

Landis+Gyr ZxG300/400 [LGZ54150006 - P07]

Remarks

Configuration

ZMG405CR4.041b.37 S2	P.M40CPTSCMDO.0417.L44sVTSFTILrbGFhlcvaS64lr
Firmware Version	P07
Measurement Base	active and reactive energy
Network Type	four-wire network (M)
Connection Type	transformer operated
Accuracy	class 0.5
Nominal Voltage Range	3 x 58/100...277/480 V
Base Current	5 A
Maximum Current	10 A
Start Current	5 mA (according to IEC standard)
Electrical Interface 1	Powered RS232
Un	3 * 58V (Phase to Neutral)
Frequency	50 Hz
LED Pulse Length	2 ms
Meter Constant R2	2000
Tariff Control	control inputs and time of use
Tariffication	energy and demand
Load Profile	enabled
Stored Values	enabled
Demand Monitoring	enabled
Short Message System	disabled
Alert LED	enabled
Total Distortion Level	disabled
Load Profile 2	disabled
Power Quality Monitoring	enabled
Fraud Detection	enabled
Front Cover Removal	enabled
Terminal Cover Removal	enabled
Strong DC Field Detection	enabled
Losses	disabled
Extended Reactive Energy Calculation	disabled
Calendar Base	Gregorian
Meter Type	ZMG405CR4.041b.37 S2
Extension Board	
Extension Board	0 inputs / 4 outputs with 1 load control output
Electrical Interface 2	RS485

Mains

Primary Values		
U1 = 3 x 400 V (Ph. to Ph.)	U2 = 3 x 400 V (Ph. to Ph.)	U1/U2 = 1.0000
I1 = 5 A	I2 = 5.0 A	I1/I2 = 1.0000
Measurement System Data:	P1(max) = 1.91 kW	I _{max} = 10.0 A
	P _n = 0.87 kW	I _n = 5 A (200%)
	Un = 58 V (Phase to Neutral)	
	R1 = 2000.0000 imp/kWh	R2 = 2000 imp/kWh

Format of Registers in Display and IEC Readout

Cumulated Energy Normal Operating Mode	000000.00 kWh
Cumulated Energy Test Mode	0000.0000 kWh
Delta Energy Normal Operating Mode	0000.0000 kWh
Delta Energy Test Mode	0000.0000 kWh
Ampere Hour Normal Operating Mode	000000.00 Ah
Ampere Hour Test Mode	00000.0000 Ah
Current Average Demand and Maximum Demand	0.0000 kW
Cumulative Maximum Demand	000.0000 kW

Measured Quantities

Calculation of Apparent Energy	true RMS
Rotating Field Direction	rotating right (clockwise)
ME1 +A	active energy; +A; all phases
	reverse stop over all phases (as Ferraris)
	[1-1:1.8.0] (1.8.0) Energy Total ME1 +A
	[1-1:1.4.0] (1.4.0) Current Average Demand ME1 +A
	[1-1:1.5.0] (1.5.0) Last Average Demand ME1 +A

ME2 -A	active energy; -A; all phases reverse stop over all phases (as Ferraris) [1-1:2.8.0] (2.8.0) Energy Total ME2 -A [1-1:2.4.0] (2.4.0) Current Average Demand ME2 -A [1-1:2.5.0] (2.5.0) Last Average Demand ME2 -A
ME3 +R	reactive energy; +R (QI + QII); all phases [1-1:3.8.0] (3.8.0) Energy Total ME3 +R [1-1:3.4.0] (3.4.0) Current Average Demand ME3 +R [1-1:3.5.0] (3.5.0) Last Average Demand ME3 +R
ME4 -R	reactive energy; -R (QIII + QIV); all phases [1-1:4.8.0] (4.8.0) Energy Total ME4 -R [1-1:4.4.0] (4.4.0) Current Average Demand ME4 -R [1-1:4.5.0] (4.5.0) Last Average Demand ME4 -R
ME5 QI	reactive energy; QI; all phases [1-1:5.8.0] (5.8.0) Energy Total ME5 QI [1-1:5.4.0] (5.4.0) Current Average Demand ME5 QI [1-1:5.5.0] (5.5.0) Last Average Demand ME5 QI
ME6 QII	reactive energy; QII; all phases [1-1:6.8.0] (6.8.0) Energy Total ME6 QII [1-1:6.4.0] (6.4.0) Current Average Demand ME6 QII [1-1:6.5.0] (6.5.0) Last Average Demand ME6 QII
ME7 QIII	reactive energy; QIII; all phases [1-1:7.8.0] (7.8.0) Energy Total ME7 QIII [1-1:7.4.0] (7.4.0) Current Average Demand ME7 QIII [1-1:7.5.0] (7.5.0) Last Average Demand ME7 QIII
ME8 QIV	reactive energy; QIV; all phases [1-1:8.8.0] (8.8.0) Energy Total ME8 QIV [1-1:8.4.0] (8.4.0) Current Average Demand ME8 QIV [1-1:8.5.0] (8.5.0) Last Average Demand ME8 QIV
ME13 Ah - L1	ampere hours; Phase L1 [1-1:31.8.0] (31.8.0) Ampere Hour Total ME13 Ah - L1
ME14 Ah - L2	ampere hours; Phase L2 [1-1:51.8.0] (51.8.0) Ampere Hour Total ME14 Ah - L2
ME15 Ah - L3	ampere hours; Phase L3 [1-1:71.8.0] (71.8.0) Ampere Hour Total ME15 Ah - L3

