Measured parameters

Description	Name	Address	Type
Voltage phase 1	"VOLT_L1"	100	float
Voltage phase 2	"VOLT_L2"	102	float
Voltage phase 3	"VOLT_L3"	104	float
Voltage phase 1-2	"VOLT_L1_L2"	106	float
Voltage phase 2-3	"VOLT_L2_L3"	108	float
Voltage phase 1-3	"VOLT_L1_L3"	110	float
Voltage THDU phase 1	"VOLT_THDU_L1"	112	float
Voltage THDU phase 2	"VOLT_THDU_L2"	114	float
Voltage THDU phase 3	"VOLT_THDU_L3"	116	float
Current phase 1	"CURR_L1"	118	float
Current phase 2	"CURR_L2"	120	float
Current phase 3	"CURR_L3"	122	float
Current null	"CURR_NULL"	126	float
Current THDI phase 1	"CURR_THDI_L1"	130	float
Current THDI phase 2	"CURR_THDI_L2"	132	float
Current THDI phase 3	"CURR_THDI_L3"	134	float
Cos fi phase 1	"COS_L1"	136	float
Cos fi phase 2	"COS_L2"	138	float
Cos fi phase 3	"COS_L3"	140	float
Power factor	"POWER_FACTOR"	144	float
Frequency	"FREQUENCY"	150	float
Voltage 3.harmonic phase 1	"HARM_U3_L1"	154	float
Voltage 3.harmonic phase 2	"HARM_U3_L2"	156	float
Voltage 3.harmonic phase 3	"HARM_U3_L3"	158	float
Voltage 5.harmonic phase 1	"HARM_U5_L1"	160	float
Voltage 5.harmonic phase 2	"HARM_U5_L2"	162	float
Voltage 5.harmonic phase 3	"HARM_U5_L3"	164	float
Voltage 7.harmonic phase 1	"HARM_U7_L1"	166	float
Voltage 7.harmonic phase 2	"HARM_U7_L2"	168	float
Voltage 7.harmonic phase 3	"HARM_U7_L3"	170	float
Voltage 9.harmonic phase 1	"HARM_U9_L1"	172	float
Voltage 9.harmonic phase 2	"HARM_U9_L2"	174	float
Voltage 9.harmonic phase 3	"HARM_U9_L3"	176	float
Voltage 11.harmonic phase 1	"HARM_U11_L1"	178	float
Voltage 11.harmonic phase 2	"HARM_U11_L2"	180	float
Voltage 11.harmonic phase 3	"HARM_U11_L3"	182	float
Voltage 13.harmonic phase 1	"HARM_U13_L1"	184	float
Voltage 13.harmonic phase 2	"HARM_U13_L2"	186	float
Voltage 13.harmonic phase 3	"HARM_U13_L3"	188	float
Voltage 15.harmonic phase 1	"HARM_U15_L1"	190	float
Voltage 15.harmonic phase 2	"HARM_U15_L2"	192	float
Voltage 15.harmonic phase 3	"HARM_U15_L3"	194	float
Voltage 17.harmonic phase 1	"HARM_U17_L1"	196	float
Voltage 17.harmonic phase 2	"HARM_U17_L2"	198	float
Voltage 17.harmonic phase 3	"HARM_U17_L3"	200	float
Voltage 19.harmonic phase 1	"HARM_U19_L1"	202	float
Voltage 19.harmonic phase 2	"HARM_U19_L2"	204	float
Voltage 19.harmonic phase 3	"HARM_U19_L3"	206	float
Current 3.harmonic phase 1	"HARM_A3_L1"	208	float
Current 3.harmonic phase 2	"HARM_A3_L2"	210	float
