Robotina d.o.o.
OIC Hrpelje 38
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Modbus protocol

BM-GW enables reading of all real-time data via the Modbus TCP/IP protocol. It is intended for the connection of 3rd party control applications (SCADA, BMS, ...) to the BTMS system. The Modbus TCP/IP server is accessible on the WAN (and also LAN) IP address, standard port 502.

UPS data

ui = UPS index (1-32)

var	Unit ID	address	type	scale	origin		description
ups_status	**ui**	0	int	-	IC	iot.ups.status	UPS status (0 = disabled, 1 = OK (all strings OK), 2 = ERR (at least one string error))
ups_voltage		1,2	long	0.01	IC	iot.ups.voltage	UPS voltage (average of strings voltages) [0.01 V]
ups_current		3,4	long	0.01	IC	iot.ups.current	UPS current (sum of string currents) [0.01 A]; + = charge, - = discharge
ups_soc		5	int	1	IC	iot.ups.soc	UPS state of charge (average of strings SOC) [%]

Strings data

si = string index (1-32)

var	unit ID	address	type	scale	origin		description
string_ups_id	100 + **si**	0	int	-	IC	iot.string.@inst.meta.ups_index	UPS id where the string is connected (1..32; 0=not connected/disabled)
string_status		1	int	-	IC	iot.string.status	String status (0 = disabled, 1 = OK, 2 = Error)
string_voltage		2,3	long	0.01	SS	modbus.uint.HR(1,0)	String voltage [0.01 V]
string_current		4,5	long	0.01	SS	modbus.int.HR(3,2)	String current [0.01 A]; + = charge, - = discharge
string_soc		6	int	1	SS	modbus.ushort.HR(4)	String state of charge [%]
string_balance		7	int	0.01	SS	modbus.ushort.HR(6)	String balancing state [0.01 %]
string_state		8	int	-	SS	modbus.ushort.HR(7)	0=floating charge, 1=equalizing charge, 2=discharge, 3=idle, 5=abnormal
string_alarm		9	int	-	SS	modbus.ushort.HR(13)	bit coded; b0=current hi (charging), b1=current lo (discharging), b2=voltage hi, b3=voltage lo, b4=SOC lo, b5=SOH lo, b6=hall disconnected
string_cell_count		10	int	1	SS	modbus.ushort.HR(10)	Number of string cells
string_ambient_temperature		11	int	0.1	MC	cybro.th_temperature[si]	String ambient temperature [0.1 °C]
string_ambient_humidity		12	int	0.1	MC	cybro.th_humidity[si]	String ambient relative humidity [0.1% RH]
string_relay_status		13	int		MC	cybro.lc_output[si]	String relay status (0=open, 1=closed)
string_aux_input_status		14	int		MC	cybro.lc_input[si]	String auxiliary input status (0=off, 1=on)

Cells data

si = string index (1..32); ci = cell index (1..120)

var	unit ID	address	type	scale	origin		description
cell_status	100 + **si**	100 * **ci** + 0	int	-	SS	modbus.ushort.HR(1300+ci-1)	Cell status (0=disabled, 1=OK, 2=error)
cell_voltage		100 * **ci** + 1	int	0.001	SS	modbus.ushort.HR(1600+ci-1)	Cell voltage [0.001 V]
cell_resistance		100 * **ci** + 2,3	long	0.001	SS	modbus.uint.HR(1901+(ci-1)*2,1900+(ci-1)*2)	Cell resistance [0.001 mΩ]
cell_temperature		100 * **ci** + 4	int	0.1	SS	modbus.short.HR(2500+ci-1)	Cell temperature [0.1 °C]
cell_soc		100 * **ci** + 5	int	1	SS	modbus.ushort.HR(2800+ci-1)	Cell state of charge [%]
cell_soh		100 * **ci** + 6	int	1	SS	modbus.ushort.HR(3100+ci-1)	Cell state of health [%]
cell_alarm		100 * **ci** + 7	int	-	SS	modbus.ushort.HR(3400+ci-1)	Cell alarm (bit coded): b0=voltage hi, b1=voltage lo, b2=resistance hi, b3=SOC lo, b4=SOH lo, b5=temperature hi
cell_remaining_time		100 * **ci** + 8	int	0.1	SS	modbus.ushort.HR(3700+ci-1)	Cell remaining time [0.1 h]

Legend

type	
bit	1 bit (0..1)
int	16 bit signed (-32768..32767)
long	32 bit signed (-2147483648..2147483647)
scale	
0.01	12345 ⇒ 123.45
origin	
IC	Internal calculation
SS	String Sensor
MC	Master Controller