Terminals

Output Pulse Length [ms] 80

Level 1 (Extension Board Terminals)

T1-1 Common

T1-4 Common

T1-5 Pulse Output

ME1 +A; 200 imp/kWh

T1-6 Pulse Output

ME3 +R; 200 imp/kvarh

T1-7 Common

T1-8 Pulse Output

ME2 -A; 200 imp/kWh

T1-9 Pulse Output

ME4 -R; 200 imp/kvarh

Clock

Time Base internal crystal

Daylight saving time

Start of daylight saving time

Earliest possible date

25. March

Weekday

Sunday

Switching time

03:00

Time shifting

+1 h

End of daylight saving time

Earliest possible date

25. October

Weekday

Sunday

Switching time

04:00

Time Zone (deviation of local time to UTC [min])

120

Synchronization Output

not used

Date and Time after Recover from Total Loss Power Reserve

default start date and time of current calendar

Time of Use (TOU)

Time of use (TOU)

Active season table

	Mo	Tu	Wd	Th	Fr	Sa	Su
01.01 - 29.02	1	1	1	1	1	1	1
01.03 - 30.04	2	2	2	2	2	2	2
01.05 - 31.08	3	3	3	3	3	3	3
01.09 - 31.10	2	2	2	2	2	2	2
01.11 - 31.12	1	1	1	1	1	1	1

Passive season table

	Mo	Tu	Wd	Th	Fr	Sa	Su
01.01 - 29.02	1	1	1	1	1	1	1
01.03 - 30.04	2	2	2	2	2	2	2
01.05 - 31.08	3	3	3	3	3	3	3
01.09 - 31.10	2	2	2	2	2	2	2
01.11 - 31.12	1	1	1	1	1	1	1

Active day table1

	E1	E2	E3	E4	E5	P1	P2	P3	P4	P5	K1	K2	K3	S
00:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.
06:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
08:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
10:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
17:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
21:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
23:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.

Active day table2

	E1	E2	E3	E4	E5	P1	P2	P3	P4	P5	K1	K2	K3	S
00:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.
06:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
08:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
10:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
18:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
22:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
23:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.

Active day table3

	E1	E2	E3	E4	E5	P1	P2	P3	P4	P5	K1	K2	K3	S
00:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.
07:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
08:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
11:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
20:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
23:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.

Passive day table1

	E1	E2	E3	E4	E5	P1	P2	P3	P4	P5	K1	K2	K3	S
00:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.
06:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
08:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
10:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
17:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
21:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
23:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.

Passive day table2

	E1	E2	E3	E4	E5	P1	P2	P3	P4	P5	K1	K2	K3	S
00:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.
06:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
08:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
10:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
18:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
22:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
23:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.

Passive day table3

	E1	E2	E3	E4	E5	P1	P2	P3	P4	P5	K1	K2	K3	S
00:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.
06:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
08:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
11:00	.	x	.	.	.	.	.	.	.	.	.	.	.	.
20:00	.	.	x	.	.	.	.	.	.	.	.	.	.	.
23:00	x	.	.	.	.	.	.	.	.	.	.	.	.	.

Special days

Active Day Table

Calendar name active

3tariff

CS7	<- --	- - - - -
CS8	<- --	- - - - -
CS9	<- --	- - - - -
CS10	<- --	- - - - -
CS11	<- --	- - - - -
CS12	<- --	- - - - -
CS13	<- --	- - - - -
CS14	<- --	- - - - -
CS15	<- --	- - - - -
CS16	<- --	- - - - -