Current 3.harmonic phase 3	"HARM_A3_L3"	212	float
Current 5.harmonic phase 1	"HARM_A5_L1"	214	float
Current 5.harmonic phase 2	"HARM_A5_L2"	216	float
Current 5.harmonic phase 3	"HARM_A5_L3"	218	float
Current 7.harmonic phase 1	"HARM_A7_L1"	220	float
Current 7.harmonic phase 2	"HARM_A7_L2"	222	float
Current 7.harmonic phase 3	"HARM_A7_L3"	224	float
Current 9.harmonic phase L1	"HARM_A9_L1"	226	float
Current 9.harmonic phase L2	"HARM_A9_L2"	228	float
Current 9.harmonic phase L3	"HARM_A9_L3"	230	float
Current 11.harmonic phase L1	"HARM_A11_L1"	232	float
Current 11.harmonic phase L2	"HARM_A11_L2"	234	float
Current 11.harmonic phase L3	"HARM_A11_L3"	236	float
Current 13.harmonic phase L1	"HARM_A13_L1"	238	float
Current 13.harmonic phase L2	"HARM_A13_L2"	240	float
Current 13.harmonic phase L3	"HARM_A13_L3"	242	float
Current 15.harmonic phase L1	"HARM_A15_L1"	244	float
Current 15.harmonic phase L2	"HARM_A15_L2"	246	float
Current 15.harmonic phase L3	"HARM_A15_L3"	248	float
Current 17.harmonic phase L1	"HARM_A17_L1"	250	float
Current 17.harmonic phase L2	"HARM_A17_L2"	252	float
Current 17.harmonic phase L3	"HARM_A17_L3"	254	float
Current 19.harmonic phase L1	"HARM_A19_L1"	256	float
Current 19.harmonic phase L2	"HARM_A19_L2"	258	float
Current 19.harmonic phase L3	"HARM_A19_L3"	260	float
Apparent power phase L1	"APPARENT_POWER_L1"	262	float
Apparent power phase L2	"APPARENT_POWER_L2"	264	float
Apparent power phase L3	"APPARENT_POWER_L3"	266	float
Active power phase L1	"ACTIVE_POWER_L1"	268	float
Active power phase L2	"ACTIVE_POWER_L2"	270	float
Active power phase L3	"ACTIVE_POWER_L3"	272	float
Reactive power consumption phase L1	"REACT_POWER_CONSUMPT_L1"	274	float
Reactive power consumption phase L2	"REACT_POWER_CONSUMPT_L2"	276	float
Reactive power consumption phase L3	"REACT_POWER_CONSUMPT_L3"	278	float
Reactive power supply phase L1	"REACT_POWER_SUPPLY_L1"	280	float
Reactive power supply phase L2	"REACT_POWER_SUPPLY_L2"	282	float
Reactive power supply phase L3	"REACT_POWER_SUPPLY_L3"	284	float
Total three-phase apparent power	"TOTAL_APPARENT_POWER"	288	float
Total three-phase active power	"TOTAL_ACTIVE_POWER"	294	float
Total three-phase reactive power consumption	"TOTAL_REACTIVE_CONSUMPT"	300	float
Total three-phase reactive power supply	"TOTAL_REACTIVE_SUPPLY"	306	float

