Residual current monitoring device

RCM 202-AB

(From firmware V1.5.0)

Modbus address list



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1 Notes on this attachment to the user manual

This attachment to the RCM 202-AB user manual is intended exclusively for use by trained specialist personnel in the field of electrical engineering. It describes the Modbus connection of the RCM 202-AB.

It is essential the user manual of the RCM 202-AB is observed.

This system, like the user manual, is part of the product and refers in part to other devices from Janitza electronics GmbH.

2 Modbus

2.1 Modbus function (master)

The RCM 202-AB does not support master functions for Modbus.

2.2 Modbus function (slave)

The RCM 202-AB supports the following Modbus functions as a slave:

Function codes (FC)	Meaning
0x03 (03)	Read holding register
0x06 (06)	Write single register
0x10 (16)	Write multiple register
0x17 (23)	Read/write multiple registers

Tab. 1: Function codes

With the help of the exception codes it is possible to limit certain errors during the communication between the Modbus nodes and to stop them if necessary.

Exception codes	Meaning
0x01	Unauthorized function
0x02	Unauthorized data address
0x03	Unauthorized data value
0x04	Device error (slave)

Tab. 2: Exception codes

2.3 Transmission parameters

The RCM 202-AB supports the following transmission parameters:

Baud rate (baud)	9600, 19200, 38400, 57600 and 115200
Data bits	8
Parity	None
Internal stop bits	1

2.4 Byte order

The data in the Modbus address list can be retrieved in big-endian format (high byte before low byte).

The addresses described in this address list return the data in "big-endian" format.

2.5 Update rate

The Modbus register addresses are updated every 200 ms.

2.6 Number formats

Type	Size	Minimum	Maximum
char	8 bit	0	255
byte	8 bit	-128	127
short	16 bit	-2^{15}	$2^{15}-1$
int	32 bit	-2^{31}	$2^{31}-1$
uint	32 bit	0	$2^{32}-1$
long64	64 bit	-2^{63}	$2^{63}-1$
float	32 bit	IEEE 754	IEEE 754
double	64 bit	IEEE 754	IEEE 754

3 Address list

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Address	Register quantity	Type	Designation	Unit	Value range	Comment
700	1	short	Reset device			Function is triggered by writing the value 0x1357
701	2	uint	Time of day	UTC		
Firmware error codes						
703	1	short	Device faults			
704	1	short	Errors spi-flash			
705	1	short	Errors parameters			
706	1	short	Errors mutex			
Device identifier						
911	2	uint	Serial number			
913	1	short	Firmware version			LowByte: Minor version; HighByte: Major version
914	1	char	Hardware version			
915	1	char	Device type			51 - RCM 202-AB
Measured values						
1012	2	float	Current[0]	A	0 to 65.535	Total fault current AC DC 20kHz Type B+ Channel I1
1014	2	float	Current[1]	A		Total fault current AC DC 20kHz Type B+ Channel I2
1016	2	float	CurrentAC2k[0]	A		AC RMS value up to 2 kHz, type A Channel I1

