

1. SERIAL COMMUNICATION

1.1 COMMUNICATION INTERFACE

The optional serial interface RS485 allows to address up to 247 controllers in a network communicating remotely with a host computer or master controller.

Interface RS485

- compatible line signals with RS485 standard
- 2 wire connexion from master to up to 31 slaves indicators in a multidrop bus. It is possible address 247 nodes with multiple outputs converters.
- Maximum communication distance: 1000 meters
- The RS485 signals are:
 - D: Bidirectional data line.
 - \bar{D} : Bidirectional inverted data line.
 - GND: Optional connexion which left communication better.

General Characteristics

- Optically isolated serial interface
- Programmable baud rate: 1200, 2400, 4800, 9600 or 19200bps.
- Data Bits: 8
- Parity: Nenhuma
- Stop Bits: 1

Communication Protocol

The MOSBUS RTU slave is implemented, available in more SCADA softwares in the market.

All configurable parameters can be accessed (readed or writed) through the Registers Table. Broadcast commands are supported as well (address 0).

The available Modbus commands are:

03 - Read Holding Register

05 - Force Single Coil (Force Digital Output state)

06 - Preset Single Register

The registers are arranged in a table in such a way that several registers can be read in the same request.

1.2 CONFIGURATION OF SERIAL COMMUNICATION PARAMETERS

Two parameters must be configured in the device for serial communication:

bRud: Baud rate. All devices with same baud rate.

Addr: Device communication address. Each device must have an exclusive address.

1.3 REGISTERS TABLE

Equivalent to the registers referência 4XXXX.

The holding registers are basically a list of the internal indicator parameters. All registers above address 12 can be writed and readed. The registers up to this address in more are read only. Please verify each case. Each table parameter is a 16 bits two complement signed word.

Holding Registers	Parameter	Register Description
0001	Active SV	Read: Active control SV (main SV, from r&S or from remote SV). Write: to main SV Range: from SPLL to SPHL .
0002	PV	Read: Process Variable Write: not allowed. Range: From SPLL to SPHL . The dPPo prompt gives the decimal point position.
0003	MV	Read: Output Power in automatic or manual mode. Write: not allowed. See address 29. Range: 0 to 1000 (0.0 to 100.0%).
0004	-	Reserved.
0005	Display value	Read: Current value shown on display. Write: Current value shown on display. Range: -1999 to 9999. The range depends on the displayed parameter.

