MEITAVTEC LTD, 16.03.2022

Modbus Object List **CTU4501 P2 H3 SUPER 2 1** (ID=19185302)

Applied microcontroller PIC18F46K22.
Modbus RTU Mode, Address Slave 1-247, Maximum Time Out for reply 200ms,
Baud rate 9600, 19200, 38400. Default = 9600. No parity, 8 bits, 1 stop.
CTU supports only one type of data - Holding registers, signed Integer 16 bit word.
Supported commands: 0x03 = Read Holding Registers
0x06 = Write Single Register
0x10 = Write Multiple Registers
0x2B = Read Device Identification (Basic = 0x01, Regular = 0x02)

Function 0x2B (Encapsulated Interface Transport)

MEI Type 0x0E (Read Device Identification)

Read Dev ID code 0x01 (request to get the Basic Device Identification)

ObjectId	Object Name / Description	Type	M/O	Category
0x00	VendorName	ASCII String	Mandatory	Basic
0x01	ProductCode	ASCII String	Mandatory	Basic
0x02	MajorMinorRevision	ASCII String	Mandatory	Basic

VendorName = " Meitav-Tec Ltd "

ProductCode = “19185302"

MajorMinorRevision = "V0.1”

Function 0x2B (Encapsulated Interface Transport)

MEI Type 0x0E (Read Device Identification)

Read Dev ID code 0x02 (request to get the Regular Device Identification)

ObjectId	Object Name / Description	Type	M/O	Category
0x03	VendorUrl	ASCII String	Optional	Regular
0x04	ProductName	ASCII String	Optional	Regular
0x05	ModelName	ASCII String	Optional	Regular
0x06	UserApplicationName	ASCII String	Optional	Regular

VendorUrl = “www.meitavtec.com”

ProductName = “CTU4501 P2 H3 SUPER 2 1”

ModelName = “19185302"

UserApplicationName = “Air Conditioning”

Reg	Addr	Name	Range, Value, Units	Default
1	0x000	T1_RoomTemperature	7...32°C	(R)***
2	0x001	T2_ChangeOverSensorTemperature	-40...89°C	(R)***
3	0x002	T3_IndoorCoilTemperature	-40...89°C	(R)***
4	0x003	AI1_HumiditySensor: CTU Humidity Sensor	0...100 %	(R)
5	0x004	AI2_Input	0...100%	(R)
6	0x005	AO1_HeatingOutput	0...10 V	(R) ***
7	0x006	AO2_CoolingOutput	0...10 V	(R) ***
8	0x007	SW2_1_TestOccupancySensor	0 - Off, 1 - On	(R)
9	0x008	SW22_HumidityFromCtu	0 - Off, 1 - On	(R)
10	0x009	SW2_3	0 - Off, 1 - On	(R)
11	0x00A	DI1: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
12	0x00B	DI2: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
13	0x00C	DI3: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
14	0x00D	DI4: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
15	0x00E	DI5: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
16	0x00F	DI6: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
17	0x010	DI7: 1-Close, 0-Open (if polarity=0)	0, 1	(R)
18	0x011	DI8_OccupancySensor 0-Close, 1-Open (if polarity=0).	0, 1	(R)
19	0x012	Cool1	0 - Off, 1 – On	0 – Off (R)
20	0x013	ON_INDICATION	0 - Off, 1 – On	0 - Off (R)
21	0x014	Fan_low	0 - Off, 1 – On	0 – Off (R)

