING DHW TOO LONG	Alarm
	14	A09	DISCHARGE TEMPERATURE HIGH	Alarm
	15	W07	OUTLET TEMPERATURE LOW	Warning
	16	W01	ROOM TEMPERATURE LOW	Warning
	17	W02	RETURN WATER TEMPERATURE LOW	Warning
	18	W00	OUTLET WATER TEMPERATURE HIGH	Warning
	19	W04	RETURN WATER TEMPERATURE HIGH	Warning
	20	W05	SUCTION TEMPERATURE LOW	Warning
	21	W12	DEFROSTING TOO LONG	Warning
	22	W06	CONDENSING TEMPERATURE HIGH	Warning
	23	HW1	DRIVER HARDWARE FAULT	Alarm
	24	W09	IP ADDRESS IS NOT VALID	Warning
	25	SYS	Driver SYSTEM FAULT	Alarm
	26	W11	DHW SANITATION TOO LONG	Warning
	27	W16	EEV TOO OPEN	Warning

	28	SH1	SUPERHEAT LOW	Alarm
	29	CMP	driver COMPRESSOR FAULT	Alarm
	30	PFC	driver PFC FAULT	Alarm
	31	ELC	driver MICROELECTRONICS FAULT	Alarm
	32	-	reserved	-
	33	-	reserved	-
	34	-	reserved	-
	35	W08	MAX. NUMBER OF COMP. STARTS	Warning
	36	W17	EVAPORATING TEMPERATURE LOW	Warning
	37	-	reserved	-
	38	-	reserved	-
	39	-	reserved	-
	40	P05	ROOM TEMPERATURE SENSOR	Alarm
	41	P04	OUTDOOR TEMPERATURE SENSOR	Alarm
	42	P02	OUTLET WATER TEMPER. SENSOR	Alarm
	43	P06	DOMESTIC HOT WATER SENSOR	Alarm
30021	44	P03	SUCTION LINE TEMPER. SENSOR	Alarm
	45	P01	RETURN WATER TEMPER. SENSOR	Alarm
	46	P07	EVAPORATOR TEMPERATURE SENSOR	Alarm
	47	P09	ROOM 2 TEMPERATURE SENSOR	Alarm
	48	P08	SOLAR COLLECTOR TEMPER. SENSOR	Alarm
	49	P10	POOL TEMPERATURE SENSOR	Alarm
	50	PER	COMMUNICATION WITH PERIF.LOST	Alarm
	51	P11	MIXING VALVE TEMPERATURE SENSOR	Alarm
	52	P15	LOW PRESSURE SENSOR	Alarm
	53	P16	HIGH PRESSURE SENSOR	Alarm
	54	P13	DISCHARGE LINE TEMPER. SENSOR	Alarm
	55	P17	DOMESTIC HOT WATER SENSOR 2	Alarm
	56	A19	HEATING DHW TOO LONG 2	Alarm
	57	-	reserved	-
	58	-	reserved	-
	59	-	reserved	-
	60	A18	SUCTION TEMP. OR LP DURING DEFROST/COOLING LOW	Alarm

30021	61	A11	ERR COMMUNICATION WITH DRIVER	Alarm
	62	A15	IGBT OVERHEAT (DRIVER)	Alarm
	63	P99	BLOCKED - UNPAID	Alarm
	64	W00	STUCK RELAY	Warning
	65-89	-	reserved	-
	90	W10	TEMPERATURE OF STORAGE TANK LOW	Warning
	91	W14	SD CARD FAULT	Warning
	92	W13	TOO MANY RESTARTS OF PLC	Warning
	93	W15	BIG DIFFRENCE-RETURN AND DHW TEMPERATURE	Warning
	94	A17	LOW FLOW DURING DEFROST/COOLING	Alarm
	95	ST1	SOFT FAULT IN THE ENGINE ROOM	Alarm
	96	ST2	SERIOUS FAULT IN THE ENGINE ROOM	Alarm

Mdb Address	Driver Faults Dials		
	Value	Description	
30023	0	OK	
	1	comp. U current sensor fault	
	2	COMP. V CURRENT SENSOR FAULT	
	3	COMP. W CURRENT SENSOR FAULT	
	4	PFC CURRENT SENSOR FAULT	
	5	IPM TEMPERATURE SENSOR FAULT	
	6	PFC TEMPERATURE SENSOR FAULT	
	7	DLT TEMPERATURE SENSOR FAULT	
	8	COMMUNICATION LOST	
	9	EEPROM	
	10	AC OVERCURRENT	
	11	AC OVERVOLTAGE	
	12	AC UNDERVOLTAGE	
	13	DC OVERVOLTAGE	
	14	DC UNDERVOLTAGE	
	15	HP/LP SWITCH	
	16	INPUT LOSS OF PHASE FAULT	
	17	IPM OVERHEAT	
	18	IGBT OVERHEAT	
	19	COMPRESSOR CODE FAULT	
	20	COMPRESSOR HW OVERCURRENT	
	21	COMPRESSOR U PHASE OVERCURRENT	
	22	COMPRESSOR V PHASE OVERCURRENT	
	23	COMPRESSOR W PHASE OVERCURRENT	
	24	COMPRESSOR LOSS OF PHASE	
	25	COMPRESSOR LOST ROTOR	
	26	COMPRESSOR STARTUP FAILURE	
	27	n/a	
	28	COMPRESSOR OVERLOAD	
	29	COMPRESSOR DLT OVER TEMPERATURE	

30023	30	n/a	
	31	COMPRESSOR IPM DESAT. PROTECTION	
	32	COMPRESSOR LOST ROTOR 2	
	33	COMPRESSOR LOST ROTOR 3	
	34	PFC HW OVERCURRENT	
	35	PFC SW OVERCURRENT	
	36	PFC OVERVOLTAGE	
	37	A AD FAULT	
	38	A WRONG ADDRESSING	
	39	MODBUS VSS COMMUNICATION FAULT	