Maxima of measured parameters			
Description	**Name**	**Address**	**Type**
Max Voltage phase 1	"MAX_VOLT_L1"	400	float
Max Voltage phase 2	"MAX_VOLT_L2"	402	float
Max Voltage phase 3	"MAX_VOLT_L3"	404	float
Max Voltage phase 1-2	"MAX_VOLT_L1_L2"	406	float
Max Voltage phase 2-3	"MAX_VOLT_L2_L3"	408	float
Max Voltage phase 1-3	"MAX_VOLT_L1_L3"	410	float
Max Voltage THDU phase 1	"MAX_VOLT_THDU_L1"	412	float
Max Voltage THDU phase 2	"MAX_VOLT_THDU_L2"	414	float
Max Voltage THDU phase 3	"MAX_VOLT_THDU_L3"	416	float
Max Current phase 1	"MAX_CURR_L1"	418	float
Max Current phase 2	"MAX_CURR_L2"	420	float
Max Current phase 3	"MAX_CURR_L3"	422	float
Max Current null	"MAX_CURR_NULL"	426	float
Max Current THDI phase 1	"MAX_CURR_THDI_L1"	430	float
Max Current THDI phase 2	"MAX_CURR_THDI_L2"	432	float
Max Current THDI phase 3	"MAX_CURR_THDI_L3"	434	float
Max Cos fi phase 1	"MAX_COS_L1"	436	float
Max Cos fi phase 2	"MAX_COS_L2"	438	float
Max Cos fi phase 3	"MAX_COS_L3"	440	float
Max Power factor	"MAX_POWER_FACTOR"	444	float
Max Frequency	"MAX_FREQUENCY"	450	float
Max Voltage 3.harmonic phase 1	"MAX_HARM_U3_L1"	454	float
Max Voltage 3.harmonic phase 2	"MAX_HARM_U3_L2"	456	float
Max Voltage 3.harmonic phase 3	"MAX_HARM_U3_L3"	458	float
Max Voltage 5.harmonic phase 1	"MAX_HARM_U5_L1"	460	float
Max Voltage 5.harmonic phase 2	"MAX_HARM_U5_L2"	462	float
Max Voltage 5.harmonic phase 3	"MAX_HARM_U5_L3"	464	float
Max Voltage 7.harmonic phase 1	"MAX_HARM_U7_L1"	466	float
Max Voltage 7.harmonic phase 2	"MAX_HARM_U7_L2"	468	float
Max Voltage 7.harmonic phase 3	"MAX_HARM_U7_L3"	470	float
Max Voltage 9.harmonic phase 1	"MAX_HARM_U9_L1"	472	float
Max Voltage 9.harmonic phase 2	"MAX_HARM_U9_L2"	474	float
Max Voltage 9.harmonic phase 3	"MAX_HARM_U9_L3"	476	float
Max Voltage 11.harmonic phase 1	"MAX_HARM_U11_L1"	478	float
Max Voltage 11.harmonic phase 2	"MAX_HARM_U11_L2"	480	float
Max Voltage 11.harmonic phase 3	"MAX_HARM_U11_L3"	482	float
Max Voltage 13.harmonic phase 1	"MAX_HARM_U13_L1"	484	float
Max Voltage 13.harmonic phase 2	"MAX_HARM_U13_L2"	486	float
Max Voltage 13.harmonic phase 3	"MAX_HARM_U13_L3"	488	float
Max Voltage 15.harmonic phase 1	"MAX_HARM_U15_L1"	490	float
Max Voltage 15.harmonic phase 2	"MAX_HARM_U15_L2"	492	float
Max Voltage 15.harmonic phase 3	"MAX_HARM_U15_L3"	494	float
Max Voltage 17.harmonic phase 1	"MAX_HARM_U17_L1"	496	float
Max Voltage 17.harmonic phase 2	"MAX_HARM_U17_L2"	498	float
Max Voltage 17.harmonic phase 3	"MAX_HARM_U17_L3"	500	float
Max Voltage 19.harmonic phase 1	"MAX_HARM_U19_L1"	502	float
Max Voltage 19.harmonic phase 2	"MAX_HARM_U19_L2"	504	float
Max Voltage 19.harmonic phase 3	"MAX_HARM_U19_L3"	506	float
