



# String.Bloxx 124EM Registermapping Modbus

## 1 Related products

String.bloxx 124 EM 1000V

String.bloxx 124 EM 1500V

## 2 Protocol Description:

Protocol: Modbus RTU

Speed: 1200 -38.4K Baud (see Register 30210) default 19200

Format: 8n1, 8e1, 8o1 (see Register 30210) default 8n1

Byte Ordering: MSB

Word Ordering: LSB

Address Range 1-99 (0 Broadcast Address)

Maximum Frame Length: 128 Bytes

### Supported Function-Codes:

- 03: read register data (Single/Multiple Access)
- 04: read register data (Single/Multiple Access)
- 06: write to R/W register (Single Register Access)

Register Access: R = read only, R/W = read + write,

R/W+P = read + write + store permanently

## 3 Setup Modbus Address at the hardware device:



The modbus address can be set via the two turning-switches. The right switch sets the one`s, the left one sets the ten`s.

Example: 1 2 = 12

Range: 1 – 99

Address 0: are both switches set to zero, address 247 will be set automatically



## 4 Register-Mapping

Register	Datatype	Channel (description)	Values	Unit	R/W
30001	uint16	digital input 01 (main switch)	0,1 OFF,ON		R
30002	uint16	digital input 02 (1000VDC overvoltage protection)	0,1 NOK,OK		R
30005, 30006	float32	current 01	-4,50 ... +30,00	A	R
30007, 30008	float32	current 02	-4,50 ... +30,00	A	R
30009, 30010	float32	current 03	-4,50 ... +30,00	A	R
30011, 30012	float32	current 04	-4,50 ... +30,00	A	R
30013, 30014	float32	current 05	-4,50 ... +30,00	A	R
30015, 30016	float32	current 06	-4,50 ... +30,00	A	R
30017, 30018	float32	current 07	-4,50 ... +30,00	A	R
30019, 30020	float32	current 08	-4,50 ... +30,00	A	R
30021, 30022	float32	current 09	-4,50 ... +30,00	A	R
30023, 30024	float32	current 10	-4,50 ... +30,00	A	R
30025, 30026	float32	current 11	-4,50 ... +30,00	A	R
30027, 30028	float32	current 12	-4,50 ... +30,00	A	R
30029, 30030	float32	current 13	-4,50 ... +30,00	A	R
30031, 30032	float32	current 14	-4,50 ... +30,00	A	R
30033, 30034	float32	current 15	-4,50 ... +30,00	A	R
30035, 30036	float32	current 16	-4,50 ... +30,00	A	R
30037, 30038	float32	current 17	-4,50 ... +30,00	A	R
30039, 30040	float32	current 18	-4,50 ... +30,00	A	R
30041, 30042	float32	current 19	-4,50 ... +30,00	A	R
30043, 30044	float32	current 20	-4,50 ... +30,00	A	R
30045, 30046	float32	current 21	-4,50 ... +30,00	A	R
30047, 30048	float32	current 22	-4,50 ... +30,00	A	R
30049, 30050	float32	current 23	-4,50 ... +30,00	A	R
30051, 30052	float32	current 24	-4,50 ... +30,00	A	R
30053, 30054	float32	total current	-108,00 +720,00	A	R
30055, 30056	float32	voltage 01	0-1500,0	V	R
30057, 30058	float32	power		W	R
30059, 30060	float32	Internal temperature	-20,0 +100,0	°C	R
30061, 30062	float32	temperature 2	-	°C	R
30065, 30066	uint32	software version	0xBMMNN example: 0x1251.0100 V100.1251		R
30125, 30126	float32	Internal temperature	-20,0 +100,0	°C	
30127, 30128	float32	temperature 2	-	°C	
30201	uint16	device identification	2015 (see 5 Device Identifiers)		R
30203	uint16	serial-number Low	20667		R/W
30204	uint16	serial-number High	1		R/W
30206	uint16	modbus address	1-254		R/W
30209	uint16	response delay, [ms]	0 – 250ms		R/W P
30210	uint16	parity / baudrate, [bps]	values decimal: 0 – 5 -> 8n1 100 – 105 -> 8e1 200 – 205 -> 8o1 baudrates 0 100 200 = 1200, 1 101 201 = 2400, 2 102 202 = 4800,		R/W P



			3 103 203 = 9600, 4 104 204 = 19.2k, 5 105 205 = 38.4k, 6 106 206 = 57k, 7 107 207 = 115.2k,  4 = default		
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## 5 Device Identifiers

2005: string.bloxx 108  
 2006: string.bloxx 116  
 2007: string.bloxx 208  
 2008: string.bloxx 124  
 2009: string.bloxx AIO 24/12  
 2010: string.bloxx 116 E  
 2011: string.bloxx 116 E 1500V  
 2012: string.bloxx 124 E  
 2013: string.bloxx 124 E 1500V  
 2014: string.bloxx 124 EM  
 2015: string.bloxx 124 EM 1500V  
 2016: z.bloxx 406  
 2017: z.bloxx 407 Temperatur

2020: string.bloxx 116 EM  
 2021: string.bloxx 116 EM 1500V

## 6 High current measurement up to 50A

Using two inputs of the string.bloxx module allows for connection and measurement of high current PV strings (up to 50A). (Details described further down in this chapter "High current measurement up to 50A")

Register 30405 to 30428:

Register	Datatype	Channel (description)	Values	Unit	R/W
30405, 30406	float32	combined current IN1, IN2	-9 ... +60,00	A	R
30407, 30408	float32	combined current IN3, IN4	-9 ... +60,00	A	R
30409, 30410	float32	combined current IN5, IN6	-9 ... +60,00	A	R
30411, 30412	float32	combined current IN7, IN8	-9 ... +60,00	A	R
30413, 30414	float32	combined current IN9, IN10	-9 ... +60,00	A	R
30415, 30416	float32	combined current IN11, IN12	-9 ... +60,00	A	R
30417, 30418	float32	combined current IN13, IN14	-9 ... +60,00	A	R
30419, 30420	float32	combined current IN15, IN16	-9 ... +60,00	A	R
30421, 30422	float32	combined current IN17, IN18	-9 ... +60,00	A	R
30423, 30424	float32	combined current IN19, IN20	-9 ... +60,00	A	R
30425, 30426	float32	combined current IN21, IN22	-9 ... +60,00	A	R



30427, 30428	float32	combined current IN23, IN24	-9 ... +60,00	A	R
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The combined current register allows for high current PV-strings (up to 50A, up to 12 high current strings on the 124 EM version) to be measured. The input string is split onto two channels on the string.bloxx module. Each input is measured precisely and then two channels (IN1 and IN2, IN3 and IN4, ...) are added and stored in a separate "combined current" register to allow direct access to the current of the high current PV string. The data from this register can be used directly without further mathematical operations.

For better understanding see scheme below:

