代表不同相的变量

	7	6	5	4	3	2	1	0	
Byte x+16	0	0	0	0	0	0	0	0	reserved
Byte x+17	0	0	0	0	0	0	0	0	reserved
Byte x+18	0	0	0	0	0	0	0	0	reserved
Byte x+19	0	0	0	0	0	0	0	0	reserved

* x = 14 for channel/phase 1, 34 for channel/phase 2, 54 for channel/phase 3

Figure A-4 Channel parameter block

Error while transferring the parameter data record

错误信息表

The module always checks all the values of the transferred data record. Only if all the values were transferred without errors does the module apply the values from the data record.

The WRREC write data record instruction returns error codes when errors occur in the STATUS parameter.

The following table shows the module-specific error codes and their meaning for the parameter data record 128.

Error code in STATUS parameter (hexadecimal)				Meaning	Solution
Byte 0	Byte 1	Byte 2	Byte 3		
DF	80	B0	00	Number of the data record unknown	Enter a valid number for the data record.
DF	80	B1	00	Length of the data record incorrect	Enter a valid value for the data record length.
DF	80	B2	00	Slot invalid or cannot be accessed.	Check the station whether the module is plugged in correctly. Check the assigned values for the parameters of the WRREC instruction
DF	80	E0	01	Incorrect version	Check Byte 0. Enter valid values.
DF	80	E0	02	Error in the header information	Check Bytes 1 and 2. Correct the length and number of the parameter blocks.
DF	80	E1	01	Reserved bits are not 0.	Check Byte 10, 11, 14, 22, 30 ... 34, 42, 50 ... 54, 70 ... 74 and set the reserved bits back to 0.
DF	80	E1	02	Reserved bits are not 0.	Check Byte 8 and set the reserved bits back to 0.
DF	80	E1	05	Measuring range for voltage invalid.	Check Byte 5. Permitted values: 01_H to $0C_H$
DF	80	E1	20	Connection type invalid.	Check Byte 4. Permitted values: 00_H, $0B_H$ ... 10_H

Error code in STATUS parameter (hexadecimal)				Meaning	Solution
Byte 0	Byte 1	Byte 2	Byte 3		
DF	80	E1	21	Parameter for Process data variant not possible.	Check Byte 9. Select a different Process data variant or change the configuration.
DF	80	E1	22	Parameter for Process variant is invalid.	Check Byte 9. Select a valid code for the Process data variant.
DF	80	E1	23	Parameter for frequency is invalid.	Check Byte 6. Enter valid values.
DF	80	E1	24	Parameter for tolerance line voltage is invalid.	Check Byte 7. Enter valid values.
DF	80	E1	25	Parameter for secondary electrical current of the transformer is invalid.	Check Bit 4 and 5 in Byte 22, 42 ... 62. Enter valid values.
DF	80	E1	29	Parameter for tolerance factor overcurrent invalid.	Check Byte 15, 35 ... 55. Enter valid values.
DF	80	E1	2A	Parameter for tolerance time overcurrent invalid.	Check Byte 16 and 17, 36 ... 37, 56 ... 57. Enter valid values.
DF	80	E1	2B	Parameter for low limit measuring current invalid	Check Byte 23, 43 ... 63. Enter valid values.
DF	80	E1	2C	Parameter for primary electrical current of the transformer is invalid.	Check Byte 18 ... 21, 38 ... 41, 48 ... 61. Enter valid values.
DF	80	E1	2D	Parameter for voltage converter primary voltage invalid.	Check Byte 26 ... 29, 46 ... 49, 66 ... 69. Enter valid values.
DF	80	E1	2E	Parameter for voltage converter secondary voltage invalid.	Check Byte 24 ... 25, 44 ... 45, 64 ... 65. Enter valid values.
DF	80	E1	2F	Parameter for full-scale value for energy counters invalid.	Check Bit 4 ... 6 in Byte 6. Enter valid values.
DF	80	E1	30	Invalid data record number.	Check the data record number. Enter a valid data record number.
DF	80	E1	3E	Only for connection type 3P4W1. Parameters of electrical current and/or voltage transformers are not identical.	Check Bytes 14 ... 33, 34 ... 53, 54 ... 73. Enter identical values at all three phases.
DF	80	E1	3F	Full-scale value for energy counter too small or transfer ratio of current and voltage too high.	Increase the full-scale value or reduce the transfer ratio of the electrical current and voltage transformer.

Measured variables 被测量的变量

B

被测量的过程变量和连接形式

B.1 Measured process variables and connection type

Measured process variables for data records and user data 为数据记录和用户数据测量过程变量

The following table provides an overview of all measured process variables that are used in the data records and user data.