Integration and Capture Period Control

Integration Period
 Integration Period 30 min
 Detent Time: 18 seconds

Energy Registers

ER1	ME1 +A (primary); CS1 PIK; rate number 1 Time integration period - standard [1-1:1.8.1] (1.8.1) Energy ME1 +A
ER2	ME1 +A (primary); CS2 POLUPIK; rate number 2 Time integration period - standard [1-1:1.8.2] (1.8.2) Energy ME1 +A
ER3	ME1 +A (primary); CS3 NOCH; rate number 3 Time integration period - standard [1-1:1.8.3] (1.8.3) Energy ME1 +A
ER4	ME2 -A (primary); CS1 PIK; rate number 1 Time integration period - standard [1-1:2.8.1] (2.8.1) Energy ME2 -A
ER5	ME2 -A (primary); CS2 POLUPIK; rate number 2 Time integration period - standard [1-1:2.8.2] (2.8.2) Energy ME2 -A
ER6	ME2 -A (primary); CS3 NOCH; rate number 3 Time integration period - standard [1-1:2.8.3] (2.8.3) Energy ME2 -A
ER7	ME3 +R (primary); CS1 PIK; rate number 1 Time integration period - standard [1-1:3.8.1] (3.8.1) Energy ME3 +R
ER8	ME3 +R (primary); CS2 POLUPIK; rate number 2 Time integration period - standard [1-1:3.8.2] (3.8.2) Energy ME3 +R
ER9	ME3 +R (primary); CS3 NOCH; rate number 3 Time integration period - standard [1-1:3.8.3] (3.8.3) Energy ME3 +R
ER10	ME4 -R (primary); CS1 PIK; rate number 1 Time integration period - standard [1-1:4.8.1] (4.8.1) Energy ME4 -R
ER11	ME4 -R (primary); CS2 POLUPIK; rate number 2 Time integration period - standard [1-1:4.8.2] (4.8.2) Energy ME4 -R
ER12	ME4 -R (primary); CS3 NOCH; rate number 3 Time integration period - standard [1-1:4.8.3] (4.8.3) Energy ME4 -R
<i>Energy Register 15/16 as free assignable energy registers</i>	
ER17	ME1 +A (primary); always active; rate number 0 Time integration period - capture period delta value (tm1) [1-1:1.29.0] (1.29.0) Energy ME1 +A
ER18	ME2 -A (primary); always active; rate number 0 Time integration period - capture period delta value (tm1) [1-1:2.29.0] (2.29.0) Energy ME2 -A
ER19	ME3 +R (primary); always active; rate number 0 Time integration period - capture period delta value (tm1) [1-1:3.29.0] (3.29.0) Energy ME3 +R
ER20	ME4 -R (primary); always active; rate number 0 Time integration period - capture period delta value (tm1) [1-1:4.29.0] (4.29.0) Energy ME4 -R

Maximum Demand

MDR1	ME1 +A; always active; rate number 0 [1-1:1.6.0] (1.6.0) Maximum Demand ME1 +A [1-1:1.2.0] (1.2.0) Cumulative Maximum Demand ME1 +A
MDR2	ME1 +A; CS1 PIK; rate number 1 [1-1:1.6.1] (1.6.1) Maximum Demand ME1 +A [1-1:1.2.1] (1.2.1) Cumulative Maximum Demand ME1 +A

Operating Time Registers

OTR0	always active Time integration period - standard [0-0:C.8.0] (C.8.0) Operating Time Total
OTR1	CS1 PIK; rate number 1 Time integration period - standard [0-0:C.8.1] (C.8.1) Operating Time
OTR2	CS2 POLUPIK; rate number 2 Time integration period - standard [0-0:C.8.2] (C.8.2) Operating Time
OTR3	CS3 NOCH; rate number 3 Time integration period - standard [0-0:C.8.3] (C.8.3) Operating Time

Instantaneous Values

Reference for Phase Current Angle	each phase current referenced to its phase voltage
Calculation of Phase Current Angle	according to ANSI standard
Format of instantaneous power	signed

Arrows in Display

Arrow 1: Static Control Signal	CS1 PIK
Arrow 1: Flashing Arrow Control Signal	not used
Arrow 2: Static Control Signal	CS2 POLUPIK
Arrow 2: Flashing Arrow Control Signal	not used
Arrow 3: Static Control Signal	CS3 NOCH
Arrow 3: Flashing Arrow Control Signal	not used
Arrow 4: Static Control Signal	not used
Arrow 4: Flashing Arrow Control Signal	not used
Arrow 5: Static Control Signal	not used
Arrow 5: Flashing Arrow Control Signal	not used
Arrow 6: Static Control Signal	not used
Arrow 6: Flashing Arrow Control Signal	not used
Arrow 7: Static Control Signal	not used
Arrow 7: Flashing Arrow Control Signal	not used
Arrow 8: Static Control Signal	not used
Arrow 8: Flashing Arrow Control Signal	not used
Arrow 9: Static Control Signal	not used
Arrow 9: Flashing Arrow Control Signal	reset lock active
Arrow 10: Static Control Signal	not used
Arrow 10: Flashing Arrow Control Signal	Clock invalid
Arrow 11: Static Control Signal	set mode active
Arrow 11: Flashing Arrow Control Signal	not used
Arrow 12: Static Control Signal	test mode active
Arrow 12: Flashing Arrow Control Signal	not used

Billing Period Reset

Locking Duration (for each source) [minutes]	1
Reset Locking Type	over all communication channels (as ZMB)
Reset Trigger Button R	yes
Billing Period Reset	begin of every month at 00:00
Reset Recovery after Power Fail	last billing period reset

Stored Values

Index Type	same as reset month
Index Length	always 2 digits (01,02 .. 99)
Sorting in Display and IEC-Readout	most recent value first
Time and Date of Last Reset	date only
Units of Stored Values in IEC-Readout	not included