0006	Prompt index	Read: Current prompt position in the parameters flowchart. Write: not allowed. Range: 0000h to 060Ch Prompt numbet format: XYYh, where: XX→menu cycle number (see operation manual) YY→prompt number(index).
0007	Status Word 1	Read: Status bits. See table 2 Write: not allowed.
0008	Versão Software	Read: The firmware version of controller. If V1.00, the read value will be 100. Write: not allowed.
0009	ID	Read: controller identification number. Write: not allowed. Values: 1 – N1100; 2 - N2000; 3 - N1500. others values: special instruments.
0010	Status Word 2	Read: Status bits. See table 2. Write: not allowed.
0011	Status Word 3	Read: Status bits. See table 2. Write: not allowed.
0012	Ir	Integral Rate (in repetitions/min) Range: 0 to 3000 (0.0 to 30.00)
0013	dt	Derivative Time (in seconds). Range: 0 to 250
0014	Pb	Proporcional Band (in percentage) Range: 0 to 5000 (0.0 to 500.0)
0015	-	Reserved.
0016	ct	Cycle Time (PWM, in seconds) Range: 5 to 1000 (0.5 to 100.0)
0017	-	Reserved.
0018	HYS	On/Off Control Hysteresis (in selected type engineering unit). Range: 0 to SPHL - SPLL
0019	-	Reserved.
0020	ouL	Output Low Limit (minimum output power) Range: 0 to 1000 (0.0 to 100.0%).
0021	ouH	Output High Limit (minimum output power) Range: 0 to 1000 (0.0 to 100.0%).
0022	-	Reserved.
0023	-	Reserved.
0024	Número Série H	Serial Number High (Upper display). Range: 0 to 9999. Read only
0025	Número Série L	Serial Number Low (Lower display). Range: 0 to 9999. Read only
0026	SV	Control <i>Setpoint</i> (Prompt <i>Setpoint</i>). Range: from SPLL to SPHL .
0027	SPLL	<i>Setpoint</i> Low limit. Range: minimum value depends on the input type selected in TYPE (see op. Manual) to SPHL .
0028	SPHL	<i>Setpoint</i> High limit. Range: minimum value is SPLL and maximum depends on the input type selected in TYPE (see op. Manual).
0029	MV manual	Manual output power (em percentage) Range: 0 to 1000 (0.0 to 100.0%)
0030	oFF5	PV offset Range: from SPLL to SPHL
0031	dPPo	PV decimal point position Range: 0 to 3 0→0.000; 1→00.00; 2→000.0; 3→0000
0032	SPR1	Alarm 1 <i>Setpoint</i> . Range: The minimum value is at SPLL for non-differential alarm or SPLL - SPHL for differential alarm The maximum value is at SPHL for non-differential alarm or at SPHL - SPLL for differential alarm.
0033	SPR2	Alarm 2 <i>Setpoint</i> . Range: same as in SPR1 .
0034	SPR3	Alarm 3 <i>Setpoint</i> . Range: same as in SPR1 .
0035	SPR4	Alarm 4 <i>Setpoint</i> . Range: same as in SPR1 .
0036	FUR1	Alarm 1 Function. Range: 0 to 8 0→oFF; 1→iErr; 2→r5; 3→rFA; 4→Lo; 5→H; 6→dIFL; 7→dIFH; 8→dIF.
0037	FUR2	Alarm 2 Function. Range: same as in FUR1 .
0038	FUR3	Alarm 3 Function. Range: same as in FUR1 .
0039	FUR4	Alarm 4 Function. Range: same as in FUR1 .
0040	HYS1	Alarm 1 Hysteresis. Range: 0 to 9999 (0.00 to 99.99%)
0041	HYS2	Alarm 2 Hysteresis. Range: same as in HYS1 .
0042	HYS3	Alarm 3 Hysteresis. Range: same as in HYS1 .
0043	HYS4	Alarm 4 Hysteresis. Range: same as in HYS1 .
0044	TYPE	PV input type Range: 0 to 18. See operation manual.
0045	Addr	Communication slave address Range: 1 to 247