Address	Register quantity	Type	Designation	Unit	Value range	Comment
1018	2	float	CurrentAC2k[1]	A		AC RMS value up to 2 kHz, type A Channel I2
1020	2	float	CurrentAC20k[0]	A	0 to 65.535	AC RMS value up to 20 kHz Channel I1
1022	2	float	CurrentAC20k[1]	A		AC RMS value up to 20 kHz Channel I2
1024	2	float	CurrentDC[0]	A		DC RMS value Channel I1
1026	2	float	CurrentDC[1]	A		DC RMS value Channel I2
1028	2	float	CurrentAC50[0]	A		AC RMS value 50Hz Channel I1
1030	2	float	CurrentAC50[1]	A		AC RMS value 50Hz Channel I2
1032	2	float	Current2k[0]	A		Total fault current AC DC 2kHz, type B Channel I1
1034	2	float	Current2k[1]	A		Total fault current AC DC 2kHz, type B Channel I2
1100	2	float	Crest factor[0]			
1102	2	float	Crest factor[1]			
1104	2	float	Total harmonic distortion[0]	A	0 to 65.535	
1106	2	float	Total harmonic distortion[1]	A		
1108	2	float	Value of harmonic[0][0]	A	0 to 65.535	1st harmonic Channel I1
1110	2	float	Value of harmonic[0][1]	A		1st harmonic Channel I2
1112	2	float	Value of harmonic[1][0]	A		2nd harmonic Channel I1
1114	2	float	Value of harmonic[1][1]	A		2nd harmonic Channel I2
1116	2	float	Value of harmonic[2][0]	A		3rd harmonic Channel I1
1118	2	float	Value of harmonic[2][1]	A		3rd harmonic Channel I2
1120	2	float	Value of harmonic[3][0]	A		4th harmonic Channel I1
1122	2	float	Value of harmonic[3][1]	A		4th harmonic Channel I2
1124	2	float	Value of harmonic[4][0]	A		5th harmonic Channel I1
1126	2	float	Value of harmonic[4][1]	A		5th harmonic Channel I2
1128	2	float	Value of harmonic[5][0]	A		6th harmonic Channel I1
1130	2	float	Value of harmonic[5][1]	A		6th harmonic Channel I2
1132	2	float	Value of harmonic[6][0]	A		7th harmonic Channel I1

Address	Register quantity	Type	Designation	Unit	Value range	Comment
1134	2	float	Value of harmonic[6][1]	A	0 to 65.535	7th harmonic Channel I2
1136	2	float	Value of harmonic[7][0]	A		8th harmonic Channel I1
1138	2	float	Value of harmonic[7][1]	A		8th harmonic Channel I2
1140	2	float	Value of harmonic[8][0]	A		9th harmonic Channel I1
1142	2	float	Value of harmonic[8][1]	A		9th harmonic Channel I2
1144	2	float	Value of harmonic[9][0]	A		10th harmonic Channel I1
1146	2	float	Value of harmonic[9][1]	A		10th harmonic Channel I2
1148	2	float	Value of harmonic[10][0]	A		11th harmonic Channel I1
1150	2	float	Value of harmonic[10][1]	A		11th harmonic Channel I2
1152	2	float	Value of harmonic[11][0]	A		12th harmonic Channel I1
1154	2	float	Value of harmonic[11][1]	A		12th harmonic Channel I2
1156	2	float	Value of harmonic[12][0]	A		13th harmonic Channel I1
1158	2	float	Value of harmonic[12][1]	A		13th harmonic Channel I2
1160	2	float	Value of harmonic[13][0]	A		14th harmonic Channel I1
1162	2	float	Value of harmonic[13][1]	A		14th harmonic Channel I2
1164	2	float	Value of harmonic[14][0]	A		15th harmonic Channel I1
1166	2	float	Value of harmonic[14][1]	A		15th harmonic Channel I2
1168	2	float	Value of harmonic[15][0]	A		16th harmonic Channel I1
1170	2	float	Value of harmonic[15][1]	A		16th harmonic Channel I2
1172	2	float	Value of harmonic[16][0]	A		17th harmonic Channel I1
1174	2	float	Value of harmonic[16][1]	A		17th harmonic Channel I2
1176	2	float	Value of harmonic[17][0]	A		18th harmonic Channel I1
1178	2	float	Value of harmonic[17][1]	A		18th harmonic Channel I2
1180	2	float	Value of harmonic[18][0]	A		19th harmonic Channel I1
1182	2	float	Value of harmonic[18][1]	A		19th harmonic Channel I2
1184	2	float	Value of harmonic[19][0]	A	0 to 65.535	20th harmonic Channel I1