Max Current 3.harmonic phase 1	"MAX_HARM_A3_L1"	508	float
Max Current 3.harmonic phase 2	"MAX_HARM_A3_L2"	510	float
Max Current 3.harmonic phase 3	"MAX_HARM_A3_L3"	512	float
Max Current 5.harmonic phase 1	"MAX_HARM_A5_L1"	514	float
Max Current 5.harmonic phase 2	"MAX_HARM_A5_L2"	516	float
Max Current 5.harmonic phase 3	"MAX_HARM_A5_L3"	518	float
Max Current 7.harmonic phase 1	"MAX_HARM_A7_L1"	520	float
Max Current 7.harmonic phase 2	"MAX_HARM_A7_L2"	522	float
Max Current 7.harmonic phase 3	"MAX_HARM_A7_L3"	524	float
Max Current 9.harmonic phase 1	"MAX_HARM_A9_L1"	526	float
Max Current 9.harmonic phase 2	"MAX_HARM_A9_L2"	528	float
Max Current 9.harmonic phase 3	"MAX_HARM_A9_L3"	530	float
Max Current 11.harmonic phase 1	"MAX_HARM_A11_L1"	532	float
Max Current 11.harmonic phase 2	"MAX_HARM_A11_L2"	534	float
Max Current 11.harmonic phase 3	"MAX_HARM_A11_L3"	536	float
Max Current 13.harmonic phase 1	"MAX_HARM_A13_L1"	538	float
Max Current 13.harmonic phase 2	"MAX_HARM_A13_L2"	540	float
Max Current 13.harmonic phase 3	"MAX_HARM_A13_L3"	542	float
Max Current 15.harmonic phase 1	"MAX_HARM_A15_L1"	544	float
Max Current 15.harmonic phase 2	"MAX_HARM_A15_L2"	546	float
Max Current 15.harmonic phase 3	"MAX_HARM_A15_L3"	548	float
Max Current 17.harmonic phase 1	"MAX_HARM_A17_L1"	550	float
Max Current 17.harmonic phase 2	"MAX_HARM_A17_L2"	552	float
Max Current 17.harmonic phase L3	"MAX_HARM_A17_L3"	554	float
Max Current 19.harmonic phase L1	"MAX_HARM_A19_L1"	556	float
Max Current 19.harmonic phase L2	"MAX_HARM_A19_L2"	558	float
Max Current 19.harmonic phase L3	"MAX_HARM_A19_L3"	560	float
Max Apparent power phase L1	"MAX_APPARENT_POWER_L1"	562	float
Max Apparent power phase L2	"MAX_APPARENT_POWER_L2"	564	float
Max Apparent power phase L3	"MAX_APPARENT_POWER_L3"	566	float
Max Active power phase L1	"MAX_ACTIVE_POWER_L1"	568	float
Max Active power phase L2	"MAX_ACTIVE_POWER_L2"	570	float
Max Active power phase L3	"MAX_ACTIVE_POWER_L3"	572	float
Max Reactive power consumption phase L1	"MAX_REACT_POWER_CONSUMPT_L1"	574	float
Max Reactive power consumption phase L2	"MAX_REACT_POWER_CONSUMPT_L2"	576	float
Max Reactive power consumption phase L3	"MAX_REACT_POWER_CONSUMPT_L3"	578	float
Max Reactive power supply phase L1	"MAX_REACT_POWER_SUPPLY_L1"	580	float
Max Reactive power supply phase L2	"MAX_REACT_POWER_SUPPLY_L2"	582	float
Max Reactive power supply phase L3	"MAX_REACT_POWER_SUPPLY_L3"	584	float
Max Total apparent power	"MAX_TOTAL_APPARENT_POWER"	588	float
Max Total active power	"MAX_TOTAL_ACTIVE_POWER"	594	float
Max Total reactive power consumption	"MAX_TOTAL_REACTIVE_CONSUMPT"	600	float
Max Total reactive power supply	"MAX_TOTAL_REACTIVE_SUPPLY"	606	float