Registers Captured in Stored Value Profile	0-0:1.0.0	Time and Date
	1-0:0.1.0	Reset Counter
	1-1:1.8.1	Energy ME1 +A
	1-1:1.8.2	Energy ME1 +A
	1-1:1.8.3	Energy ME1 +A
	1-1:2.8.1	Energy ME2 -A
	1-1:2.8.2	Energy ME2 -A
	1-1:2.8.3	Energy ME2 -A
	1-1:3.8.1	Energy ME3 +R
	1-1:3.8.2	Energy ME3 +R
	1-1:3.8.3	Energy ME3 +R
	1-1:4.8.1	Energy ME4 -R
	1-1:4.8.2	Energy ME4 -R
	1-1:4.8.3	Energy ME4 -R
	1-1:1.8.0	Energy Total ME1 +A
	1-1:2.8.0	Energy Total ME2 -A
	1-1:3.8.0	Energy Total ME3 +R
	1-1:4.8.0	Energy Total ME4 -R
Entries captured	12	(max. 53)
Load Profile		
Length of EDIS Status Register in Load Profile		two bytes
First Entry of Day		at midnight
Meaning of Daylight Saving Status Bit in Edis Status Register		as state (set during whole daylight saving time)
Triggers of Operational Indication Status Bit (4)		
Output of Time Stamp and Status in dlms Profiles		for each entry
Format of Timestamp in R5 / R6 Commands		with seconds [hh:mm:ss]
Registers Captured in Load Profile	0-0:1.0.0	Time and Date
	0-0:C.240.12	EDIS Status
	1-1:1.8.0	Energy Total ME1 +A
	1-1:2.8.0	Energy Total ME2 -A
	1-1:3.8.0	Energy Total ME3 +R
	1-1:4.8.0	Energy Total ME4 -R
	1-1:1.29.0	Energy ME1 +A
	1-1:2.29.0	Energy ME2 -A
	1-1:3.29.0	Energy ME3 +R
	1-1:4.29.0	Energy ME4 -R
	1-1:32.5.0	Voltage L1
	1-1:52.5.0	Voltage L2
	1-1:72.5.0	Voltage L3
	1-1:31.5.0	Phase Current L1
	1-1:51.5.0	Phase Current L2
	1-1:71.5.0	Phase Current L3
Entries captured	14896	(304 days)
Capture Period Control		Integration Period
Diagnostic Events		
Fraud Detection		
Strong DC Field Detection		[1-1:P.98.129] Strong DC Field Detection
Registered in		dedicated Event Log with Snapshot
Front Cover Removal		[1-1:P.98.130] Front Cover Removal
Registered in		dedicated Event Log with Snapshot
Terminal Cover Removal		[1-1:P.98.131] Terminal Cover Removal
Registered in		dedicated Event Log with Snapshot
Phase Sequence Reversal		[1-1:P.98.136] Phase Sequence Reversal
Integrated occurrence duration		10 s
Registered in		dedicated Event Log with Snapshot
Negative Active Energy Flow		[1-1:P.98.137] Negative Active Energy Flow
Minimum Current		0.5 A
Integrated occurrence duration		10 s
Registered in		dedicated Event Log with Snapshot
Power Quality Monitoring		
Overvoltage		[0-0:127.0.0*0] Overvoltage
Overvoltage Threshold		120 % (70 V)
Integrated occurrence duration		10 s
Registered in		Event Log

Undervoltage	[0-0:127.0.0*0] Undervoltage
Undervoltage Threshold	80 % (46 V)
Integrated occurrence duration	10 s
Registered in	Event Log
Phase Fail	[0-0:127.0.0*0] Phase Fail
Integrated occurrence duration	2 s
Registered in	Event Log
Power Down	[0-0:127.0.0*0] Power Down
Registered in	Event Log
Voltage Quality	[1-1:P.98.148] Voltage Quality
Lower Voltage Limit	50% (29 V)
Minimum Qualification Voltage	80% (46 V)
Maximum Qualification Voltage	110% (64 V)
Upper Voltage Limit	115% (67 V)
Integrated occurrence duration	10 s
Registered in	dedicated Event Log with Snapshot
Demand Monitoring	
Format of Snapshot Buffer	with instantaneous values (Ux, Ix, Power Factor)
Registers captured in dedicated Log	1-1:1.8.0 Energy Total ME1 +A 1-1:2.8.0 Energy Total ME2 -A

Event Log

Format of Timestamp in R5 / R6 Commands	with seconds [hh:mm:ss]
Sorting in Display and IEC-Readout	most recent value first
Trigger Sources (event appears)	(2) All Energy Registers Cleared (3) Stored Values and/or Load Profile cleared (4) Event Log cleared (5) Battery Voltage Low (8) Billing Period Reset (9) Daylight Saving Time Enabled or Disabled (10) Clock Adjusted (Old Time/Date) (11) Clock Adjusted (New Time/Date) (17) Undervoltage L1 (18) Undervoltage L2 (19) Undervoltage L3 (20) Overvoltage L1 (21) Overvoltage L2 (22) Overvoltage L3 (23) Power Down (24) Power Up (45) Error Register cleared (49) Missing Voltage L1 (51) Missing Voltage L3 (59) All Registers cleared (66) Clock Invalid (75) Measuring System Memory Error (76) Time Base Flag Error (80) MMI Board Error (89) Start-up sequence invalid (93) General System Error (94) Communication Locked (95) EEPROM Identifier Wrong (104) One or more Count Registers cleared (106) Alert Occurred (128) Energy Registers cleared (135) Front Cover opened
Control Input of Event 13	not used