Note that number formats and units differ in the evaluation of records and user data.
注意，在记录和用户数据的评估中，数字格式和单元是不同的。

Table B- 1 Measured process variables for data records and user data

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
1	Voltage UL1-N [1]	REAL	V	0.0 ... 1000000.0	✓	✓	✓	✓	✓
2	Voltage UL2-N [1]	REAL	V	0.0 ... 1000000.0		✓	✓	✓	✓
3	Voltage UL3-N [1]	REAL	V	0.0 ... 1000000.0		✓		✓	✓
4	Voltage UL1-L2 [2]	REAL	V	0.0 ... 1000000.0				✓	✓
5	Voltage UL2-L3 [2]	REAL	V	0.0 ... 1000000.0				✓	✓
6	Voltage UL3-L1 [2]	REAL	V	0.0 ... 1000000.0				✓	✓
7	Current L1 [1]	REAL	A	0.0 … 100000.0	✓	✓	✓	✓	✓
8	Current L2 [1]	REAL	A	0.0 … 100000.0		✓	✓	✓	✓
9	Current L3 [1]	REAL	A	0.0 … 100000.0		✓		✓	✓
10	Apparent power L1 [3]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
11	Apparent power L2 [3]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$		✓	✓	✓	✓
12	Apparent power L3 [3]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$		✓		✓	✓
13	Active power L1 [3]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
14	Active power L2 [3]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$		✓	✓	✓	✓
15	Active power L3 [3]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$		✓		✓	✓
16	Reactive power L1 [3]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
17	Reactive power L2 [3]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$		✓	✓	✓	✓
18	Reactive power L3 [3]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$		✓		✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
19	Power factor L1 [3]	REAL	-	0.0 ... 1.0	✓	✓	✓	✓	✓
20	Power factor L2 [3]	REAL	-	0.0 ... 1.0		✓	✓	✓	✓
21	Power factor L3 [3]	REAL	-	0.0 ... 1.0		✓		✓	✓
30	Frequency [4]	REAL	Hz	45.0 ... 65.0	✓	✓	✓	✓	✓
34	Total active power L1L2L3 [5]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
35	Total reactive power L1L2L3 [5]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
36	Total apparent power L1L2L3 [5]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
37	Total power factor L1L2L3 [6 7]	REAL	-	0.0 ... 1.0	✓	✓	✓	✓	✓
38	Amplitude balance for voltage [2]	REAL	%	0 ... 100				✓	✓
39	Amplitude symmetry for current [2]	REAL	%	0 ... 200				✓	✓
40	Max. voltage UL1-N [6]	REAL	V	0.0 ... 1000000.0	✓	✓	✓	✓	✓
41	Max. voltage UL2-N [6]	REAL	V	0.0 ... 1000000.0		✓	✓	✓	✓
42	Max. voltage UL3-N [6]	REAL	V	0.0 ... 1000000.0		✓		✓	✓
43	Max. voltage UL1-UL2 [6]	REAL	V	0.0 ... 1000000.0				✓	✓
44	Max. voltage UL2-UL3 [6]	REAL	V	0.0 ... 1000000.0				✓	✓
45	Max. voltage UL3-UL1 [6]	REAL	V	0.0 ... 1000000.0				✓	✓
46	Max. current L1 [6]	REAL	A	0.0 ... 100000.0	✓	✓	✓	✓	✓
47	Max. current L2 [6]	REAL	A	0.0 ... 100000.0		✓	✓	✓	✓
48	Max. current L3 [6]	REAL	A	0.0 ... 100000.0		✓		✓	✓
49	Max. apparent power L1 [6]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
50	Max. apparent power L2 [6]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$		✓	✓	✓	✓
51	Max. apparent power L3 [6]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$		✓		✓	✓
52	Max. active power L1 [6]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
53	Max. active power L2 [6]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$		✓	✓	✓	✓
54	Max. active power L3 [6]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$		✓		✓	✓
55	Max. reactive power L1 [6]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
56	Max. reactive power L2 [6]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$		✓	✓	✓	✓