0046	BRud	Communication Baud-Rate. Range: 0 to 4 0→1200;1→2400;2→4800;3→9600; 4→19200
0047	Ruto	Control Mode. Range: 0→manual; 1→automatic.
0048	run	Control enable. Range: 0→no; 1→yes.
0049	Rct	Control action. Range: 0→direct; 1→reverse.
0050	Autun	Auto tune enable. Range: 0→no; 1→yes.
0051	blR1	Alarm 1 power-up inhibit. Range: 0→no; 1→yes.
0052	blR2	Alarm 2 power-up inhibit Range: same as in blR1 .
0053	blR3	Alarm 3 power-up inhibit Range: same as in blR1 .
0054	blR4	Alarm 4 power-up inhibit Range: same as in blR1 .
0055	Key	Key press remote action. Range: 0 to 9 1→[OK]; 2→[▲]; 4→[▼]; 8→[BACK]; 9→[BACK] e [OK].
0056	rSLL	Remote Setpoint Low limit Range: Minimum value depends on the input type selected in TYPE , and maximum value is in rSHL .
0057	rSHL	Remote Setpoint High limit Range: Minimum value is in rSLL , and maximum depends on the input type selected in TYPE .
0058	io 1	IO 1 Function. Range: 0 to 5 Refers to operation manual for more details.
0059	io 2	IO 2 Function. Range: 0 to 5 Refers to operation manual for more details.
0060	io 3	IO 3 Function. Range: 0 to 10 Refers to operation manual for more details.
0061	io 4	IO 4 Function. Range: 0 to 10 Refers to operation manual for more details.
0062	io 5	IO 5 Function. Range: 0 to 16 Refers to operation manual for more details.
0063	Al t 1	Alarm 1 Time 1. Range: 0 to 6500s Refers to operation manual for more details.
0064	Al t 2	Alarm 1 Time 2 (in seconds) Range: same as in Al t 1 .
0065	Al t 1	Alarm 2 Time 1 (in seconds) Range: same as in Al t 1 .
0066	Al t 2	Alarm 2 Time 2 (in seconds) Range: same as in Al t 1 .
0067	SFS t	Soft-Start time (in seconds) Range: 0 to 9999
0068	un it	Temperature unit. Range: 0 to 1 0→°C; 1→°F.
0069	b iRS	Bias. Range: -100 to +100%.
0070	-	Reserved.
0071	R&S Segment	Ramp and Soak segment being executed (read only). Range: 0 to 4
0072	Pr n	Ramp and Soak segment to be viewed or edited. Range: 1 to 4
0073	Pr n	Ramp and Soak segment to be executed Range: 0 to 4
0074	PE 1	Segment 1 Event of R&S Program 1. Range: 0 to 15. See op. Manual.
0075	PE 2	Segment 2 Event of R&S Program 1. Range: same as in PE 1 .
0076	PE 3	Segment 3 Event of R&S Program 1. Range: same as in PE 1 .
0077	PE 4	Segment 4 Event of R&S Program 1. Range: same as in PE 1 .
0078	PE 5	Segment 5 Event of R&S Program 1. Range: same as in PE 1 .
0079	PE 6	Segment 6 Event of R&S Program 1. Range: same as in PE 1 .
0080	PE 7	Segment 7 Event of R&S Program 1. Range: same as in PE 1 .
0081	PE 1	Segment 1 Event of R&S Program 2. Range: 0 to 15. See op. Manual..
0082	PE 2	Segment 2 Event of R&S Program 2. Range: same as in PE 1 .
0083	PE 3	Segment 3 Event of R&S Program 2. Range: same as in PE 1 .
0084	PE 4	Segment 4 Event of R&S Program 2. Range: same as in PE 1 .
0085	PE 5	Segment 5 Event of R&S Program 2. Range: same as in PE 1 .
0086	PE 6	Segment 6 Event of R&S Program 2. Range: same as in PE 1 .
0087	PE 7	Segment 7 Event of R&S Program 2. Range: same as in PE 1 .
0088	PE 1	Segment 1 Event of R&S Program 3. Range: 0 to 15. See op. Manual.