Address	Register quantity	Type	Designation	Unit	Value range	Comment
1186	2	float	Value of harmonic[19][1]	A		20th harmonic Channel I2
1188	2	float	Value of harmonic[20][0]	A		21st harmonic Channel I1
1190	2	float	Value of harmonic[20][1]	A		21st harmonic Channel I2
1192	2	float	Value of harmonic[21][0]	A		22nd harmonic Channel I1
1194	2	float	Value of harmonic[21][1]	A		22nd harmonic Channel I2
1196	2	float	Value of harmonic[22][0]	A		23rd harmonic Channel I1
1198	2	float	Value of harmonic[22][1]	A		23rd harmonic Channel I2
1200	2	float	Value of harmonic[23][0]	A		24th harmonic Channel I1
1202	2	float	Value of harmonic[23][1]	A		24th harmonic Channel I2
1204	2	float	Value of harmonic[24][0]	A		25th harmonic Channel I1
1206	2	float	Value of harmonic[24][1]	A		25th harmonic Channel I2
1208	2	float	Value of harmonic[25][0]	A		26th harmonic Channel I1
1210	2	float	Value of harmonic[25][1]	A		26th harmonic Channel I2
1212	2	float	Value of harmonic[26][0]	A		27th harmonic Channel I1
1214	2	float	Value of harmonic[26][1]	A		27th harmonic Channel I2
1216	2	float	Value of harmonic[27][0]	A		28th harmonic Channel I1
1218	2	float	Value of harmonic[27][1]	A		28th harmonic Channel I2
1220	2	float	Value of harmonic[28][0]	A		29th harmonic Channel I1
1222	2	float	Value of harmonic[28][1]	A		29th harmonic Channel I2
1224	2	float	Value of harmonic[29][0]	A		30th harmonic Channel I1
1226	2	float	Value of harmonic[29][1]	A		30th harmonic Channel I2
1228	2	float	Value of harmonic[30][0]	A		31st harmonic Channel I1
1230	2	float	Value of harmonic[30][1]	A		31st harmonic Channel I2
1232	2	float	Value of harmonic[31][0]	A		32nd harmonic Channel I1
1234	2	float	Value of harmonic[31][1]	A	0 to 65.535	32nd harmonic Channel I2
1236	2	float	Value of harmonic[32][0]	A		33rd harmonic Channel I1

Address	Register quantity	Type	Designation	Unit	Value range	Comment
1238	2	float	Value of harmonic[32][1]	A		33rd harmonic Channel I2
1240	2	float	Value of harmonic[33][0]	A		34th harmonic Channel I1
1242	2	float	Value of harmonic[33][1]	A		34th harmonic Channel I2
1244	2	float	Value of harmonic[34][0]	A		35th harmonic Channel I1
1246	2	float	Value of harmonic[34][1]	A		35th harmonic Channel I2
1248	2	float	Value of harmonic[35][0]	A		36th harmonic Channel I1
1250	2	float	Value of harmonic[35][1]	A		36th harmonic Channel I2
1252	2	float	Value of harmonic[36][0]	A		37th harmonic Channel I1
1254	2	float	Value of harmonic[36][1]	A		37th harmonic Channel I2
1256	2	float	Value of harmonic[37][0]	A		38th harmonic Channel I1
1258	2	float	Value of harmonic[37][1]	A		38th harmonic Channel I2
1260	2	float	Value of harmonic[38][0]	A		39th harmonic Channel I1
1262	2	float	Value of harmonic[38][1]	A		39th harmonic Channel I2
1264	2	float	Value of harmonic[39][0]	A		40th harmonic Channel I1
1266	2	float	Value of harmonic[39][1]	A		40th harmonic Channel I2
1268	2	float	Value of harmonic[40][0]	A		41st harmonic Channel I1
1270	2	float	Value of harmonic[40][1]	A		41st harmonic Channel I2