57	Max. reactive power L3 [6]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$		✓		✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
58	Max. power factor L1 [6]	REAL	-	0.0 ... 1.0	✓	✓	✓	✓	✓
59	Max. power factor L2 [6]	REAL	-	0.0 ... 1.0		✓	✓	✓	✓
60	Max. power factor L3 [6]	REAL	-	0.0 ... 1.0		✓		✓	✓
61	Max. frequency [6]	REAL	Hz	45.0 ... 65.0	✓	✓	✓	✓	✓
65	Max. total active power [6]	REAL	W	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$	✓	✓	✓	✓	✓
66	Max. total reactive power [6]	REAL	var	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$	✓	✓	✓	✓	✓
67	Max. total apparent power [6]	REAL	VA	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$	✓	✓	✓	✓	✓
68	Max. total power factor [6]	REAL	-	0.0 ... 1.0	✓	✓	✓	✓	✓
70	Min. voltage UL1-N [6]	REAL	V	0.0 ... 1000000.0	✓	✓	✓	✓	✓
71	Min. voltage UL2-N [6]	REAL	V	0.0 ... 1000000.0		✓	✓	✓	✓
72	Min. voltage UL3-N [6]	REAL	V	0.0 ... 1000000.0		✓		✓	✓
73	Min. voltage UL1-UL2 [6]	REAL	V	0.0 ... 1000000.0				✓	✓
74	Min. voltage UL2-UL3 [6]	REAL	V	0.0 ... 1000000.0				✓	✓
75	Min. voltage UL3-UL1 [6]	REAL	V	0.0 ... 1000000.0				✓	✓
76	Min. current L1 [6]	REAL	A	0.0 ... 100000.0	✓	✓	✓	✓	✓
77	Min. current L2 [6]	REAL	A	0.0 ... 100000.0		✓	✓	✓	✓
78	Min. current L3 [6]	REAL	A	0.0 ... 100000.0		✓		✓	✓
79	Min. apparent power L1 [6]	REAL	VA	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$	✓	✓	✓	✓	✓
80	Min. apparent power L2 [6]	REAL	VA	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$		✓	✓	✓	✓
81	Min. apparent power L3 [6]	REAL	VA	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$		✓		✓	✓
82	Min. active power L1 [6]	REAL	W	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$	✓	✓	✓	✓	✓
83	Min. active power L2 [6]	REAL	W	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$		✓	✓	✓	✓
84	Min. active power L3 [6]	REAL	W	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$		✓		✓	✓
85	Min. reactive power L1 [6]	REAL	var	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$	✓	✓	✓	✓	✓
86	Min. reactive power L2 [6]	REAL	var	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$		✓	✓	✓	✓
87	Min. reactive power L3 [6]	REAL	var	$-3.0 \times 10^9 \ldots +3.0 \times 10^9$		✓		✓	✓
88	Min. power factor L1 [6]	REAL	-	0.0 ... 1.0	✓	✓	✓	✓	✓
89	Min. power factor L2 [6]	REAL	-	0.0 ... 1.0		✓	✓	✓	✓
90	Min. power factor L3 [6]	REAL	-	0.0 ... 1.0		✓		✓	✓
91	Min. frequency [6]	REAL	Hz	45.0 ... 65.0	✓	✓	✓	✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
95	Min. total active power [6]	REAL	W	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
96	Min. total reactive power [6]	REAL	var	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
97	Min. total apparent power [6]	REAL	VA	-3.0×10^9 … $+3.0 \times 10^9$	✓	✓	✓	✓	✓
98	Min. total power factor [6]	REAL	-	0.0 ... 1.0	✓	✓	✓	✓	✓
200	Total active energy inflow L1L2L3 [6]	REAL	Wh	0.0 ... 3.4×10^{38}	✓	✓	✓	✓	✓
201	Total active energy outflow L1L2L3 [6]	REAL	Wh	0.0 ... 3.4×10^{38}	✓	✓	✓	✓	✓
202	Total reactive energy inflow L1L2L3 [6]	REAL	varh	0.0 ... 3.4×10^{38}	✓	✓	✓	✓	✓
203	Total reactive energy outflow L1L2L3 [6]	REAL	varh	0.0 ... 3.4×10^{38}	✓	✓	✓	✓	✓
204	Total apparent energy L1L2L3 [6]	REAL	VAh	0.0 ... 3.4×10^{38}	✓	✓	✓	✓	✓
205	Total active energy L1L2L3 [6]	REAL	Wh	$\pm 3.4 \times 10^{38}$	✓	✓	✓	✓	✓
206	Total reactive energy L1L2L3 [6]	REAL	varh	$\pm 3.4 \times 10^{38}$	✓	✓	✓	✓	✓