Minimums of measured parameters

Description	Name	Address	Type
Min Voltage phase L1	"MIN_VOLT_L1"	610	float
Min Voltage phase L2	"MIN_VOLT_L2"	612	float
Min Voltage phase L3	"MIN_VOLT_L3"	614	float
Min Voltage phase L1-L2	"MIN_VOLT_L1_L2"	616	float
Min Voltage phase L2-L3	"MIN_VOLT_L2_L3"	618	float
Min Voltage phase L1-L3	"MIN_VOLT_L1_L3"	620	float

Energy meter

Description	Name	Address	Type
Active energy consumption+	"ENERGY_ACTIVE_CONSUMPT"	310	float
Reactive energy consumption L+	"ENERGY_REACTIVE_CONSUMPT_L"	312	float
Reactive energy consumption C+	"ENERGY_REACTIVE_CONSUMPT_C"	314	float
Active energy supply-	"ENERGY_ACTIVE_SUPPLY"	316	float
Reactive energy supply L-	"ENERGY_REACTIVE_SUPPLY_L"	318	float
Reactive energy supply C-	"ENERGY_REACTIVE_SUPPLY_C"	320	float

Energy meter

Description	Name	Address	Type
Average current phase L1		622	float
Average current phase L2		624	float
Average current phase L3		626	float
Average active power consumption		628	float
Average active power distribution		630	float
Average apparent power		632	float

Other parameters – for the devices newer than August 2012

Description	Description	Address	Type
Working hours	minutes	634	float
Averaging time	1 – 60 minutes	636	float
Averaging method	0 – fix window, 1 – sliding window	638	float

Energy meter – for the devices newer than August 2012			
Description	Name	Address	Type
Averaging time in minutes	1 – 60	636	integer
Averaging method	0 – fix , 1 – sliding	638	integer
Reset	10001 – working hours	640	
	14255 – Min/Max		
	30078 – Energy		

Description	Name	Address	Type
Averaging time in minutes	1 – 60	636	integer
Averaging method	0 – fix , 1 – sliding	638	integer
Reset	10001 – working hours	640	
	14255 – Min/Max		
	30078 – Energy		

Example request to PLA

Request to PLA [voltage phase 1]:

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1	3	0	100	0	2	133	212	

[0]   - ID RS485
[1]   - modbus function (supported function 03)
[2] [3]   - register address
[4] [5]   - number of registers
[6] [7]   - crc

Answer from PLA:

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1	3	4	67	101	224	34	54	113

[0]   - ID RS485
[1]   - modbus function
[2]   - number of returned bytes
[3] [4] [5] [6] - float (4x bytes little endian: a[6], a+1[5], a+2[4], a+3[3] = 229.8755
[7] [8]   - crc