0089	PE 2	Segment 2 Event of R&S Program 3. Range: same as in PE 1 .
0090	PE 3	Segment 3 Event of R&S Program 3. Range: same as in PE 1 .
0091	PE 4	Segment 4 Event of R&S Program 3. Range: same as in PE 1 .
0092	PE 5	Segment 5 Event of R&S Program 3. Range: same as in PE 1 .
0093	PE 6	Segment 6 Event of R&S Program 3. Range: same as in PE 1 .
0094	PE 7	Segment 7 Event of R&S Program 3. Range: same as in PE 1 .
0095	PE 1	Segment 1 Event of R&S Program 4. Range: 0 to 15. See op. Manual.
0096	PE 2	Segment 2 Event of R&S Program 4. Range: same as in PE 1 .
0097	PE 3	Segment 3 Event of R&S Program 4. Range: same as in PE 1 .
0098	PE 4	Segment 4 Event of R&S Program 4. Range: same as in PE 1 .
0099	PE 5	Segment 5 Event of R&S Program 4. Range: same as in PE 1 .
0100	PE 6	Segment 6 Event of R&S Program 4. Range: same as in PE 1 .
0101	PE 7	Segment 7 Event of R&S Program 4. Range: same as in PE 1 .
0102	PE 1	Segment 1 Event of R&S Program 5. Range: 0 to 15. See op. Manual.
0103	PE 2	Segment 2 Event of R&S Program 5. Range: same as in PE 1 .
0104	PE 3	Segment 3 Event of R&S Program 5. Range: same as in PE 1 .
0105	PE 4	Segment 4 Event of R&S Program 5. Range: same as in PE 1 .
0106	PE 5	Segment 5 Event of R&S Program 5. Range: same as in PE 1 .
0107	PE 6	Segment 6 Event of R&S Program 5. Range: same as in PE 1 .
0108	PE 7	Segment 7 Event of R&S Program 5. Range: same as in PE 1 .
0109	PE 1	Segment 1 Event of R&S Program 6. Range: 0 to 15. See op. Manual.
0110	PE 2	Segment 2 Event of R&S Program 6. Range: same as in PE 1 .
0111	PE 3	Segment 3 Event of R&S Program 6. Range: same as in PE 1 .
0112	PE 4	Segment 4 Event of R&S Program 6. Range: same as in PE 1 .
0113	PE 5	Segment 5 Event of R&S Program 6. Range: same as in PE 1 .
0114	PE 6	Segment 6 Event of R&S Program 6. Range: same as in PE 1 .
0115	PE 7	Segment 7 Event of R&S Program 6. Range: same as in PE 1 .
0116	PE 1	Segment 1 Event of R&S Program 7. Range: 0 to 15. See op. Manual.
0117	PE 2	Segment 2 Event of R&S Program 7. Range: same as in PE 1 .
0118	PE 3	Segment 3 Event of R&S Program 7. Range: same as in PE 1 .
0119	PE 4	Segment 4 Event of R&S Program 7. Range: same as in PE 1 .
0120	PE 5	Segment 5 Event of R&S Program 7. Range: same as in PE 1 .
0121	PE 6	Segment 6 Event of R&S Program 7. Range: same as in PE 1 .
0122	PE 7	Segment 7 Event of R&S Program 7. Range: same as in PE 1 .
0123	PEtol	R&S Program 1 Tolerance Range: 0 to valor de (SPHL - SPLL).
0124	LP	Program 1 Link Range: 0 to 7
0125	PE 1	Time 1 of Program 1. Range: 0 to 9999 minuts.
0126	PE 2	Time 2 of Program 1. Range: 0 to 9999 minuts.
0127	PE 3	Time 3 of Program 1. Range: 0 to 9999 minuts.
0128	PE 4	Time 4 of Program 1. Range: 0 to 9999 minuts.
0129	PE 5	Time 5 of Program 1. Range: 0 to 9999 minuts.
0130	PE 6	Time 6 of Program 1. Range: 0 to 9999 minuts.
0131	PE 7	Time 7 of Program 1. Range: 0 to 9999 minuts.
0132	PSP0	Setpoint 0 of Program 1. Range: From SPLL to SPHL .
0133	PSP 1	Setpoint 1 of Program 1