Reg	Addr	Name	Range, Value, Units	Default
22	0x015	Fan_medium	0 - Off, 1 - On	0 – Off (R)
23	0x016	Fan_high	0 - Off, 1 - On	0 – Off (R)
24	0x017	Heat1	0 - Off, 1 - On	0 – Off (R)
25	0x018	Heat2	0 - Off, 1 - On	0 – Off (R)
26	0x019	Heat3	0 - Off, 1 - On	0 – Off (R)
27	0x01A	OnOff	0 - Off, 1 - On	0 – Off (RW)
28	0x01B	AutoFan	0 - Off, 1 - On	0 – Off (RW)
29	0x01C	Celsius	0 - °F (Fahrenheit); 1 – °C (Celsius)	1 – Celsius (R)
30	0x01D	UnOccupancy	0 - Off, 1 - Unoccupied	0 - Off (R)
31	0x01E	RestoreDefault	0 - Off, 1 - Restore	0 – Off (RW)
32	0x01F	ViewFloatValue	0 - Off, 1 - View	1-View (RW)
33	0x020	EnableOverrideInputOutput	0 - Disable, 1 - Enable	0–Disable(RW)
34	0x021	DisableOccupancySensor	0 - Off, 1 - Disable	0 – Off (RW)
35	0x022	HeatBinaryEnable	0-Off, 1-On	0 - Off (RW)
36	0x023	LockRoomModule	0 - Unlock, 1 - Lock	0–Unlock (RW)
37	0x024	LockRoomModuleMode	0 - Unlock, 1 – Lock	0–Unlock (RW)
38	0x025	LockRoomModuleSetPoint	0 - Unlock, 1 – Lock	0–Unlock (RW)
39	0x026	LockRoomModuleFanSpeed	0 - Unlock, 1 – Lock	0–Unlock (RW)
40	0x027	LockRoomModuleOnOff	0 - Unlock, 1 – Lock	0–Unlock (RW)

41	0x028	DI1_FlowSwitch_Polarity:
		if “1” – N. Open polarity of DI1, then
		DI1 open = 1 (5 VDC); DI1 short = 0 (0 VDC).
		If “0” – N. Close polarity of DI1, then
		DI1 open = 0 (5 VDC); DI1 short = 1 (0 VDC).
			0 - N.Close, 1- N.Open	0 (RW)

42	0x029	DI2_Polarity	0 - N.Open, 1 - N.Close	0 (RW)
43	0x02A	DI3_Polarity	0 - N.Open, 1 - N.Close	0 (RW)
44	0x02B	DI4_Polarity	0 - N.Open, 1 - N.Close	0 (RW)
45	0x02C	DI5_Polarity	0 - N.Open, 1 - N.Close	0 (RW)
46	0x02D	DI6_Polarity	0 - N.Open, 1 - N.Close	0 (RW)
47	0x02E	DI7_Polarity	0 - N.Open, 1 - N.Close	0 (RW)

48	0x02F	DI8_OccupancySensor_Polarity
		if “0” – N. Open polarity of DI1, then
		DI1 open = 1 (5 VDC); DI1 short = 0 (0 VDC).
		If “1” – N. Close polarity of DI1, then
		DI1 open = 0 (5 VDC); DI1 short = 1 (0 VDC).
			0 - N.Open, 1 - N.Close	0 (RW)

49	0x030	Mode	0 – Fan Only; 1 – Cool; 2 – Heat; 3 – Auto Change	1-Cool (RW)
50	0x031	FanSpeed	0 – Auto Speed; 1 – Low; 2 – Medium; 3 – High	1-Low (RW)