Trigger Sources (event disappears)	(9) Daylight Saving Time Enabled or Disabled (17) Undervoltage L1 (18) Undervoltage L2 (19) Undervoltage L3 (20) Overvoltage L1 (21) Overvoltage L2 (22) Overvoltage L3 (49) Missing Voltage L1 (50) Missing Voltage L2 (51) Missing Voltage L3 (66) Clock Invalid (75) Measuring System Memory Error (76) Time Base Flag Error (80) MMI Board Error (89) Start-up sequence invalid (93) General System Error (94) Communication Locked (95) EEPROM Identifier Wrong (106) Alert Occurred
Registers Captured in Event Log	0-0:1.0.0 Time and Date 0-0:C.240.12 Event Number 0-0:C.240.12 Event Status 0-0:F.97.0 Error Register 500 (max. 500)
Entries captured	
Alerts	
Trigger Sources for Alert	(134) Strong DC Field detected (135) Front Cover opened
Control Input of Event 13	not used
Alert Output	
Automatic clearing of alert	no automatic clearing of alert
Display and IEC Readout List	
Operating Display (auto scrolling)	0.9.1 Time and Date 1.8.1 Energy ME1 +A 1.8.2 Energy ME1 +A 1.8.3 Energy ME1 +A 3.8.1 Energy ME3 +R 3.8.2 Energy ME3 +R 3.8.3 Energy ME3 +R 4.8.1 Energy ME4 -R 4.8.2 Energy ME4 -R 4.8.3 Energy ME4 -R 1.8.0 Energy Total ME1 +A 2.8.0 Energy Total ME2 -A 3.8.0 Energy Total ME3 +R 4.8.0 Energy Total ME4 -R
stored values	1 (of 12)

Display List (manual scrolling)

F.F	Error Register
0.0.0	Identification Number 1.1
C.1.0	Identification Number 2.1
0.1.0	Reset Counter
0.9.1	Time and Date
1.8.1	Energy ME1 +A
1.8.1.VV	Energy ME1 +A
1.8.2	Energy ME1 +A
1.8.2.VV	Energy ME1 +A
1.8.3	Energy ME1 +A
1.8.3.VV	Energy ME1 +A
2.8.1	Energy ME2 -A
2.8.1.VV	Energy ME2 -A
2.8.2	Energy ME2 -A
2.8.2.VV	Energy ME2 -A
2.8.3	Energy ME2 -A
2.8.3.VV	Energy ME2 -A
3.8.1	Energy ME3 +R
3.8.1.VV	Energy ME3 +R
3.8.2	Energy ME3 +R
3.8.2.VV	Energy ME3 +R
3.8.3	Energy ME3 +R
3.8.3.VV	Energy ME3 +R
4.8.1	Energy ME4 -R
4.8.1.VV	Energy ME4 -R
4.8.2	Energy ME4 -R
4.8.2.VV	Energy ME4 -R
4.8.3	Energy ME4 -R
4.8.3.VV	Energy ME4 -R
1.8.0	Energy Total ME1 +A
1.8.0.VV	Energy Total ME1 +A
2.8.0	Energy Total ME2 -A
2.8.0.VV	Energy Total ME2 -A
3.8.0	Energy Total ME3 +R
3.8.0.VV	Energy Total ME3 +R
4.8.0	Energy Total ME4 -R
C.6.0	Operating Time of Battery
32.7	Voltage L1
52.7	Voltage L2
72.7	Voltage L3
31.7	Phase Current L1
51.7	Phase Current L2
71.7	Phase Current L3
91.7	Neutral Current
14.7	Mains Frequency
81.7.0	Angle U(L1) to U(L1)
81.7.1	Angle U(L2) to U(L1)
81.7.2	Angle U(L3) to U(L1)
81.7.4	Angle I(L1) to U(L1)
81.7.5	Angle I(L2) to U(L2)
81.7.6	Angle I(L3) to U(L3)
13.7	Total Power Factor
33.7	Power Factor L1
53.7	Power Factor L2
73.7	Power Factor L3
END	End of List

stored values

1 (of 12)