		Range: same as in PSP0 .
0134	PSP2	Setpoint 2 of Program 1 Range: same as in PSP0 .
0135	PSP3	Setpoint 3 of Program 1 Range: same as in PSP0 .
0136	PSP4	Setpoint 4 of Program 1 Range: same as in PSP0 .
0137	PSP5	Setpoint 5 of Program 1 Range: same as in PSP0 .
0138	PSP6	Setpoint 6 of Program 1 Range: same as in PSP0 .
0139	PSP7	Setpoint 7 of Program 1 Range: same as in PSP0 .
0140	PtoL	R&S Program 2 Tolerance Range: 0 to valor de (SPHL - SPLL).
0141	LP	Program 2 Link Range: 0 to 7
0142	Pt 1	Time 1 of Program 2. Range: 0 to 9999 minuts.
0143	Pt 2	Time 2 of Program 2. Range: 0 to 9999 minuts.
0144	Pt 3	Time 3 of Program 2. Range: 0 to 9999 minuts.
0145	Pt 4	Time 4 of Program 2. Range: 0 to 9999 minuts.
0146	Pt 5	Time 5 of Program 2. Range: 0 to 9999 minuts.
0147	Pt 6	Time 6 of Program 2. Range: 0 to 9999 minuts.
0148	Pt 7	Time 7 of Program 2. Range: 0 to 9999 minuts.
0149	PSP0	Setpoint 0 of Program 2. Range: From SPLL to SPHL .
0150	PSP 1	Setpoint 1 of Program 2 Range: same as in PSP0 .
0151	PSP2	Setpoint 2 of Program 2 Range: same as in PSP0 .
0152	PSP3	Setpoint 3 of Program 2 Range: same as in PSP0 .
0153	PSP4	Setpoint 4 of Program 2 Range: same as in PSP0 .
0154	PSP5	Setpoint 5 of Program 2 Range: same as in PSP0 .
0155	PSP6	Setpoint 6 of Program 2 Range: same as in PSP0 .
0156	PSP7	Setpoint 7 of Program 2 Range: same as in PSP0 .
0157	PtoL	R&S Program 3 Tolerance Range: 0 to (SPHL - SPLL).
0158	LP	Program 3 Link Range: 0 to 7
0159	Pt 1	Time 1 of Program 3. Range: 0 to 9999 minuts.
0160	Pt 2	Time 2 of Program 3 Range: same as in Pt 1 .
0161	Pt 3	Time 3 of Program 3 Range: same as in Pt 1 .
0162	Pt 4	Time 4 of Program 3 Range: same as in Pt 1 .
0163	Pt 5	Time 5 of Program 3 Range: same as in Pt 1 .
0164	Pt 6	Time 6 of Program 3 Range: same as in Pt 1 .
0165	Pt 7	Time 7 of Program 3 Range: same as in Pt 1 .
0166	PSP0	Setpoint 0 of Program 3. Range: from SPLL to SPHL .
0167	PSP 1	Setpoint 1 of Program 3 Range: same as in PSP0 .
0168	PSP2	Setpoint 2 of Program 3 Range: same as in PSP0 .
0169	PSP3	Setpoint 3 of Program 3 Range: same as in PSP0 .
0170	PSP4	Setpoint 4 of Program 3 Range: same as in PSP0 .
0171	PSP5	Setpoint 5 of Program 3 Range: same as in PSP0 .
0172	PSP6	Setpoint 6 of Program 3 Range: same as in PSP0 .
0173	PSP7	Setpoint 7 of Program 3 Range: same as in PSP0 .
0174	PtoL	R&S Program 4 Tolerance Range: 0 to (SPHL - SPLL).
0175	LP	Program 4 Link Range: 0 to 7
0176	Pt 1	Time 1 of Program 4 Range: 0 to 9999 (in minuts)
0177	Pt 2	Time 2 of Program 4 Range: same as in Pt 1 .
0178	Pt 3	Time 3 of Program 4 Range: same as in Pt 1 .