210	Total active energy inflow L1L2L3 [6]	LREAL	Wh	0.0 ... 1.8×10^{308}	✓	✓	✓	✓	✓
211	Total active energy outflow L1L2L3 [6]	LREAL	Wh	0.0 ... 1.8×10^{308}	✓	✓	✓	✓	✓
212	Total reactive energy inflow L1L2L3 [6]	LREAL	varh	0.0 ... 1.8×10^{308}	✓	✓	✓	✓	✓
213	Total reactive energy outflow L1L2L3 [6]	LREAL	varh	0.0 ... 1.8×10^{308}	✓	✓	✓	✓	✓
214	Total apparent energy L1L2L3 [6]	LREAL	VAh	0.0 ... 1.8×10^{308}	✓	✓	✓	✓	✓
215	Total active energy L1L2L3 [6]	LREAL	Wh	$\pm 1.8 \times 10^{308}$	✓	✓	✓	✓	✓
216	Total reactive energy L1L2L3 [6]	LREAL	varh	$\pm 1.8 \times 10^{308}$	✓	✓	✓	✓	✓
220	Total active energy inflow L1L2L3 [6]	UDINT	Wh	0 ... 2147483647	✓	✓	✓	✓	✓
221	Total active energy outflow L1L2L3 [6]	UDINT	varh	0 ... 2147483647	✓	✓	✓	✓	✓
222	Total reactive energy inflow L1L2L3 [6]	UDINT	varh	0 ... 2147483647	✓	✓	✓	✓	✓
223	Total reactive energy outflow L1L2L3 [6]	UDINT	VAh	0 ... 2147483647	✓	✓	✓	✓	✓
224	Total apparent energy L1L2L3 [6]	UDINT	Wh	0 ... 2147483647	✓	✓	✓	✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
225	Total active energy L1L2L3 [6]	DINT	Wh	±2147483647	✓	✓	✓	✓	✓
226	Total reactive energy L1L2L3 [6]	DINT	varh	±2147483647	✓	✓	✓	✓	✓
61149	Neutral conductor current [1]	REAL	A	0.0 ... 100000.0				✓	
61178	Phase angle L1 [3]	REAL	°	0.0 ... 360.0	✓	✓	✓	✓	✓
61180	Active energy inflow L1 [6]	LREAL	Wh	0.0 ... 1.8 x 10^{308}	✓	✓	✓	✓	✓
61181	Active energy outflow L1 [6]	LREAL	Wh	0.0 ... 1.8 x 10^{308}	✓	✓	✓	✓	✓
61182	Reactive energy inflow L1 [6]	LREAL	varh	0.0 ... 1.8 x 10^{308}	✓	✓	✓	✓	✓
61183	Reactive energy outflow L1 [6]	LREAL	varh	0.0 ... 1.8 x 10^{308}	✓	✓	✓	✓	✓
61184	Apparent energy L1 [6]	LREAL	VAh	0.0 ... 1.8 x 10^{308}	✓	✓	✓	✓	✓
61185	Active energy L1 [6]	LREAL	Wh	±1.8 x 10^{308}	✓	✓	✓	✓	✓
61186	Reactive energy L1 [6]	LREAL	varh	±1.8 x 10^{308}	✓	✓	✓	✓	✓
61190	Overflow counter active energy inflow L1 [6]	UINT	-	0 ... 65535	✓	✓	✓	✓	✓
61191	Overflow counter active energy outflow L1 [6]	UINT	-	0 ... 65535	✓	✓	✓	✓	✓
61192	Overflow counter reactive energy inflow L1 [6]	UINT	-	0 ... 65535	✓	✓	✓	✓	✓
61193	Overflow counter reactive energy outflow L1 [6]	UINT	-	0 ... 65535	✓	✓	✓	✓	✓
61194	Overflow counter apparent energy L1 [6]	UINT	-	0 ... 65535	✓	✓	✓	✓	✓
61198	Phase angle L2 [3]	REAL	°	0.0 ... 360.0		✓	✓	✓	✓
61200	Active energy inflow L2 [6]	LREAL	Wh	0.0 ... 1.8 x 10^{308}		✓	✓	✓	✓
61201	Active energy outflow L2 [6]	LREAL	Wh	0.0 ... 1.8 x 10^{308}		✓	✓	✓	✓
61202	Reactive energy inflow L2 [6]	LREAL	varh	0.0 ... 1.8 x 10^{308}		✓	✓	✓	✓
61203	Reactive energy outflow L2 [6]	LREAL	varh	0.0 ... 1.8 x 10^{308}		✓	✓	✓	✓
61204	Apparent energy L2 [6]	LREAL	VAh	0.0 ... 1.8 x 10^{308}		✓	✓	✓	✓
61205	Active energy L2 [6]	LREAL	Wh	±1.8 x 10^{308}		✓	✓	✓	✓
61206	Reactive energy L2 [6]	LREAL	varh	±1.8 x 10^{308}		✓	✓	✓	✓
61210	Overflow counter active energy inflow L2 [6]	UINT	-	0 ... 65535		✓	✓	✓	✓
61211	Overflow counter active energy outflow L2 [6]	UINT	-	0 ... 65535		✓	✓	✓	✓
61212	Overflow counter reactive energy inflow L2 [6]	UINT	-	0 ... 65535		✓	✓	✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
61213	Overflow counter reactive energy outflow L2 [6]	UINT	-	0 ... 65535		✓	✓	✓	✓
61214	Overflow counter apparent energy L2 [6]	UINT	-	0 ... 65535		✓	✓	✓	✓
61218	Phase angle L3 [3]	REAL		0.0 ... 360.0		✓		✓	✓
61220	Active energy inflow L3 [6]	LREAL	Wh	0.0 ... 1.8 x 10^{308}		✓		✓	✓