CRC-16 table:

```
static const unsigned short crc16tab[] = /* CRC lookup table polynomial 0xA001 */
 {
 0x0000, 0xC0C1, 0xC181, 0x0140, 0xC301, 0x03C0, 0x0280, 0xC241,  0x0000, 0xC
 0xC601, 0x06C0, 0x0780, 0xC741, 0x0500, 0xC5C1, 0xC481, 0x0440,  0xC601, 0x0
 0xCC01, 0x0CC0, 0x0D80, 0xCD41, 0x0F00, 0xCFC1, 0xCE81, 0x0E40,  0xCC01, 0
 0x0A00, 0xCAC1, 0xCB81, 0x0B40, 0xC901, 0x09C0, 0x0880, 0xC841,  0x0A00, 0x0
 0xD801, 0x18C0, 0x1980, 0xD941, 0x1B00, 0xDBC1, 0xDA81, 0x1A40,  0xD801, 0x1
 0x1E00, 0xDEC1, 0xDF81, 0x1F40, 0xDD01, 0x1DC0, 0x1C80, 0xDC41,  0x1E00, 0x
 0x1400, 0xD4C1, 0xD581, 0x1540, 0xD701, 0x17C0, 0x1680, 0xD641,  0x1400, 0xD
 0xD201, 0x12C0, 0x1380, 0xD341, 0x1100, 0xD1C1, 0xD081, 0x1040,  0xD201, 0x1
 0xF001, 0x30C0, 0x3180, 0xF141, 0x3300, 0xF3C1, 0xF281, 0x3240,  0xF001, 0x30
 0x3600, 0xF6C1, 0xF781, 0x3740, 0xF501, 0x35C0, 0x3480, 0xF441,  0x3600, 0xF6
 0x3C00, 0xFCC1, 0xFD81, 0x3D40, 0xFF01, 0x3FC0, 0x3E80, 0xFE41,  0x3C00, 0x
 0xFA01, 0x3AC0, 0x3B80, 0xFB41, 0x3900, 0xF9C1, 0xF881, 0x3840,  0xFA01, 0x3
 0x2800, 0xE8C1, 0xE981, 0x2940, 0xEB01, 0x2BC0, 0x2A80, 0xEA41,  0x2800, 0xE
 0xEE01, 0x2EC0, 0x2F80, 0xEF41, 0x2D00, 0xEDC1, 0xEC81, 0x2C40,  0xEE01, 0x
 0xE401, 0x24C0, 0x2580, 0xE541, 0x2700, 0xE7C1, 0xE681, 0x2640,  0xE401, 0x24
 0x2200, 0xE2C1, 0xE381, 0x2340, 0xE101, 0x21C0, 0x2080, 0xE041,  0x2200, 0xE2
 0xA001, 0x60C0, 0x6180, 0xA141, 0x6300, 0xA3C1, 0xA281, 0x6240,  0xA001, 0x60C
 0x6600, 0xA6C1, 0xA781, 0x6740, 0xA501, 0x65C0, 0x6480, 0xA441,  0x6600, 0xA6
 0x6C00, 0xACC1, 0xAD81, 0x6D40, 0xAF01, 0x6FC0, 0x6E80, 0xAE41,  0x6C00, 0x
 0xAA01, 0x6AC0, 0x6B80, 0xAB41, 0x6900, 0xA9C1, 0xA881, 0x6840,  0xAA01, 0x6
 0x7800, 0xB8C1, 0xB981, 0x7940, 0xBB01, 0x7BC0, 0x7A80, 0xBA41,  0x7800, 0xB
 0xBE01, 0x7EC0, 0x7F80, 0xBF41, 0x7D00, 0xBDC1, 0xBC81, 0x7C40,  0xBE01, 0x
 0xB401, 0x74C0, 0x7580, 0xB541, 0x7700, 0xB7C1, 0xB681, 0x7640,  0xB401, 0x74
 0x7200, 0xB2C1, 0xB381, 0x7340, 0xB101, 0x71C0, 0x7080, 0xB041,  0x7200, 0xB2
 0x5000, 0x90C1, 0x9181, 0x5140, 0x9301, 0x53C0, 0x5280, 0x9241,  0x5000, 0x90C
 0x9601, 0x56C0, 0x5780, 0x9741, 0x5500, 0x95C1, 0x9481, 0x5440,  0x9601, 0x56C
 0x9C01, 0x5CC0, 0x5D80, 0x9D41, 0x5F00, 0x9FC1, 0x9E81, 0x5E40,  0x9C01, 0x5
 0x5A00, 0x9AC1, 0x9B81, 0x5B40, 0x9901, 0x59C0, 0x5880, 0x9841,  0x5A00, 0x9A
 0x8801, 0x48C0, 0x4980, 0x8941, 0x4B00, 0x8BC1, 0x8A81, 0x4A40,  0x8801, 0x48
 0x4E00, 0x8EC1, 0x8F81, 0x4F40, 0x8D01, 0x4DC0, 0x4C80, 0x8C41,  0x4E00, 0x8
 0x4400, 0x84C1, 0x8581, 0x4540, 0x8701, 0x47C0, 0x4680, 0x8641,  0x4400, 0x84C
 0x8201, 0x42C0, 0x4380, 0x8341, 0x4100, 0x81C1, 0x8081, 0x4040  0x8201, 0x42C
 };
```