0179	Pt 4	Time 4 of Program 4 Range: same as in Pt 1 .
0180	Pt 5	Time 5 of Program 4 Range: same as in Pt 1 .
0181	Pt 6	Time 6 of Program 4 Range: same as in Pt 1 .
0182	Pt 7	Time 7 of Program 4 Range: same as in Pt 1 .
0183	PSP0	Setpoint 0 of Program 4. Range: from SPLL to SPHL .
0184	PSP 1	Setpoint 1 of Program 4 Range: same as in PSP0 .
0185	PSP2	Setpoint 2 of Program 4 Range: same as in PSP0 .
0186	PSP3	Setpoint 3 of Program 4 Range: same as in PSP0 .
0187	PSP4	Setpoint 4 of Program 4 Range: same as in PSP0 .
0188	PSP5	Setpoint 5 of Program 4 Range: same as in PSP0 .
0189	PSP6	Setpoint 6 of Program 4 Range: same as in PSP0 .
0190	PSP7	Setpoint 7 of Program 4 Range: same as in PSP0 .
0191	PtoL	R&S Program 5 Tolerance Range: 0 to (SPHL - SPLL).
0192	LP	Program 5 Link Range: 0 to 7
0193	Pt 1	Time 1 of Program 5 Range: 0 to 9999 (in minuts)
0194	Pt 2	Time 2 of Program 5 Range: same as in Pt 1 .
0195	Pt 3	Time 3 of Program 5 Range: same as in Pt 1 .
0196	Pt 4	Time 4 of Program 5 Range: same as in Pt 1 .
0197	Pt 5	Time 5 of Program 5 Range: same as in Pt 1 .
0198	Pt 6	Time 6 of Program 5 Range: same as in Pt 1 .
0199	Pt 7	Time 7 of Program 5 Range: same as in Pt 1 .
0200	PSP0	Setpoint 0 of Program 5. Range: from SPLL to SPHL .
0201	PSP 1	Setpoint 1 of Program 5 Range: same as in PSP0 .
0202	PSP2	Setpoint 2 of Program 5 Range: same as in PSP0 .
0203	PSP3	Setpoint 3 of Program 5 Range: same as in PSP0 .
0204	PSP4	Setpoint 4 of Program 5 Range: same as in PSP0 .
0205	PSP5	Setpoint 5 of Program 5 Range: same as in PSP0 .
0206	PSP6	Setpoint 6 of Program 5 Range: same as in PSP0 .
0207	PSP7	Setpoint 7 of Program 5 Range: same as in PSP0 .
0208	PtoL	R&S Program 6 Tolerance Range: 0 to (SPHL - SPLL).
0209	LP	Program 6 Link Range: 0 to 7
0210	Pt 1	Time 1 of Program 6 Range: 0 to 9999 (in minuts)
0211	Pt 2	Time 2 of Program 6 Range: same as in Pt 1 .
0212	Pt 3	Time 3 of Program 6 Range: same as in Pt 1 .
0213	Pt 4	Time 4 of Program 6 Range: same as in Pt 1 .
0214	Pt 5	Time 5 of Program 6 Range: same as in Pt 1 .
0215	Pt 6	Time 6 of Program 6 Range: same as in Pt 1 .
0216	Pt 7	Time 7 of Program 6 Range: same as in Pt 1 .
0217	PSP0	Setpoint 0 of Program 6. Range: from SPLL to SPHL .
0218	PSP 1	Setpoint 1 of Program 6 Range: same as in PSP0 .
0219	PSP2	Setpoint 2 of Program 6 Range: same as in PSP0 .
0220	PSP3	Setpoint 3 of Program 6 Range: same as in PSP0 .
0221	PSP4	Setpoint 4 of Program 6

		Range: same as in PSPO .
0222	PSP5	Setpoint 5 of Program 6 Range: same as in PSPO .
0223	PSP6	Setpoint 6 of Program 6 Range: same as in PSPO .
0224	PSP7	Setpoint 7 of Program 6 Range: same as in PSPO .
0225	PtoL	R&S Program 7 Tolerance Range: 0 to (SPHL - SPLL).
0226	LP	Program 7 Link Range: 0 to 7
0227	Pt 1	Time 1 of Program 7 Range: 0 to 9999 (in minutes)
0228	Pt 2	Time 2 of Program 7 Range: same as in Pt 1 .
0229	Pt 3	Time 3 of Program 7 Range: same as in Pt 1 .
0230	Pt 4	Time 4 of Program 7 Range: same as in Pt 1 .
0231	Pt 5	Time 5 of Program 7 Range: same as in Pt 1 .
0232	Pt 6	Time 6 of Program 7 Range: same as in Pt 1 .
0233	Pt 7	Time 7 of Program 7 Range: same as in Pt 1 .
0234	PSPO	Setpoint 0 of Program 7. Range: de SPLL até o valor setado em SPHL .
0235	PSP 1	Setpoint 1 of Program 7 Range: same as in PSPO .
0236	PSP 2	Setpoint 2 of Program 7 Range: same as in PSPO .
0237	PSP 3	Setpoint 3 of Program 7 Range: same as in PSPO .
0238	PSP 4	Setpoint 4 of Program 7 Range: same as in PSPO .
0239	PSP 5	Setpoint 5 of Program 7 Range: same as in PSPO .
0240	PSP 6	Setpoint 6 of Program 7 Range: same as in PSPO .
0241	PSP 7	Setpoint 7 of Program 7 Range: same as in PSPO .