61221	Active energy outflow L3 [6]	LREAL	Wh	0.0 ... 1.8 x 10^{308}		✓		✓	✓
61222	Reactive energy inflow L3 [6]	LREAL	varh	0.0 ... 1.8 x 10^{308}		✓		✓	✓
61223	Reactive energy outflow L3 [6]	LREAL	varh	0.0 ... 1.8 x 10^{308}		✓		✓	✓
61224	Apparent energy L3 [6]	LREAL	VAh	0.0 ... 1.8 x 10^{308}		✓		✓	✓
61225	Active energy L3 [6]	LREAL	Wh	±1.8 x 10^{308}		✓		✓	✓
61226	Reactive energy 7L3 [6]	LREAL	varh	±1.8 x 10^{308}		✓		✓	✓
61230	Overflow counter active energy inflow L3 [6]	UINT	-	0 ... 65535		✓		✓	✓
61231	Overflow counter active energy outflow L3 [6]	UINT	-	0 ... 65535		✓		✓	✓
61232	Overflow counter reactive energy inflow L3 [6]	UINT	-	0 ... 65535		✓		✓	✓
61233	Overflow counter reactive energy outflow L3 [6]	UINT	-	0 ... 65535		✓		✓	✓
61234	Overflow counter apparent energy L3 [6]	UINT	-	0 ... 65535		✓		✓	✓
62110	Active energy inflow L1 [6]	UDINT	Wh	0 ... 2147483647	✓	✓	✓	✓	✓
62111	Active energy outflow L1 [6]	UDINT	Wh	0 ... 2147483647	✓	✓	✓	✓	✓
62112	Reactive energy inflow L1 [6]	UDINT	Varh	0 ... 2147483647	✓	✓	✓	✓	✓
62113	Reactive energy outflow L1 [6]	UDINT	Varh	0 ... 2147483647	✓	✓	✓	✓	✓
62114	Apparent energy L1 [6]	UDINT	Wh	0 ... 2147483647	✓	✓	✓	✓	✓
62115	Active energy L1 total (inflow - outflow) [6]	DINT	Wh	±2147483647	✓	✓	✓	✓	✓
62116	Reactive energy L1 total (inflow - outflow) [6]	DINT	Varh	±2147483647	✓	✓	✓	✓	✓
62210	Active energy inflow L2 [6]	UDINT	Wh	0 ... 2147483647		✓	✓	✓	✓
62211	Active energy outflow L2 [6]	UDINT	Wh	0 ... 2147483647		✓	✓	✓	✓
62212	Reactive energy inflow L2 [6]	UDINT	Varh	0 ... 2147483647		✓	✓	✓	✓
62213	Reactive energy outflow L2 [6]	UDINT	Varh	0 ... 2147483647		✓	✓	✓	✓
62214	Apparent energy L2 [6]	UDINT	VAh	0 ... 2147483647		✓		✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
62215	Active energy L2 total (inflow - outflow) [6]	DINT	Wh	±2147483647		✓	✓	✓	✓
62216	Reactive energy L2 total (inflow - outflow) [6]	DINT	Varh	±2147483647		✓	✓	✓	✓
62310	Active energy inflow L3 [6]	UDINT	Wh	0 ... 2147483647		✓		✓	✓
62311	Active energy outflow L3 [6]	UDINT	Wh	0 ... 2147483647		✓		✓	✓
62312	Reactive energy inflow L3 [6]	UDINT	Varh	0 ... 2147483647		✓		✓	✓
62313	Reactive energy outflow L3 [6]	UDINT	Varh	0 ... 2147483647		✓		✓	✓
62314	Apparent energy L3 [6]	UDINT	VAh	0 ... 2147483647		✓		✓	✓
62315	Active energy L3 total (inflow - outflow) [6]	DINT	Wh	±2147483647		✓		✓	✓
62316	Reactive energy L3 total (inflow - outflow) [6]	DINT	Varh	±2147483647		✓		✓	✓
65500	Qualifier L1	WORD	Bit field	0b 00 00 00 00 0b qq 00 00 xx	✓	✓	✓	✓	✓
65501	Qualifier L2	WORD	Bit field	0b 00 00 00 00 0b qq 00 xx 00		✓	✓	✓	✓
65502	Qualifier L3	WORD	Bit field	0b 00 00 00 00 0b qq xx 00 00		✓		✓	✓
65503	Qualifier L1L2L3	WORD	Bit field	0b 00 00 00 00 0b qq xx xx xx	✓	✓	✓	✓	✓
65504	Total operating hours counter L1L2L3 [9]	REAL	h	0.0 ... 3.4 x 10^{38}	✓	✓	✓	✓	✓
65505	Operating hours counter L1 [5]	REAL	h	0.0 ... 3.4 x 10^{38}	✓	✓	✓	✓	✓
65506	Operating hours counter L2 [5]	REAL	h	0.0 ... 3.4 x 10^{38}		✓	✓	✓	✓
65507	Operating hours counter L3 [5]	REAL	h	0.0 ... 3.4 x 10^{38}		✓		✓	✓
65508	Status of energy counter overflows	WORD	Bit field	0x xxxx xxxx	✓	✓	✓	✓	✓
66001	Voltage UL1-N [1]	UINT	0.01 V	0 ... 65535	✓	✓	✓	✓	✓
66002	Voltage UL2-N [1]	UINT	0.01 V	0 ... 65535		✓	✓	✓	✓
66003	Voltage UL3-N [1]	UINT	0.01 V	0 ... 65535		✓		✓	✓
66004	Voltage UL1-L2 [2]	UINT	0.01 V	0 ... 65535				✓	✓
66005	Voltage UL2-L3 [2]	UINT	0.01 V	0 ... 65535				✓	✓