Reg	Addr	Name	Range, Value, Units	Default
51	0x032	SetPoint	10…30°C	22°C (RW)
52	0x033	HUMIDITY_SetPoint	0...100%	45% (RW)
53	0x034	HUMIDITY_RegulationRange	0...100%	5% (RW)
54	0x035	HUMIDITY_FromPanel	0...100%	0% (RW)
55	0x036	HUMIDITY_FromNetwork	0...100%	50% (RW)
56	0x037	HUMIDITY_MinimumValue	0...100%	20% (RW)
57	0x038	HUMIDITY_MaximumValue	0...100%	100% (RW)
58	0x039	HUMIDITY_EffectiveValue	0...100%	0% (RW)
59	0x03A	COOL_TS_SamplePeriod	1...300 sec	1 sec (RW)
60	0x03B	SetPointLimitCool	10…30°C	10°C (RW)
61	0x03C	SetPointLimitHeat	10…30°C	30°C (RW)
62	0x03D	DeadZoneForCool	0...5°C	1°C (RW)
63	0x03E	DeadZoneForHeat	0...5°C	1°C (RW)
64	0x03F	ReturnAirSensorCalibration	-6…6°C	0°C (RW)
65	0x040	RoomTemperatureEffective	7...32°C	(RW)
66	0x041	CoolFanOnDelay	0…300 sec	0 sec (RW)
67	0x042	CoolFanOffDelay	0…300 sec	0 sec (RW)
68*	0x043	**HeatFanOnDelay**	0…0 sec	0 sec (RW)
69	0x044	HeatFanOffDelay	0…300 sec	30 sec (RW)
70	0x045	TimeSwitchingToUnOccupiedMode	0…3600 sec	1200 sec (RW)
71	0x046	UnOccupancyModeSelect 0 – On/Off HVAC; 1 – Start/Stop HVAC; 2 – Not in use 3 – Economy	0…3	0-On/Off HVAC (RW)
72	0x047	PanelTimeChangeDisplay: 0 – Temperature indication only, 5 – 5 seconds humidity, 5 seconds temperature, 10 – Humidity indication only.	0…10 sec	5 sec (RW)
73	0x048	TimeDetectLostNetwork	0...3600 sec	600 sec (RW)
74	0x049	COOL_RTR_RegulationTemperatureRange	1...10°C	3°C (RW)
75	0x04A	COOL_KPC_ProportionalConstant	-32768...32767	10 (RW)
76	0x04B	COOL_KIC_IntegralConstant	-32768...32767	10 (RW)
77	0x04C	COOL_KDC_DerivativeConstant	-32768...32767	50 (RW)
78**	0x04D	COOL_Indication	0...100%	0% (RW)
79	0x04E	COOL_MinimumValue	0...100%	0% (RW)
80	0x04F	COOL_MaximumValue	0...100%	100% (RW)
81	0x050	HEAT_TS_SamplePeriod	1...300 sec	2 sec (RW)
82	0x051	HEAT_RTR_RegulationTemperatureRange	1...10°C	3°C (RW)
83	0x052	HEAT_KPC_ProportionalConstant	-32768...32767	10 (RW)
84	0x053	HEAT_KIC_IntegralConstant	-32768...32767	10 (RW)
85	0x054	HEAT_KDC_DerivativeConstant	-32768...32767	50 (RW)
86**	0x055	HEAT_Indication	0...100%	0% (RW)

Reg	Addr	Name	Range, Value, Units	Default
87	0x056	HEAT_MinimumValue	0...100%	0% (RW)
88	0x057	HEAT_MaximumValue	0...100%	100% (RW)
89	0x058	HEAT_EL_RegulationTemperatureRange	0...5°C	1°C (RW)
90	0x059	HEAT_ELECTRIC_Offset	0...10°C	1°C (RW)
91	0x05A	HEAT_ELECTRIC_TimeDelayOnNext	0...60 sec	1 sec (RW)
92	0x05B	COOL_RELAY_RegulationTemperatureRange	0...5°C	1°C (RW)
93	0x05C	COOL_RELAY_Offset_Stage	0...10°C	1°C (RW)

***-writable only if a value of the register33 ("EnableOverrideInputOutput") is 1.

Attention!

Writing to the registers 78** ("Cool Indication") and 86** ("Heat Indication") could be used only for commissioning purposes. When the commissioning operations finish, the technician must make Restore Default operation – write 1 to register 31 ("RestoreDefault").

Register 68* must be zero if used Heat On/Off electricals (Heat1,Heat2,Heat3)!

Registers 1…3* have range -32655…32655 during override. After the break of power all overridden registers return to values, measured by analog inputs.**

While register 32 ("ViewFloatValue") is "1", all the registers of units °C (temperature) are presented in format Integer (Real value * 10, Meitav-tec OEM "floating point" format).

Read value examples:

Register 1 "T1_RoomTemperature = 221" represents a real value = 22.1°C.

Register 51 "SetPoint = 150" represents a real value = 15.0°C.

Register 62 "DeadZoneForCool = 10" represents a value = 1 °C

Register 6 "AO1_HeatingOutput = 85" represents a value = 8.5 V

Write value examples:

To write 20°C to the "SetPoint", send "200" to the Register 51.

To write 25°C to the "SetPointLimitHeat", send "250" to the Register 61.

To write 1°C to the "DeadZoneForCool", send "10" to the Register 62.