Status Word 2	bit 0 – Automatic (0- manual; 1- automatic) bit 1 – Run (0-stop; 1-run) bit 2 – Control Action (0-direct; 1-reverse) bit 3 – Reserved bit 4 – Auto-tune (0-no; 1-yes) bit 5 – Alarm 1 power-up inhibit (0-no; 1-yes) bit 6 – Alarm 2 power-up inhibit (0-no; 1-yes) bit 7 – Alarm 3 power-up inhibit (0-no; 1-yes) bit 8 – Alarm 4 power-up inhibit (0-no; 1-yes) bit 9 – Unit (0-°C; 1-°F) bit 10 – Reserved bit 11 – Output 1 status bit 12 – Output 2 status bit 13 – Output 3 status bit 14 – Output 4 status bit 15 – Output 5 status
Status Word 3	bit 0 – Very low PV conversion (0-no; 1-yes) bit 1 – Negative conversion after calibration (0-no; 1-yes) bit 2 – Very high PV conversion (0-no; 1-yes) bit 3 – Exceeded linearization limit (0-no; 1-yes) bit 4 – Very high Pt100 cable resistance (0-no; 1-yes) bit 5 – Self zero conversion out of range (0-no; 1-yes) bit 6 – Self span conversion out of range (0-no; 1-yes) bit 7 – Cold junction conversion out of range (0-no; 1-yes) bit 8 – Reserved bit 9 – Reserved bit 10 – Reserved bit 11 – Reserved bit 12 – Reserved bit 13 – Reserved bit 14 – Reserved bit 15 – Reserved

Table 2: Values of Status Words

Writing to an output bit is only possible if the output has no function assigned to it (the output is configured to OFF in Alarm Cycle).

Coil Status	Descrição da Saída
1	Output 1 Status (I/O1)
2	Output 2 Status (I/O2)
3	Output 3 Status (I/O3)
4	Output 4 Status (I/O4)
5	Output 5 Status (I/O5)

Exception Responses – Error Conditions

The MODBUS RTU protocol checks the CRC in the data blocks received.

Reception errors are detected by the CRC, causing the N1100 to discard the packet, not sending any reply to the master.

After receiving an error-free packet, the N1100 processes the packet and verifies whether the request is valid or not, sending back an exception error code in case of an invalid request.

If a WRITE command sends a out-of-range value to a parameter, the N1100 will clamp the value to the parameter range limits, replying with a value which reflects these limits (maximum or minimum value allowed for the parameter).

Broadcast READ commands are ignored by the N1100; only broadcast WRITE commands are processed by the N1100.

Error Code	Error Description
81h	Invalid Command
82h	Invalid Register Number or out of range
83h	Invalid Register Quantity or out of range

Registrador	Value format
Status Word 1	bit 0 – Alarm 1 (0-inactive; 1-active) bit 1 – Alarm 2 (0-inactive; 1-active) bit 2 – Alarm 3 (0-inactive; 1-active) bit 3 – Alarm 4 (0-inactive; 1-active) bit 4 – Input 0 – I/O 5 (0- inactive; 1- active) bit 5 – Input 1 – I/O 3 (0- inactive; 1- active) bit 6 – Input 2 – I/O 4 (0- inactive; 1- active) bit 7 – Reserved bit 8 – Hardware type bit 9 – Hardware type bit 10 – Reserved bit 11 – Reserved bit 12 – Reserved bit 13 – Reserved bit 14 – Reserved bit 15 – Reserved



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