IEC-Readout

F.F	Error Register
0.0.0	Identification Number 1.1
C.1.0	Identification Number 2.1
0.1.0	Reset Counter
0.1.0.WV	Reset Counter
0.9.1	Time and Date
1.8.1	Energy ME1 +A
1.8.1.WV	Energy ME1 +A
1.8.2	Energy ME1 +A
1.8.2.WV	Energy ME1 +A
1.8.3	Energy ME1 +A
1.8.3.WV	Energy ME1 +A
2.8.1	Energy ME2 -A
2.8.1.WV	Energy ME2 -A
2.8.2	Energy ME2 -A
2.8.2.WV	Energy ME2 -A
2.8.3	Energy ME2 -A
2.8.3.WV	Energy ME2 -A
3.8.1	Energy ME3 +R
3.8.1.WV	Energy ME3 +R
3.8.2	Energy ME3 +R
3.8.2.WV	Energy ME3 +R
3.8.3	Energy ME3 +R
3.8.3.WV	Energy ME3 +R
4.8.1	Energy ME4 -R
4.8.1.WV	Energy ME4 -R
4.8.2	Energy ME4 -R
4.8.2.WV	Energy ME4 -R
4.8.3	Energy ME4 -R
4.8.3.WV	Energy ME4 -R
1.8.0	Energy Total ME1 +A
1.8.0.WV	Energy Total ME1 +A
2.8.0	Energy Total ME2 -A
2.8.0.WV	Energy Total ME2 -A
3.8.0	Energy Total ME3 +R
3.8.0.WV	Energy Total ME3 +R
4.8.0	Energy Total ME4 -R
C.2.0	Number of Parameterisations
C.2.1	Date and Time of Last Parameterisation
C.6.0	Operating Time of Battery
C.7.0	Phase Fail Counter L1, L2, L3
C.7.1	Phase Fail Counter L1
C.7.2	Phase Fail Counter L2
C.7.3	Phase Fail Counter L3
C.8.1	Operating Time OTR1
C.8.2	Operating Time OTR2
C.8.3	Operating Time OTR3
C.8.0	Operating Time Total OTR0
32.7	Voltage L1
52.7	Voltage L2
72.7	Voltage L3
31.7	Phase Current L1
51.7	Phase Current L2
71.7	Phase Current L3
91.7	Neutral Current
14.7	Mains Frequency
81.7.0	Angle U(L1) to U(L1)
81.7.1	Angle U(L2) to U(L1)
81.7.2	Angle U(L3) to U(L1)
81.7.4	Angle I(L1) to U(L1)
81.7.5	Angle I(L2) to U(L2)
81.7.6	Angle I(L3) to U(L3)
13.7	Total Power Factor
33.7	Power Factor L1
53.7	Power Factor L2
73.7	Power Factor L3

stored values

12 (of 12)

Service List	F.F	Error Register
	0.0.0	Identification Number 1.1
	C.1.0	Identification Number 2.1
	0.1.0	Reset Counter
	0.1.0.VV	Reset Counter
	0.9.1	Time and Date
	1.8.1	Energy ME1 +A
	1.8.1.VV	Energy ME1 +A
	1.8.2	Energy ME1 +A
	1.8.2.VV	Energy ME1 +A
	1.8.3	Energy ME1 +A
	1.8.3.VV	Energy ME1 +A
	2.8.1	Energy ME2 -A
	2.8.1.VV	Energy ME2 -A
	2.8.2	Energy ME2 -A
	2.8.2.VV	Energy ME2 -A
	2.8.3	Energy ME2 -A
	2.8.3.VV	Energy ME2 -A
	3.8.1	Energy ME3 +R
	3.8.1.VV	Energy ME3 +R
	3.8.2	Energy ME3 +R
	3.8.2.VV	Energy ME3 +R
	3.8.3	Energy ME3 +R
	3.8.3.VV	Energy ME3 +R
	4.8.1	Energy ME4 -R
	4.8.1.VV	Energy ME4 -R
	4.8.2	Energy ME4 -R
	4.8.2.VV	Energy ME4 -R
	4.8.3	Energy ME4 -R
	4.8.3.VV	Energy ME4 -R
	1.8.0	Energy Total ME1 +A
	1.8.0.VV	Energy Total ME1 +A
	2.8.0	Energy Total ME2 -A
	2.8.0.VV	Energy Total ME2 -A
	3.8.0	Energy Total ME3 +R
	3.8.0.VV	Energy Total ME3 +R
	4.8.0	Energy Total ME4 -R
	C.2.0	Number of Parameterisations
	C.2.1	Date and Time of Last Parameterisation
	C.6.0	Operating Time of Battery
	C.7.0	Phase Fail Counter L1, L2, L3
	C.7.1	Phase Fail Counter L1
	C.7.2	Phase Fail Counter L2
	C.7.3	Phase Fail Counter L3
	C.8.1	Operating Time OTR1
	C.8.2	Operating Time OTR2
	C.8.3	Operating Time OTR3
	C.8.0	Operating Time Total OTR0
	32.7	Voltage L1
	52.7	Voltage L2
	72.7	Voltage L3
	END	End of List
stored values	12 (of 12)	
Set Mode Data List	0.0.0	Identification Number 1.1
	C.1.0	Identification Number 2.1
	0.9.1	Time and Date
	C.6.0	Operating Time of Battery
	END	End of List