Measured value ID	Measured variable	Data type	Unit	Value range	Connection type				
					1P2W	3x1P2W	2P3W	3P4W	3P4W1
66006	Voltage UL3-L1 [2]	UINT	0.01 V	0 ... 65535				✓	✓
66007	Current L1 [1]	UINT	1 mA	0 ... 65535	✓	✓	✓	✓	✓
66008	Current L2 [1]	UINT	1 mA	0 ... 65535		✓	✓	✓	✓
66009	Current L3 [1]	UINT	1 mA	0 ... 65535		✓		✓	✓
66010	Apparent power L1 [3]	INT	1 VA	-27648 ... 27648	✓	✓	✓	✓	✓
66011	Apparent power L2 [3]	INT	1 VA	-27648 ... 27648		✓	✓	✓	✓
66012	Apparent power L3 [3]	INT	1 VA	-27648 ... 27648		✓		✓	✓
66013	Active power L1 [3]	INT	1 W	-27648 ... 27648	✓	✓	✓	✓	✓
66014	Active power L2 [3]	INT	1 W	-27648 ... 27648		✓	✓	✓	✓
66015	Active power L3 [3]	INT	1 W	-27648 ... 27648		✓		✓	✓
66016	Reactive power L1 [3]	INT	1 var	-27648 ... 27648	✓	✓	✓	✓	✓
66017	Reactive power L2 [3]	INT	1 var	-27648 ... 27648		✓	✓	✓	✓
66018	Reactive power L3 [3]	INT	1 var	-27648 ... 27648		✓		✓	✓
66019	Power factor L1 [3]	USINT	0.01	0 ... 100	✓	✓	✓	✓	✓
66020	Power factor L2 [3]	USINT	0.01	0 ... 100		✓	✓	✓	✓
66021	Power factor L3 [3]	USINT	0.01	0 ... 100		✓		✓	✓
66030	Frequency [4]	USINT	1 Hz	45 ... 65	✓	✓	✓	✓	✓
66034	Total active power L1L2L3 [5]	INT	1 W	-27648 ... 27648	✓	✓	✓	✓	✓
66035	Total reactive power L1L2L3 [5]	INT	1 var	-27648 ... 27648	✓	✓	✓	✓	✓
66036	Total apparent power L1L2L3 [5]	INT	1 VA	-27648 ... 27648	✓	✓	✓	✓	✓
66037	Total power factor L1L2L3 [6]	USINT	0.01	0 ... 100	✓	✓	✓	✓	✓
66038	Frequency [4]	UINT	0.01 Hz	4500 ... 6500	✓	✓	✓	✓	✓

1 Effective value

2 IEC 61557-12

3 Arithmetical mean value over 200 ms as floating mean

4 Arithmetical mean value over 10 s as floating mean

5 Simple summation

6 Calculation from the start/restart (inflow and outflow values are positive numbers)

7 Determined from ratio of active and apparent power

8 For mapping both states as UINT (high: Energy counter overflow, low limit)

9 Corresponds to the maximum of the phase-specific operating hours counters

Module version configuration options 模块版本配置选项

C

C.1 Module version "2 bytes I/ 2 bytes O"

User data

The module version has 2 bytes of input user data and 2 bytes of output user data, for status and control information. For this module version, measured variables can be read only by the measured value data records (no measured variables can be evaluated via user data).

Structure of input user data

The structure of the input user data is fixed.

Table C- 1 Structure of input user data (2 bytes)

Byte	Validity	Designation	Comment
0	Module	Process data variant	Constant = 80_H
1	Module	Quality information	Quality bits describe the quality of the basic measured values

Assignment of the input user data

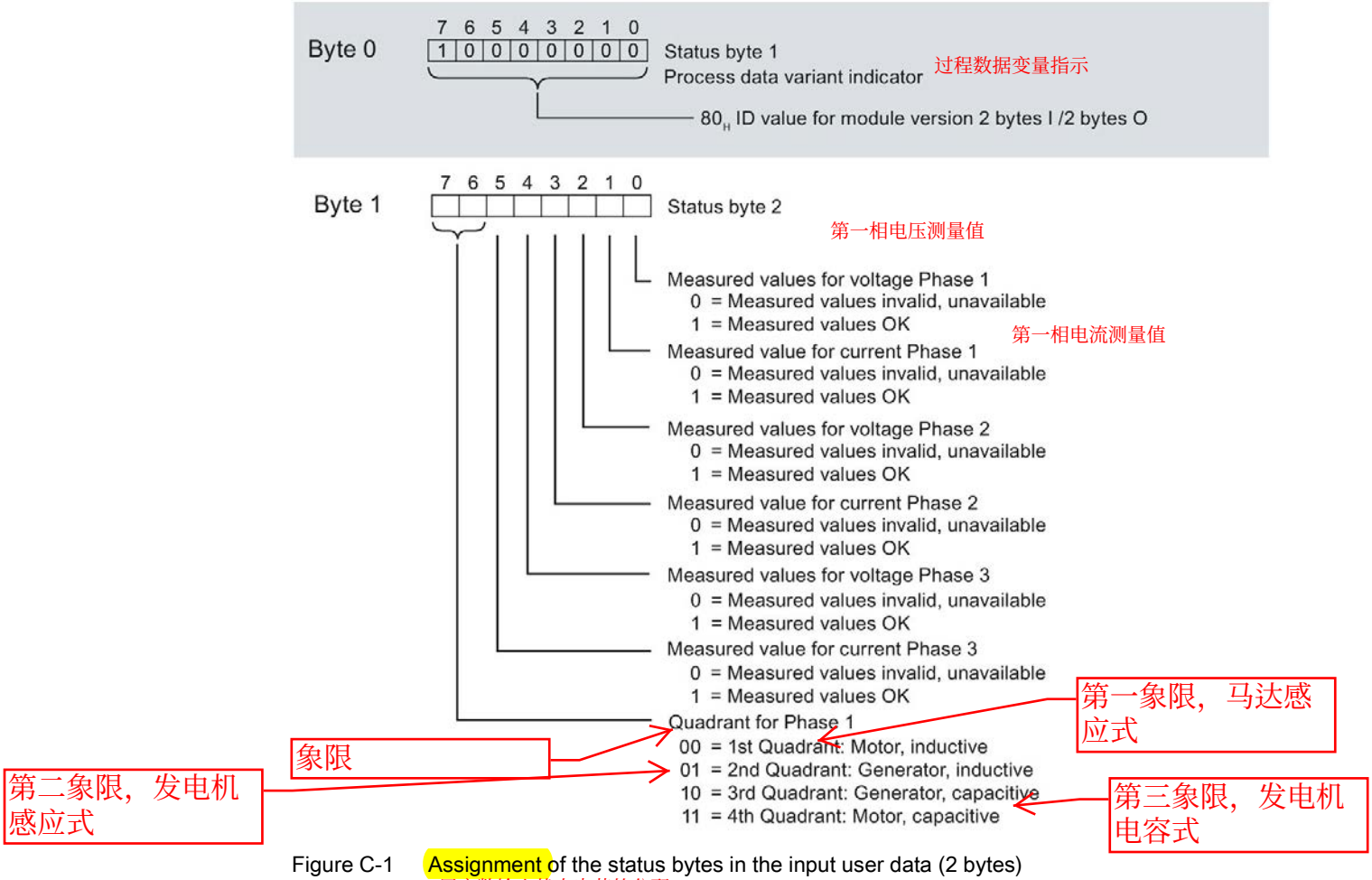

Figure C-1 Assignment of the status bytes in the input user data (2 bytes)
用户数输入状态字节的分配

Structure of output user data

The structure of the output user data is fixed.
输出用户数据的结构是固定的。

Table C- 2 Structure of output user data (2 bytes)

Byte	Validity	Designation	Comment
0	Module	Reserved	Reserved
1	Module	Control outputs	Reset values, counters, and gate control
		控制输出字节	重置数值 计数器 门控制

Assignment of the output user data

All phases are controlled for these actions. 所有相都受这些操作的控制。

- Resetting minimum values, maximum values, operating hours counters, and energy counters. 重置最小值、最大值、工作时间计数器和能量计数器。
- Gate control for operating hours counter and energy counters.

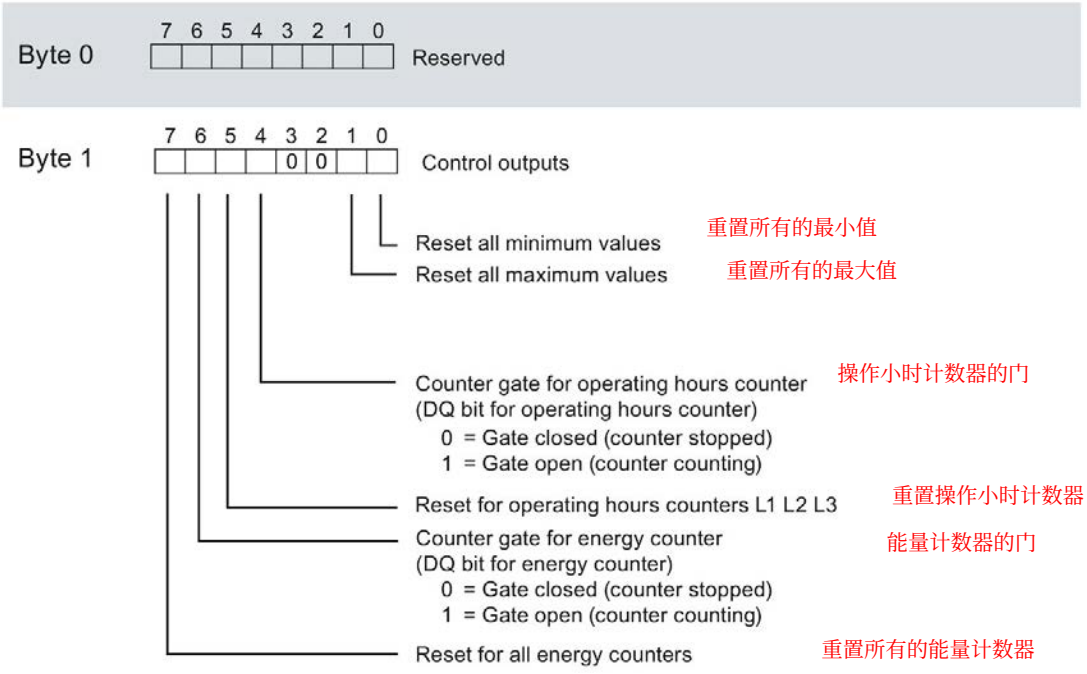

Figure C-2 Assignment of the control byte in the output user data (2 bytes)
输出用户数据中控制字节的分配(2字节)

Note 只要重置选择的变量，则三相同级别的变量都会被重置。

For module version 2 bytes I /2 bytes O, a reset of the selected variables always acts on **all** measured values/counter levels of the three phases.

- Reset energy counter: Acts on all active, reactive and apparent energies of all phases
- Reset operating hours counter: Acts on the counters of Phases 1, 2, and 3
- Reset minimum / maximum values: Acts on the minimum and maximum value calculations of Phases 1, 2, and 3