Address	Register quantity	Type	Designation	Unit	Value range	Comment
1400	2	float	Current Value3k[0]	A	0 to 65.535	RMS value of current with 3kHz, channel I1
1402	2	float	Current Value3k[1]	A		RMS value of current with 3kHz, channel I2
1404	2	float	Current Value4k[0]	A		RMS value of current with 4kHz, channel I1
1406	2	float	Current Value4k[1]	A		RMS value of current with 4kHz, channel I2
1408	2	float	Current Value5k[0]	A	0 to 65.535	RMS value of current with 5kHz, channel I1
1410	2	float	Current Value5k[1]	A		RMS value of current with 5kHz, channel I2
1412	2	float	Current Value6k[0]	A		RMS value of current with 6kHz, channel I1
1414	2	float	Current Value6k[1]	A		RMS value of current with 6kHz, channel I2
1416	2	float	Current Value7k[0]	A		RMS value of current with 7kHz, channel I1
1418	2	float	Current Value7k[1]	A		RMS value of current with 7kHz, channel I2
1420	2	float	Current Value8k[0]	A		RMS value of current with 8kHz, channel I1
1422	2	float	Current Value8k[1]	A		RMS value of current with 8kHz, channel I2
1424	2	float	Current Value9k[0]	A		RMS value of current with 9kHz, channel I1
1426	2	float	Current Value9k[1]	A		RMS value of current with 9kHz, channel I2
1428	2	float	Current Value10k[0]	A		RMS value of current with 10kHz, channel I1
1430	2	float	Current Value10k[1]	A		RMS value of current with 10kHz, channel I2
1432	2	float	Current Value11k[0]	A		RMS value of current with 11kHz, channel I1
1434	2	float	Current Value11k[1]	A		RMS value of current with 11kHz, channel I2
1436	2	float	Current Value12k[0]	A		RMS value of current with 12kHz, channel I1
1438	2	float	Current Value12k[1]	A		RMS value of current with 12kHz, channel I2
1440	2	float	Current Value13k[0]	A		RMS value of current with 13kHz, channel I1
1442	2	float	Current Value13k[1]	A		RMS value of current with 13kHz, channel I2
1444	2	float	Current Value14k[0]	A		RMS value of current with 14kHz, channel I1
1446	2	float	Current Value14k[1]	A		RMS value of current with 14kHz, channel I2
1448	2	float	Current Value15k[0]	A		RMS value of current with 15kHz, channel I1

Address	Register quantity	Type	Designation	Unit	Value range	Comment
1450	2	float	Current Value15k[1]	A	0 to 65.535	RMS value of current with 15kHz, channel I2
1452	2	float	Current Value16k[0]	A		RMS value of current with 16kHz, channel I1
1454	2	float	Current Value16k[1]	A		RMS value of current with 16kHz, channel I2
1456	2	float	Current Value17k[0]	A		RMS value of current with 17kHz, channel I1
1458	2	float	Current Value17k[1]	A		RMS value of current with 17kHz, channel I2
1460	2	float	Current Value18k[0]	A		RMS value of current with 18kHz, channel I1
1462	2	float	Current Value18k[1]	A		RMS value of current with 18kHz, channel I2
1464	2	float	Current Value19k[0]	A		RMS value of current with 19kHz, channel I1
1466	2	float	Current Value19k[1]	A		RMS value of current with 19kHz, channel I2
1468	2	float	Current Value20k[0]	A		RMS value of current with 20kHz, channel I1
1470	2	float	Current Value20k[1]	A		RMS value of current with 20kHz, channel I2
Extreme value memory for currents						
2000	2	float	Minimum current[0]	A	0 to 65.535	
2002	2	float	Minimum current[1]	A		
2004	2	float	Minimum currentAC2k[0]	A		
2006	2	float	Minimum currentAC2k[1]	A		
2008	2	float	Minimum currentAC20k[0]	A		
2010	2	float	Minimum currentAC20k[1]	A	0 to 65.535	
2012	2	float	Minimum currentDC[0]	A		
2014	2	float	Minimum currentDC[1]	A		
2016	2	float	Minimum currentAC50[0]	A		
2018	2	float	Minimum currentAC50[1]	A		
2020	2	float	Minimum current2k[0]	A		
2022	2	float	Minimum current2k[1]	A		

Address	Register quantity	Type	Designation	Unit	Value range	Comment
2040	2	float	Maximum current[0]	A	0 to 65.535	
2042	2	float	Maximum current[1]	A		
2044	2	float	Maximum currentAC2k[0]	A		
2046	2	float	Maximum currentAC2k[1]	A		
2048	2	float	Maximum currentAC20k[0]	A		
2050	2	float	Maximum currentAC20k[1]	A		
2052	2	float	Maximum currentDC[0]	A		
2054	2	float	Maximum currentDC[1]	A		
2056	2	float	Maximum currentAC50[0]	A		
2058	2	float	Maximum currentAC50[1]	A		
2060	2	float	Maximum current2k[0]	A		
2062	2	float	Maximum current2k[1]	A		
2080	2	uint	Minimum current timestamp[0]	UTC		
2082	2	uint	Minimum current timestamp[1]	UTC		
2084	2	uint	Minimum currentAC2k timestamp[0]	UTC		
2086	2	uint	Minimum currentAC2k timestamp[1]	UTC		
2088	2	uint	Minimum currentAC20k timestamp[0]	UTC		
2090	2	uint	Minimum currentAC20k timestamp[1]	UTC		
2092	2	uint	Minimum currentDC timestamp[0]	UTC		
2094	2	uint	Minimum currentDC timestamp[1]	UTC		

Address	Register quantity	Type	Designation	Unit	Value range	Comment
2096	2	uint	Minimum currentAC50 timestamp[0]	UTC		
2098	2	uint	Minimum currentAC50 timestamp[1]	UTC		
2100	2	uint	Minimum current2k timestamp[0]	UTC		
2102	2	uint	Minimum current2k timestamp[1]	UTC		
2120	2	uint	Maximum current timestamp[0]	UTC		
2122	2	uint	Maximum current timestamp[1]	UTC		
2124	2	uint	Maximum currentAC2k timestamp[0]	UTC		
2126	2	uint	Maximum currentAC2k timestamp[1]	UTC		
2128	2	uint	Maximum currentAC20k timestamp[0]	UTC		
2130	2	uint	Maximum currentAC20k timestamp[1]	UTC		
2132	2	uint	Maximum currentDC timestamp[0]	UTC		
2134	2	uint	Maximum currentDC timestamp[1]	UTC		
2136	2	uint	Maximum currentAC50 timestamp[0]	UTC		
2138	2	uint	Maximum currentAC50 timestamp[1]	UTC		
2140	2	uint	Maximum current2k timestamp[0]	UTC		
2142	2	uint	Maximum current2k timestamp[1]	UTC		
2160	1	short	Reset minimum and maximum current [0]			Function is triggered by writing the value 0x1357
2161	1	short	Reset minimum and maximum current[1]			Function is triggered by writing the value 0x1357

Address	Register quantity	Type	Designation	Unit	Value range	Comment
Limit value monitoring status of the current channels						
2180	1	short	Flags current warnings[0]	Bit field		Bit0: Current, Bit1: CurrentAC2k, Bit2: CurrentAC20k, Bit3: CurrentDC, Bit4: CurrentAC50 Bit4: Current2k
2181	1	short	Flags current warnings[1]	Bit field		
2182	1	short	Flags current faults[0]	Bit field		
2183	1	short	Flags current faults[1]	Bit field		
2184	1	short	Flags overdrive faults	Bit field		Bit0: Current channel I1, Bit1: Current channel I2
2185	1	short	Flags current transformer faults	Bit field		
2186	1	short	Flags amplifier faults	Bit field		
2187	1	short	Reset limit messages	Bit field		Function is triggered by writing the value 0x1357
Settings of the measuring and monitoring functions						
3000	1	short	Save settings			Transfer setting to non-volatile memory; function is triggered by writing the value 0x1357
3001	1	short	Reset settings			Reset setting to delivery condition; function is triggered by writing the value 0x1357
3022	1	short	Current transformer[0]			Transformer type: 0: DW18, 1: CT-AC RCM 35N (IME TDGB2), 2: CT-AC RCM 80N (IME TDGC2), 3: CT-AC RCM 110N (IME TDGD2), 4: CT-AC RCM 140N (IME TDGE2), 5: CT-AC RCM 210N (IME TDGF2), 6: MBS KBU23D 7: MBS KBU58D 8: MBS KBU812D 9: DACT20 10: CT-AC RCM A110N, 11: CT-AC RCM A150N, 12: CT-AC RCM A310N 13: Bender W1-S35 (from FW V1.0.3) 14: Bender W3-S105 (from FW V1.3.1) 15: Bender W4-S140 (from FW V1.3.1) 16: Socomec ΔIC200 (from FW V1.4.0) 17: ABB TR4 (from FW V1.5.0) 18: DACT35 (from FW V1.5.0) 19: DACT60 (from FW V1.5.0) 20: DACT120 (from FW V1.5.0) 250: Transformer parameters analyzed (Reading only, from FW 1.4.0) 251: Transformer parameters over GridVis (Reading only, from FW 1.4.0)
3023	1	short	Current transformer[1]			
3100	1	short	Trigger delay[0]	10 ms	0…10000 ms	Limit value monitoring response delay
3101	1	short	Trigger delay[1]	10 ms	0…10000 ms	

Address	Register quantity	Type	Designation	Unit	Value range	Comment
3120	2	float	Current warning level[0]	A	0,02...20,00	
3122	2	float	Current warning level[1]	A	0,02...20,00	
3124	2	float	CurrentAC2k warning level[0]	A	0,02...20,00	
3126	2	float	CurrentAC2k warning level[1]	A	0,02...20,00	
3128	2	float	CurrentAC20k warning level[0]	A	0,02...20,00	
3130	2	float	CurrentAC20k warning level[1]	A	0,02...20,00	
3132	2	float	CurrentDC warning level[0]	A	0,02...20,00	
3134	2	float	CurrentDC warning level[1]	A	0,02...20,00	
3136	2	float	CurrentAC50 warning level[0]	A	0,02...20,00	
3138	2	float	CurrentAC50 warning level[1]	A	0,02...20,00	
3140	2	float	Current fault level[0]	A	0,02...20,00	
3142	2	float	Current fault level[1]	A	0,02...20,00	
3144	2	float	CurrentAC2k fault level[0]	A	0,02...20,00	
3146	2	float	CurrentAC2k fault level[1]	A	0,02...20,00	
3148	2	float	CurrentAC20k fault level[0]	A	0,02...20,00	
3150	2	float	CurrentAC20k fault level[1]	A	0,02...20,00	
3152	2	float	CurrentDC fault level[0]	A	0,02...20,00	
3154	2	float	CurrentDC fault level[1]	A	0,02...20,00	
3156	2	float	CurrentAC50 fault level[0]	A	0,02...20,00	
3158	2	float	CurrentAC50 fault level[1]	A	0,02...20,00	
3160	2	float	Current2k warning level[0]	A	0,02...20,00	
3162	2	float	Current2k warning level[1]	A	0,02...20,00	
3164	2	float	Current2k fault level[0]	A	0,02...20,00	
3166	2	float	Current2k fault level[1]	A	0,02...20,00	
3200	2	float	Hysteresis[0]	A	0,00...1,00	
3202	2	float	Hysteresis[1]	A	0,00...1,00	
3240	1	short	Release delay[0]	10 ms	0…10000 ms	
3241	1	short	Release delay[1]	10 ms	0…10000 ms	

Address	Register quantity	Type	Designation	Unit	Value range	Comment
3340	1	char	Channel control flags[0]	Bit field		Bit0: Channel active, Bit1: Transformer connection monitoring on, Bit2: not used, Bit3: Automatic reset of the limit value message off, Bit4: not used, Bit5: not used
3341	1	char	Channel control flags[1]	Bit field		
3387	1	char	Power frequency	Hz	45 to 60	Mains frequency
3388	1	short	Eff1Min			Noise threshold
Testing the RCM function						
3700	2	uint	Timestamp of last check	UTC		Timestamp of last check
3702	1	short	Check interval	months	0 (for OFF), 1, 3, 6, 12	Inspection interval in months
Communication settings						
3800	1	char	Modbus slave address		1 to 247	
3801	2	uint	Modbus baud rate	baud	9600, 19200, 38400, 57600, 115200	
3810	1	short	Digital Output1: current faults and errors of channel 1 to sum	Bit field		Bit0: Current, Bit1: CurrentAC2k, Bit2: CurrentAC20k, Bit3: CurrentDC, Bit4: CurrentAC50 Bit5: Current2k Bit6: OverdriveErr Bit7: TrafoErr Bit8: AmplifierErr
3811	1	short	Digital Output1: current faults and errors of channel 2 to sum	Bit field		
3812	1	short	Digital Output2: current faults and errors of channel 1 to sum	Bit field		
3813	1	short	Digital Output2: current faults and errors of channel 2 to sum	Bit field		
3814	1	short	Digital Output1: current warnings of channel 1 to sum	Bit field		Bit0: Current, Bit1: CurrentAC2k, Bit2: CurrentAC20k, Bit3: CurrentDC, Bit4: CurrentAC50 Bit5: Current2k
3815	1	short	Digital Output1: current warnings of channel 2 to sum	Bit field		
3816	1	short	Digital Output2: current warnings of channel 1 to sum	Bit field		
3817	1	short	Digital Output2: current warnings of channel 2 to sum	Bit field		

Address	Register quantity	Type	Designation	Unit	Value range	Comment
3818	1	short	Digital Output1: External control			to control the digital output 1 (1 - activates/switches the output, 0 - deactivates/off)
3819	1	short	Digital Output2: External control			to control the digital output 2 (1 - activates/switches the output, 0 - deactivates/off)
3820	1	short	Analog Output1: current conversion factor		5000, 10000, 15000, 20000	Scaling factor of the total current I1 to the 4 to 20mA output (default value 20000 for measuring range 0 to 20A)
3821	1	short	Analog Output2: current conversion factor		5000, 10000, 15000, 20000	Scaling factor of the total current I2 to the 4 to 20mA output (default value 20000 for measuring range 0 to 20A)
3822	1	short	Digital Output1/2: Inverted mode			Bit field: Bit0 - Digital Output 1 Bit1 - Digital Output 2 1 - inverted output (normally closed principle) / 0 - normal output (normally open)
3840	1	short	Digital Output1: State			Status digital output 1 (read only)
3841	1	short	Digital Output2: State			Status digital output 2 (read only)
Freely usable comment strings						
5000	1	short	Length of string[0]		0 to 63	Length of string 1; calculated by the device
5001	1	short	Length of string[1]			
5002	1	short	Length of string[2]			
5003	1	short	Length of string[3]			
5004	1	short	Length of string[4]		0 to 63	
5005	1	short	Length of string[5]			
5006	1	short	Length of string[6]			
5007	1	short	Length of string[7]			
5008	1	short	Length of string[8]			
5009	1	short	Length of string[9]			
5100-5131	32	short	String 1			zero terminated

Address	Register quantity	Type	Designation	Unit	Value range	Comment
5132-5163	32	short	String 2			
5164-5195	32	short	String 3			
5196-5227	32	short	String 4			
5228-5259	32	short	String 5			
5260-5291	32	short	String 6			
5292-5323	32	short	String 7			
5324-5355	32	short	String 8			
5356-5387	32	short	String 9			
5388-5419	32	short	String 10			
Measured value memory						
6000	1	char	Record: flags			Bit0: cyclic memory active
6001	2	uint	Record: interval	seconds	60, 300, 600, 900, 1800, 3600	Measuring interval in seconds
6003	1	short	Record: synchronize			write 0x1357 to execute function
6004	1	short	Record: erase memory			write 0x1357 to execute function
6005	1	short	Record: data type			not used
6006	2	uint	Record: start time	UTC		
6008	2	uint	Record: nextbyte			Reading address
6010	2	uint	Record: return value			Return value or next read address
6012-6027	16	short	Record: data			Measured value data set to read address
Firmware update						
9900	2	uint	Firmware update: code size			
9902	2	uint	Firmware update: operation result			
9904	2	uint	Firmware update: segment address			
9906-10029	124	short	Firmware update: segment[0]... segment[123]			

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