Display

Display List / IEC-Readout Identification Number

Data Format

Format of Date for Display and IEC-Readout

Use of Separators in IEC-Readout of Timestamps

Timestamp of Maximum Demand and Minimum Power Factor Registers

DD.MM.YYYY

without separators (YYMMDDhhmmss) or (DDMMYYYYhhmmss)

not shown

Display Indicators

Low Battery 1

displayed

Low Battery 2

displayed

Phase Voltage Indicators L1 L2 L3	always shown	
Phase Current Indicators I1 I2 I3	always shown	
Rotating Field	always shown	
Active Energy Import	always shown	
Active Energy Export	always shown	
Reactive Energy Import	always shown	
Reactive Energy Export	always shown	
Communication active Indicator	always shown	
Alert Indicator	always shown	
Display Timers		
Return Time to Operating Display [s]	300	
Timer in Operating Display [s]	12	
Backlight Duration [s]	60	
Menu Entries		
Data Menu	Std_dAtA	Manual List
	P.01	Load Profile
	P.98	Event Log
	END	End of List
Service Menu	Set	Set Mode List
	SEr_dAtA	Service List
	P.98	Event Log
	bAt 1	Battery sign on/off
	tESt	Test Mode on/off
	ALErT	Alert off
	END	End of List
Test Mode		
Return Time to Operating Display [min]	1440	
Recovery of Test Mode after Power Fail	no	
Error		
Resettable Errors under Utility Seal (x: resetable)	(F:F 0100 0000) battery low	
	(F:F 0200 0000) date/time invalid	
Visibility of Critical Errors (x: visible)	(F:F 0000 0001) start-up sequence invalid	
	(F:F 0000 0002) measuring system error	
	(F:F 0000 0010) general system error	
	(F:F 0000 0020) communication locked	
	(F:F 0000 0040) EEPROM identifier wrong	
	(F:F 0000 0100) ROM checksum error	
	(F:F 0000 0200) backup data checksum error	
	(F:F 0000 0400) parameter data checksum error	
	(F:F 0000 0800) load profile data checksum error	
	(F:F 0000 1000) stored values and event log checksum error	
	(F:F 0000 4000) calibration checksum error	
	(F:F 0001 0000) RAM error	
	(F:F 0002 0000) EEPROM Error	
	(F:F 0004 0000) measuring system memory error	
	(F:F 0008 0000) time base error	
	(F:F 0010 0000) load profile memory error	
	(F:F 0100 0000) battery low	
	(F:F 0200 0000) invalid clock	
Visibility Mask in Display	active	
Visibility Mask in IEC-Readout	active	
Identification Numbers		
Identification Number 1.1	54150006	
Identification Number 1.2		
Identification Number 1.3		
Identification Number 1.4		
Identification Number 2.1	54150006	
Identification Number 2.2		
Physical IEC Device Address	54150006	
Physical HDLC Device Address (Lower MAC)	1006	
Parameterisation ID		
Connection ID		
Communication		
Type of identification message	programmable (standard)	
IEC Identification String	LGZx\2ZMG405041b	

Inhibition after wrong passwords	
Number of attempts before inhibition	10
Recover from inhibition after	1 hours
Return Time to Sleep Mode [s]	10
Data Format of R6 Command	including header information between blocks
Optical Interface	
Optical Interface	
Initial Protocol	IEC 62056-21
Start Transmission Rate	300 Baud
Maximum Transmission Rate	9600 Baud
IEC Inter Character Timeout	1.5 s
HDLC Transmit Buffer Size	248
Electrical Interface(s)	
External device on Electrical Interface 1	3rd party modem
Electrical Interface 1 (Powered RS232)	
Initial Protocol	Autodetect
Transmission Rate	9600 Baud
IEC Inter Character Timeout	3 s
HDLC Transmit Buffer Size	200
Handshake	
CTS	enabled
Access Protection	
Protected with IEC address	disabled
Protected with HDLC address	disabled
Operating Mode (Electrical Interface 2)	RS485 slave (not linked to interface 1)
Electrical Interface 2 (RS485)	
Initial Protocol	Autodetect
Transmission Rate	9600 Baud
IEC Inter Character Timeout	3 s
HDLC Transmit Buffer Size	248
Access Protection	
Protected with IEC address	disabled
Protected with HDLC address	disabled
dlms Response Delay [ms]	0
External Modem Configuration	
Predefined Modem Settings	user defined
Delay between Initialization Strings [0.1 s]	5
Maximum Connection Time [min]	0
Modem Reset every [h]	0
Modem Reset Start Time	00:00
Initialization Strings	
AT Command 1	E0Q0
Answer to AT Command 1	OK
AT Command 2	
Answer to AT Command 2	
AT Command 3	
Answer to AT Command 3	
AT Command 4	
Answer to AT Command 4	
AT Command 5	
Answer to AT Command 5	
AT Command 6	
Answer to AT Command 6	
AT Command 7	
Answer to AT Command 7	
AT Command 8	
Answer to AT Command 8	
AT Command 9	
Answer to AT Command 9	
AT Command 10	
Answer to AT Command 10	
Check Modem Strings	
Check Modem String	ATE0Q0
Check Modem String Answer	OK
Modem Answers	
OK	OK
CONNECT	CONNECT

RING
NO CARRIER
ERROR
CONNECT 1200
NO DIAL TONE
BUSY
NO ANSWER
CONNECT 600
CONNECT 2400
CONNECT 4800
CONNECT 9600
CONNECT 14400
CONNECT 19200
CONNECT 38400
CONNECT 57600

RING
NO CARRIER
ERROR
CONNECT 1200
NO DIAL TONE
BUSY
NO ANSWER
CONNECT 600
CONNECT 2400
CONNECT 4800
CONNECT 9600
CONNECT 14400
CONNECT 28800
CONNECT 36600
CONNECT 56000

Time Window

Time Window

Start GSM Time

00:00

End GSM Time

23:59

Duration

23 h 59 m

GPRS/CSD Switching

GPRS to CSD switching

Command

~~~~~

CSD to GPRS switching

CSD to GPRS switching

with command

Command

AT+G3&lt;0D&gt;&lt;0D&gt;&lt;0D&gt;&lt;0A&gt;OK&lt;0D&gt;&lt;0D&gt;&lt;0D&gt;&lt;0A&gt;

**Security System****Read Access to Data (Registers and Profiles)**

|                                              | Level 0                             | Level 1                             | Level 2                             | Level 3                             | Level 4                             | Level A                             | Level E                             | Level F                             |
|----------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| R00: Error Code                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R01: Identification Number 1                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R02: Identification Number 2                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R03: Device Addresses (IEC and HDLC)         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R04: Parameterisation ID, Timestamp, Counter | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R11: Connection ID                           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R08: Time and Date                           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R06: Energy Total Registers                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R07: Energy Registers                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R70: Maximum Demand Registers                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R71: Cumulative Maximum Registers            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R13: Power Factor                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R48: Operating Time Registers                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R05: Reset Counter and Timestamp             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R15: Stored Values                           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R73: Load Profile                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R14: Event Log                               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R10: Battery (Time and Voltage)              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R16: All other Registers                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R86: Current Hour Registers                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R87: Current Hour Register Format            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R88: Fraud Detection                         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R89: Power Quality Monitoring                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| R90: Demand Monitoring Log                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Write or Reset Access to Data (Registers and Profiles)**

|                                              | Level 0                  | Level 1                             | Level 2                             | Level 3                             | Level 4                             | Level A                             | Level E                             | Level F                             |
|----------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| W00: Error Code                              | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W01: Identification Number 1                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W02: Identification Number 2                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W03: Device Addresses (IEC and HDLC)         | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W04: Parameterisation ID, Timestamp, Counter | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W11: Connection ID                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W08: Time and Date                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W06: Energy Total Registers                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

|                                   |                          |                                     |                                     |                                     |                                     |                                     |                                     |
|-----------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| W07: Energy Registers             | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W70: Maximum Demand Registers     | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W71: Cumulative Maximum Registers | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W13: Power Factor                 | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W48: Operating Time Registers     | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W05: Reset Counter and Timestamp  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W15: Stored Values                | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W73: Load Profile                 | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W14: Event Log                    | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W10: Battery (Time and Voltage)   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W16: All other Registers          | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W86: Current Hour Registers       | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W87: Current Hour Register Format | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W88: Fraud Detection              | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W89: Power Quality Monitoring     | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W90: Demand Monitoring Log        | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Write Access to Parameters**

|                                                  | Level 0                  | Level 1                             | Level 2                             | Level 3                             | Level 4                             | Level A                             | Level E                             | Level F                             |
|--------------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| W21: Primary Values (Transformer Ratio)          | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W19: External Pulse Input Configuration          | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W20: Pulse Output Configuration                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W09: Clock (Synchronization, Daylight Saving)    | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W79: TOU, Specials Days and Communication Inputs | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W28: Control Table                               | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W77: Integration / Capture Period                | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W25: Energy Register Format                      | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W26: Demand Register Format                      | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W22: Power Factor Configuration                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W24: Reset Tables                                | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W72: Stored Value Configuration                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W78: Load Profile Configuration                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W23: Event Log Configuration                     | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W74: Power Quality Monitoring                    | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W75: Fraud Monitoring                            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W76: Overcurrent Monitor Thresholds              | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W81: Demand Monitor Thresholds                   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W27: Display and IEC-Readout List                | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W80: Communication Parameters                    | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W82: Electrical Interface / SMS System           | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W92: Electrical Interface 2                      | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W85: Losses: Iron and Copper Resistor            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W29: All other Parameters                        | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Access to Commands**

|                                            | Level 0                  | Level 1                             | Level 2                             | Level 3                             | Level 4                             | Level A                             | Level E                             | Level F                             |
|--------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| W30: Register Reset                        | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W50: Neutralize Reset Control Inputs KA/KB | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W31: Billing Period Reset                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W91: Communication Inputs                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Modification of Security System****Modification of Passwords**

|                           | Level 0                  | Level 1                             | Level 2                             | Level 3                             | Level 4                             | Level A                             | Level E                             | Level F                             |
|---------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| W33: Password 1 (=IEC P1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W34: Password 2 (=IEC P2) | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W42: Password A           | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W46: Password E           | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| W12: IEC W5 Password      | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |