PW8001

HIOKI

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Modbus/TCP Communications
Instruction Manual

POWER ANALYZER

EN

Dec. 2022 Edition 1
PW8001A968-00 22-12H

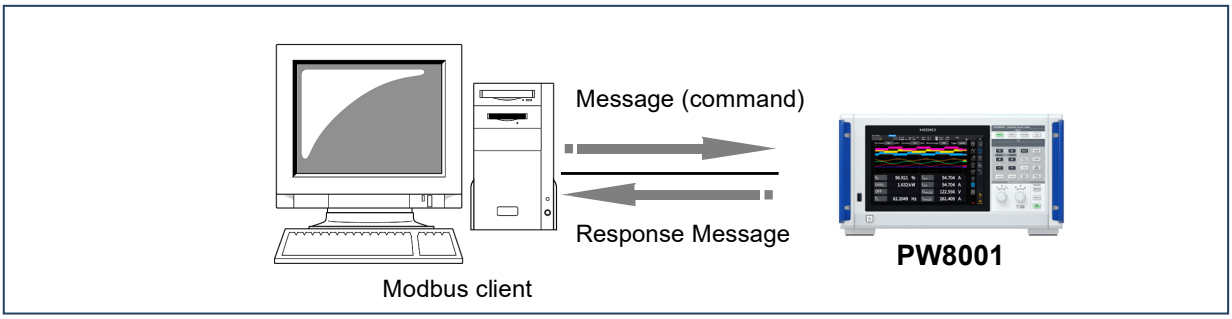
- ✓ This instruction manual explains only the Modbus/TCP communication.
- ✓ Before using PW8001, be sure to read the instruction manual of PW8001.
- ✓ For details regarding the PW8001 communication settings, please refer to "9 Connecting the Instrument to a PC" in the PW8001 Instruction Manual.
- ✓ Although all reasonable care has been taken in the production of this instruction manual, should you find any points which are unclear or in error, please contact your local distributor or the HIOKI International Sales Department at os-com@hioki.co.jp.

Contents

1 Modbus/TCP Communication

1.1 Function Overview

In this manual, PW8001 is represented as the instrument.
This instrument functions as a Modbus/TCP server. You can control the instrument and acquire measurement data by sending messages from a Modbus client instrument to this instrument.



The instrument uses **TCP/IP port 502** as a listening port for the Modbus/TCP communication.
In addition, **the unit ID (server address)** for the Modbus/TCP server of this instrument is **1**. Any messages with a unit ID other than this value cannot be accepted.

1.2 Function Code

The function codes supported by the instrument are as follows.

Code No.	Functions	Description
0x03	Reading the holding register	Reads up to 125 sets of data continuously from the holding register.
0x04	Reading the input register	Reads up to 125 sets of data continuously from the input register.
0x06	Writing to the holding register	Writes data to one holding register.

1.3 Specifying a Register

You can specify a register from the Modbus client instrument as follows.

1.3.1 When using a commercially available SCADA system, etc.

Specify the Ref No. (reference number) listed in “3.1 Register Map” and “4.1 Register Map”.
Example: Specify Ref No. “30021” to acquire Urms1 Float lower 2 bytes “Input register:0021”.

1.3.2 When using a communication program created by the customer

Specify the Hex No. (relative number) listed in 3.1 Register Map” or “4.1 Register Map”.
Example: Specify Hex No. “0014” to acquire Urms1 Float lower 2 bytes “Input register:0021”.

2 Register

2.1 Register Overview

In this instrument, measurement data and settings data are assigned to the internal register for Modbus/TCP.

When the client instrument sends messages to the instrument via Modbus/TCP communication and the internal register of the instrument is read and written, measurement data can be acquired, integration can be started, etc.

2.2 Register Configuration (Overall Configuration)

	Register No.	Category		Description
Input register	0001 to 0020	Status		Status of each channel
	0021 to 0846	Basic measurement items	Power measurement items	Measurement data, such as voltage, current, and power
	1001 to 1206		Integration measurement items	Data regarding integration measurement
	2001 to 2088		Frequency and calculation measurement items	Frequency measurement data and user-defined formula (UDF) data
	3001 to 3048		Motor analysis measurement items	Motor analysis measurement data
	4001 to 4240	Harmonic measurement items		Harmonic measurement data
	5001 to 5248	CUSTOM screen items		Measurement data linked to the CUSTOM screen display
	6001 to 8000	Optional output items		Measurement data specified using communication commands
	8001 to 8040	Measurement range setting items		Measurement range information
Holding register	0001 to 0008	Instrument control		Register value hold, integration control, etc.
Others		Prohibited area		Reading and writing are not supported.

2.2.1 Input register non-assigned area

Any area with input register numbers skipped (register No. 0847 to 1000, etc.) is an area to which data is not assigned. This area can be read with a Modbus message, however, the value is all NAN (0x7FC00000). Access to the address beyond the suffix of the input register (register No. 8040) generates an error.

3 Input Register

3.1 Register Map

3.1.1 Status

Reg No.	Ref No.	Hex No.	Register name	Register description	
0001	30001	0000	Status	Status	uint32 lower 2 bytes
0002	30002	0001			uint32 upper 2 bytes
0003	30003	0002	StatusCH1	CH1 status	uint32 lower 2 bytes
0004	30004	0003			uint32 upper 2 bytes
0005	30005	0004	StatusCH2	CH2 status	uint32 lower 2 bytes
0006	30006	0005			uint32 upper 2 bytes
0007	30007	0006	StatusCH3	CH3 status	uint32 lower 2 bytes
0008	30008	0007			uint32 upper 2 bytes
0009	30009	0008	StatusCH4	CH4 status	uint32 lower 2 bytes
0010	30010	0009			uint32 upper 2 bytes
0011	30011	000A	StatusCH5	CH5 status	uint32 lower 2 bytes
0012	30012	000B			uint32 upper 2 bytes
0013	30013	000C	StatusCH6	CH6 status	uint32 lower 2 bytes
0014	30014	000D			uint32 upper 2 bytes
0015	30015	000E	StatusCH7	CH7 status	uint32 lower 2 bytes
0016	30016	000F			uint32 upper 2 bytes
0017	30017	0010	StatusCH8	CH8 status	uint32 lower 2 bytes
0018	30018	0011			uint32 upper 2 bytes
0019	30019	0012	StatusMotor	Motor channel status	uint32 lower 2 bytes
0020	30020	0013			uint32 upper 2 bytes

3.1.2 Power measurement items

Reg No.	Ref No.	Hex No.	Register name	Register description	
0021	30021	0014	Urms1	CH1 voltage RMS value	Float lower 2 bytes
0022	30022	0015			Float upper 2 bytes
0023	30023	0016	Urms2	CH2 voltage RMS value	Float lower 2 bytes
0024	30024	0017			Float upper 2 bytes
0025	30025	0018	Urms3	CH3 voltage RMS value	Float lower 2 bytes
0026	30026	0019			Float upper 2 bytes
0027	30027	001A	Urms4	CH4 voltage RMS value	Float lower 2 bytes
0028	30028	001B			Float upper 2 bytes
0029	30029	001C	Urms5	CH5 voltage RMS value	Float lower 2 bytes
0030	30030	001D			Float upper 2 bytes
0031	30031	001E	Urms6	CH6 voltage RMS value	Float lower 2 bytes
0032	30032	001F			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0033	30033	0020	Urms7	CH7 voltage RMS value	Float lower 2 bytes
0034	30034	0021			Float upper 2 bytes
0035	30035	0022	Urms8	CH8 voltage RMS value	Float lower 2 bytes
0036	30036	0023			Float upper 2 bytes
0037	30037	0024	Urms12	CH12 voltage RMS value	Float lower 2 bytes
0038	30038	0025			Float upper 2 bytes
0039	30039	0026	Urms23	CH23 voltage RMS value	Float lower 2 bytes
0040	30040	0027			Float upper 2 bytes
0041	30041	0028	Urms34	CH34 voltage RMS value	Float lower 2 bytes
0042	30042	0029			Float upper 2 bytes
0043	30043	002A	Urms45	CH45 voltage RMS value	Float lower 2 bytes
0044	30044	002B			Float upper 2 bytes
0045	30045	002C	Urms56	CH56 voltage RMS value	Float lower 2 bytes
0046	30046	002D			Float upper 2 bytes
0047	30047	002E	Urms67	CH67 voltage RMS value	Float lower 2 bytes
0048	30048	002F			Float upper 2 bytes
0049	30049	0030	Urms78	CH78 voltage RMS value	Float lower 2 bytes
0050	30050	0031			Float upper 2 bytes
0051	30051	0032	Urms123	CH123 voltage RMS value	Float lower 2 bytes
0052	30052	0033			Float upper 2 bytes
0053	30053	0034	Urms234	CH234 voltage RMS value	Float lower 2 bytes
0054	30054	0035			Float upper 2 bytes
0055	30055	0036	Urms345	CH345 voltage RMS value	Float lower 2 bytes
0056	30056	0037			Float upper 2 bytes
0057	30057	0038	Urms456	CH456 voltage RMS value	Float lower 2 bytes
0058	30058	0039			Float upper 2 bytes
0059	30059	003A	Urms567	CH567 voltage RMS value	Float lower 2 bytes
0060	30060	003B			Float upper 2 bytes
0061	30061	003C	Urms678	CH678 voltage RMS value	Float lower 2 bytes
0062	30062	003D			Float upper 2 bytes
0063	30063	003E	Umn1	CH1 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0064	30064	003F			Float upper 2 bytes
0065	30065	0040	Umn2	CH2 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0066	30066	0041			Float upper 2 bytes
0067	30067	0042	Umn3	CH3 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0068	30068	0043			Float upper 2 bytes
0069	30069	0044	Umn4	CH4 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0070	30070	0045			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0071	30071	0046	Umn5	CH5 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0072	30072	0047			Float upper 2 bytes
0073	30073	0048	Umn6	CH6 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0074	30074	0049			Float upper 2 bytes
0075	30075	004A	Umn7	CH7 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0076	30076	004B			Float upper 2 bytes
0077	30077	004C	Umn8	CH8 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0078	30078	004D			Float upper 2 bytes
0079	30079	004E	Umn12	CH12 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0080	30080	004F			Float upper 2 bytes
0081	30081	0050	Umn23	CH23 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0082	30082	0051			Float upper 2 bytes
0083	30083	0052	Umn34	CH34 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0084	30084	0053			Float upper 2 bytes
0085	30085	0054	Umn45	CH45 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0086	30086	0055			Float upper 2 bytes
0087	30087	0056	Umn56	CH56 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0088	30088	0057			Float upper 2 bytes
0089	30089	0058	Umn67	CH67 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0090	30090	0059			Float upper 2 bytes
0091	30091	005A	Umn78	CH78 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0092	30092	005B			Float upper 2 bytes
0093	30093	005C	Umn123	CH123 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0094	30094	005D			Float upper 2 bytes
0095	30095	005E	Umn234	CH234 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0096	30096	005F			Float upper 2 bytes
0097	30097	0060	Umn345	CH345 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0098	30098	0061			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0099	30099	0062	Umn456	CH456 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0100	30100	0063			Float upper 2 bytes
0101	30101	0064	Umn567	CH567 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0102	30102	0065			Float upper 2 bytes
0103	30103	0066	Umn678	CH678 voltage mean value rectification RMS value equivalent	Float lower 2 bytes
0104	30104	0067			Float upper 2 bytes
0105	30105	0068	Uac1	CH1 voltage AC component	Float lower 2 bytes
0106	30106	0069			Float upper 2 bytes
0107	30107	006A	Uac2	CH2 voltage AC component	Float lower 2 bytes
0108	30108	006B			Float upper 2 bytes
0109	30109	006C	Uac3	CH3 voltage AC component	Float lower 2 bytes
0110	30110	006D			Float upper 2 bytes
0111	30111	006E	Uac4	CH4 voltage AC component	Float lower 2 bytes
0112	30112	006F			Float upper 2 bytes
0113	30113	0070	Uac5	CH5 voltage AC component	Float lower 2 bytes
0114	30114	0071			Float upper 2 bytes
0115	30115	0072	Uac6	CH6 voltage AC component	Float lower 2 bytes
0116	30116	0073			Float upper 2 bytes
0117	30117	0074	Uac7	CH7 voltage AC component	Float lower 2 bytes
0118	30118	0075			Float upper 2 bytes
0119	30119	0076	Uac8	CH8 voltage AC component	Float lower 2 bytes
0120	30120	0077			Float upper 2 bytes
0121	30121	0078	Udc1	CH1 voltage simple average	Float lower 2 bytes
0122	30122	0079			Float upper 2 bytes
0123	30123	007A	Udc2	CH2 voltage simple average	Float lower 2 bytes
0124	30124	007B			Float upper 2 bytes
0125	30125	007C	Udc3	CH3 voltage simple average	Float lower 2 bytes
0126	30126	007D			Float upper 2 bytes
0127	30127	007E	Udc4	CH4 voltage simple average	Float lower 2 bytes
0128	30128	007F			Float upper 2 bytes
0129	30129	0080	Udc5	CH5 voltage simple average	Float lower 2 bytes
0130	30130	0081			Float upper 2 bytes
0131	30131	0082	Udc6	CH6 voltage simple average	Float lower 2 bytes
0132	30132	0083			Float upper 2 bytes
0133	30133	0084	Udc7	CH7 voltage simple average	Float lower 2 bytes
0134	30134	0085			Float upper 2 bytes
0135	30135	0086	Udc8	CH8 voltage simple average	Float lower 2 bytes
0136	30136	0087			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0137	30137	0088	Ufnd1	CH1 voltage fundamental wave component	Float lower 2 bytes
0138	30138	0089			Float upper 2 bytes
0139	30139	008A	Ufnd2	CH2 voltage fundamental wave component	Float lower 2 bytes
0140	30140	008B			Float upper 2 bytes
0141	30141	008C	Ufnd3	CH3 voltage fundamental wave component	Float lower 2 bytes
0142	30142	008D			Float upper 2 bytes
0143	30143	008E	Ufnd4	CH4 voltage fundamental wave component	Float lower 2 bytes
0144	30144	008F			Float upper 2 bytes
0145	30145	0090	Ufnd5	CH5 voltage fundamental wave component	Float lower 2 bytes
0146	30146	0091			Float upper 2 bytes
0147	30147	0092	Ufnd6	CH6 voltage fundamental wave component	Float lower 2 bytes
0148	30148	0093			Float upper 2 bytes
0149	30149	0094	Ufnd7	CH7 voltage fundamental wave component	Float lower 2 bytes
0150	30150	0095			Float upper 2 bytes
0151	30151	0096	Ufnd8	CH8 voltage fundamental wave component	Float lower 2 bytes
0152	30152	0097			Float upper 2 bytes
0153	30153	0098	Upk1+	CH1 voltage waveform peak (+)	Float lower 2 bytes
0154	30154	0099			Float upper 2 bytes
0155	30155	009A	Upk2+	CH2 voltage waveform peak (+)	Float lower 2 bytes
0156	30156	009B			Float upper 2 bytes
0157	30157	009C	Upk3+	CH3 voltage waveform peak (+)	Float lower 2 bytes
0158	30158	009D			Float upper 2 bytes
0159	30159	009E	Upk4+	CH4 voltage waveform peak (+)	Float lower 2 bytes
0160	30160	009F			Float upper 2 bytes
0161	30161	00A0	Upk5+	CH5 voltage waveform peak (+)	Float lower 2 bytes
0162	30162	00A1			Float upper 2 bytes
0163	30163	00A2	Upk6+	CH6 voltage waveform peak (+)	Float lower 2 bytes
0164	30164	00A3			Float upper 2 bytes
0165	30165	00A4	Upk7+	CH7 voltage waveform peak (+)	Float lower 2 bytes
0166	30166	00A5			Float upper 2 bytes
0167	30167	00A6	Upk8+	CH8 voltage waveform peak (+)	Float lower 2 bytes
0168	30168	00A7			Float upper 2 bytes
0169	30169	00A8	Upk1−	CH1 voltage waveform peak (−)	Float lower 2 bytes
0170	30170	00A9			Float upper 2 bytes
0171	30171	00AA	Upk2−	CH2 voltage waveform peak (−)	Float lower 2 bytes
0172	30172	00AB			Float upper 2 bytes
0173	30173	00AC	Upk3−	CH3 voltage waveform peak (−)	Float lower 2 bytes
0174	30174	00AD			Float upper 2 bytes
0175	30175	00AE	Upk4−	CH4 voltage waveform peak (−)	Float lower 2 bytes
0176	30176	00AF			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0177	30177	00B0	Upk5−	CH5 voltage waveform peak (−)	Float lower 2 bytes
0178	30178	00B1			Float upper 2 bytes
0179	30179	00B2	Upk6−	CH6 voltage waveform peak (−)	Float lower 2 bytes
0180	30180	00B3			Float upper 2 bytes
0181	30181	00B4	Upk7−	CH7 voltage waveform peak (−)	Float lower 2 bytes
0182	30182	00B5			Float upper 2 bytes
0183	30183	00B6	Upk8−	CH8 voltage waveform peak (−)	Float lower 2 bytes
0184	30184	00B7			Float upper 2 bytes
0185	30185	00B8	Uthd1	CH1 total harmonic voltage distortion	Float lower 2 bytes
0186	30186	00B9			Float upper 2 bytes
0187	30187	00BA	Uthd2	CH2 total harmonic voltage distortion	Float lower 2 bytes
0188	30188	00BB			Float upper 2 bytes
0189	30189	00BC	Uthd3	CH3 total harmonic voltage distortion	Float lower 2 bytes
0190	30190	00BD			Float upper 2 bytes
0191	30191	00BE	Uthd4	CH4 total harmonic voltage distortion	Float lower 2 bytes
0192	30192	00BF			Float upper 2 bytes
0193	30193	00C0	Uthd5	CH5 total harmonic voltage distortion	Float lower 2 bytes
0194	30194	00C1			Float upper 2 bytes
0195	30195	00C2	Uthd6	CH6 total harmonic voltage distortion	Float lower 2 bytes
0196	30196	00C3			Float upper 2 bytes
0197	30197	00C4	Uthd7	CH7 total harmonic voltage distortion	Float lower 2 bytes
0198	30198	00C5			Float upper 2 bytes
0199	30199	00C6	Uthd8	CH8 total harmonic voltage distortion	Float lower 2 bytes
0200	30200	00C7			Float upper 2 bytes
0201	30201	00C8	Urf1	CH1 voltage ripple factor	Float lower 2 bytes
0202	30202	00C9			Float upper 2 bytes
0203	30203	00CA	Urf2	CH2 voltage ripple factor	Float lower 2 bytes
0204	30204	00CB			Float upper 2 bytes
0205	30205	00CC	Urf3	CH3 voltage ripple factor	Float lower 2 bytes
0206	30206	00CD			Float upper 2 bytes
0207	30207	00CE	Urf4	CH4 voltage ripple factor	Float lower 2 bytes
0208	30208	00CF			Float upper 2 bytes
0209	30209	00D0	Urf5	CH5 voltage ripple factor	Float lower 2 bytes
0210	30210	00D1			Float upper 2 bytes
0211	30211	00D2	Urf6	CH6 voltage ripple factor	Float lower 2 bytes
0212	30212	00D3			Float upper 2 bytes
0213	30213	00D4	Urf7	CH7 voltage ripple factor	Float lower 2 bytes
0214	30214	00D5			Float upper 2 bytes
0215	30215	00D6	Urf8	CH8 voltage ripple factor	Float lower 2 bytes
0216	30216	00D7			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0217	30217	00D8	Uunb123	CH123 voltage unbalance rate	Float lower 2 bytes
0218	30218	00D9			Float upper 2 bytes
0219	30219	00DA	Uunb234	CH234 voltage unbalance rate	Float lower 2 bytes
0220	30220	00DB			Float upper 2 bytes
0221	30221	00DC	Uunb345	CH345 voltage unbalance rate	Float lower 2 bytes
0222	30222	00DD			Float upper 2 bytes
0223	30223	00DE	Uunb456	CH456 voltage unbalance rate	Float lower 2 bytes
0224	30224	00DF			Float upper 2 bytes
0225	30225	00E0	Uunb567	CH567 voltage unbalance rate	Float lower 2 bytes
0226	30226	00E1			Float upper 2 bytes
0227	30227	00E2	Uunb678	CH678 voltage unbalance rate	Float lower 2 bytes
0228	30228	00E3			Float upper 2 bytes
0229	30229	00E4	Irms1	CH1 current RMS value	Float lower 2 bytes
0230	30230	00E5			Float upper 2 bytes
0231	30231	00E6	Irms2	CH2 current RMS value	Float lower 2 bytes
0232	30232	00E7			Float upper 2 bytes
0233	30233	00E8	Irms3	CH3 current RMS value	Float lower 2 bytes
0234	30234	00E9			Float upper 2 bytes
0235	30235	00EA	Irms4	CH4 current RMS value	Float lower 2 bytes
0236	30236	00EB			Float upper 2 bytes
0237	30237	00EC	Irms5	CH5 current RMS value	Float lower 2 bytes
0238	30238	00ED			Float upper 2 bytes
0239	30239	00EE	Irms6	CH6 current RMS value	Float lower 2 bytes
0240	30240	00EF			Float upper 2 bytes
0241	30241	00F0	Irms7	CH7 current RMS value	Float lower 2 bytes
0242	30242	00F1			Float upper 2 bytes
0243	30243	00F2	Irms8	CH8 current RMS value	Float lower 2 bytes
0244	30244	00F3			Float upper 2 bytes
0245	30245	00F4	Irms12	CH12 current RMS value	Float lower 2 bytes
0246	30246	00F5			Float upper 2 bytes
0247	30247	00F6	Irms23	CH23 current RMS value	Float lower 2 bytes
0248	30248	00F7			Float upper 2 bytes
0249	30249	00F8	Irms34	CH34 current RMS value	Float lower 2 bytes
0250	30250	00F9			Float upper 2 bytes
0251	30251	00FA	Irms45	CH45 current RMS value	Float lower 2 bytes
0252	30252	00FB			Float upper 2 bytes
0253	30253	00FC	Irms56	CH56 current RMS value	Float lower 2 bytes
0254	30254	00FD			Float upper 2 bytes
0255	30255	00FE	Irms67	CH67 current RMS value	Float lower 2 bytes
0256	30256	00FF			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0257	30257	0100	Irms78	CH78 current RMS value	Float lower 2 bytes
0258	30258	0101			Float upper 2 bytes
0259	30259	0102	Irms123	CH123 current RMS value	Float lower 2 bytes
0260	30260	0103			Float upper 2 bytes
0261	30261	0104	Irms234	CH234 current RMS value	Float lower 2 bytes
0262	30262	0105			Float upper 2 bytes
0263	30263	0106	Irms345	CH345 current RMS value	Float lower 2 bytes
0264	30264	0107			Float upper 2 bytes
0265	30265	0108	Irms456	CH456 current RMS value	Float lower 2 bytes
0266	30266	0109			Float upper 2 bytes
0267	30267	010A	Irms567	CH567 current RMS value	Float lower 2 bytes
0268	30268	010B			Float upper 2 bytes
0269	30269	010C	Irms678	CH678 current RMS value	Float lower 2 bytes
0270	30270	010D			Float upper 2 bytes
0271	30271	010E	Imn1	CH1 current mean value rectification RMS value equivalent	Float lower 2 bytes
0272	30272	010F			Float upper 2 bytes
0273	30273	0110	Imn2	CH2 current mean value rectification RMS value equivalent	Float lower 2 bytes
0274	30274	0111			Float upper 2 bytes
0275	30275	0112	Imn3	CH3 current mean value rectification RMS value equivalent	Float lower 2 bytes
0276	30276	0113			Float upper 2 bytes
0277	30277	0114	Imn4	CH4 current mean value rectification RMS value equivalent	Float lower 2 bytes
0278	30278	0115			Float upper 2 bytes
0279	30279	0116	Imn5	CH5 current mean value rectification RMS value equivalent	Float lower 2 bytes
0280	30280	0117			Float upper 2 bytes
0281	30281	0118	Imn6	CH6 current mean value rectification RMS value equivalent	Float lower 2 bytes
0282	30282	0119			Float upper 2 bytes
0283	30283	011A	Imn7	CH7 current mean value rectification RMS value equivalent	Float lower 2 bytes
0284	30284	011B			Float upper 2 bytes
0285	30285	011C	Imn8	CH8 current mean value rectification RMS value equivalent	Float lower 2 bytes
0286	30286	011D			Float upper 2 bytes
0287	30287	011E	Imn12	CH12 current mean value rectification RMS value equivalent	Float lower 2 bytes
0288	30288	011F			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0289	30289	0120	Imn23	CH23 current mean value rectification RMS value equivalent	Float lower 2 bytes
0290	30290	0121			Float upper 2 bytes
0291	30291	0122	Imn34	CH34 current mean value rectification RMS value equivalent	Float lower 2 bytes
0292	30292	0123			Float upper 2 bytes
0293	30293	0124	Imn45	CH45 current mean value rectification RMS value equivalent	Float lower 2 bytes
0294	30294	0125			Float upper 2 bytes
0295	30295	0126	Imn56	CH56 current mean value rectification RMS value equivalent	Float lower 2 bytes
0296	30296	0127			Float upper 2 bytes
0297	30297	0128	Imn67	CH67 current mean value rectification RMS value equivalent	Float lower 2 bytes
0298	30298	0129			Float upper 2 bytes
0299	30299	012A	Imn78	CH78 current mean value rectification RMS value equivalent	Float lower 2 bytes
0300	30300	012B			Float upper 2 bytes
0301	30301	012C	Imn123	CH123 current mean value rectification RMS value equivalent	Float lower 2 bytes
0302	30302	012D			Float upper 2 bytes
0303	30303	012E	Imn234	CH234 current mean value rectification RMS value equivalent	Float lower 2 bytes
0304	30304	012F			Float upper 2 bytes
0305	30305	0130	Imn345	CH345 current mean value rectification RMS value equivalent	Float lower 2 bytes
0306	30306	0131			Float upper 2 bytes
0307	30307	0132	Imn456	CH456 current mean value rectification RMS value equivalent	Float lower 2 bytes
0308	30308	0133			Float upper 2 bytes
0309	30309	0134	Imn567	CH567 current mean value rectification RMS value equivalent	Float lower 2 bytes
0310	30310	0135			Float upper 2 bytes
0311	30311	0136	Imn678	CH678 current mean value rectification RMS value equivalent	Float lower 2 bytes
0312	30312	0137			Float upper 2 bytes
0313	30313	0138	Iac1	CH1 current AC component	Float lower 2 bytes
0314	30314	0139			Float upper 2 bytes
0315	30315	013A	Iac2	CH2 current AC component	Float lower 2 bytes
0316	30316	013B			Float upper 2 bytes
0317	30317	013C	Iac3	CH3 current AC component	Float lower 2 bytes
0318	30318	013D			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0319	30319	013E	Iac4	CH4 current AC component	Float lower 2 bytes
0320	30320	013F			Float upper 2 bytes
0321	30321	0140	Iac5	CH5 current AC component	Float lower 2 bytes
0322	30322	0141			Float upper 2 bytes
0323	30323	0142	Iac6	CH6 current AC component	Float lower 2 bytes
0324	30324	0143			Float upper 2 bytes
0325	30325	0144	Iac7	CH7current AC component	Float lower 2 bytes
0326	30326	0145			Float upper 2 bytes
0327	30327	0146	Iac8	CH8current AC component	Float lower 2 bytes
0328	30328	0147			Float upper 2 bytes
0329	30329	0148	Idc1	CH1 current simple average	Float lower 2 bytes
0330	30330	0149			Float upper 2 bytes
0331	30331	014A	Idc2	CH2 current simple average	Float lower 2 bytes
0332	30332	014B			Float upper 2 bytes
0333	30333	014C	Idc3	CH3 current simple average	Float lower 2 bytes
0334	30334	014D			Float upper 2 bytes
0335	30335	014E	Idc4	CH4 current simple average	Float lower 2 bytes
0336	30336	014F			Float upper 2 bytes
0337	30337	0150	Idc5	CH5 current simple average	Float lower 2 bytes
0338	30338	0151			Float upper 2 bytes
0339	30339	0152	Idc6	CH6 current simple average	Float lower 2 bytes
0340	30340	0153			Float upper 2 bytes
0341	30341	0154	Idc7	CH7 current simple average	Float lower 2 bytes
0342	30342	0155			Float upper 2 bytes
0343	30343	0156	Idc8	CH8 current simple average	Float lower 2 bytes
0344	30344	0157			Float upper 2 bytes
0345	30345	0158	Ifnd1	CH1 current fundamental wave component	Float lower 2 bytes
0346	30346	0159			Float upper 2 bytes
0347	30347	015A	Ifnd2	CH2 current fundamental wave component	Float lower 2 bytes
0348	30348	015B			Float upper 2 bytes
0349	30349	015C	Ifnd3	CH3 current fundamental wave component	Float lower 2 bytes
0350	30350	015D			Float upper 2 bytes
0351	30351	015E	Ifnd4	CH4 current fundamental wave component	Float lower 2 bytes
0352	30352	015F			Float upper 2 bytes
0353	30353	0160	Ifnd5	CH5 current fundamental wave component	Float lower 2 bytes
0354	30354	0161			Float upper 2 bytes
0355	30355	0162	Ifnd6	CH6 current fundamental wave component	Float lower 2 bytes
0356	30356	0163			Float upper 2 bytes
0357	30357	0164	Ifnd7	CH7 current fundamental wave component	Float lower 2 bytes
0358	30358	0165			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0359	30359	0166	Ifnd8	CH8 current fundamental	Float lower 2 bytes
0360	30360	0167		wave component	Float upper 2 bytes
0361	30361	0168	Ipk1+	CH1 current waveform	Float lower 2 bytes
0362	30362	0169		peak (+)	Float upper 2 bytes
0363	30363	016A	Ipk2+	CH2 current waveform	Float lower 2 bytes
0364	30364	016B		peak (+)	Float upper 2 bytes
0365	30365	016C	Ipk3+	CH3 current waveform	Float lower 2 bytes
0366	30366	016D		peak (+)	Float upper 2 bytes
0367	30367	016E	Ipk4+	CH4 current waveform	Float lower 2 bytes
0368	30368	016F		peak (+)	Float upper 2 bytes
0369	30369	0170	Ipk5+	CH5 current waveform	Float lower 2 bytes
0370	30370	0171		peak (+)	Float upper 2 bytes
0371	30371	0172	Ipk6+	CH6 current waveform	Float lower 2 bytes
0372	30372	0173		peak (+)	Float upper 2 bytes
0373	30373	0174	Ipk7+	CH7 current waveform	Float lower 2 bytes
0374	30374	0175		peak (+)	Float upper 2 bytes
0375	30375	0176	Ipk8+	CH8 current waveform	Float lower 2 bytes
0376	30376	0177		peak (+)	Float upper 2 bytes
0377	30377	0178	Ipk1−	CH1 current waveform	Float lower 2 bytes
0378	30378	0179		peak (−)	Float upper 2 bytes
0379	30379	017A	Ipk2−	CH2 current waveform	Float lower 2 bytes
0380	30380	017B		peak (−)	Float upper 2 bytes
0381	30381	017C	Ipk3−	CH3 current waveform	Float lower 2 bytes
0382	30382	017D		peak (−)	Float upper 2 bytes
0383	30383	017E	Ipk4−	CH4 current waveform	Float lower 2 bytes
0384	30384	017F		peak (−)	Float upper 2 bytes
0385	30385	0180	Ipk5−	CH5 current waveform	Float lower 2 bytes
0386	30386	0181		peak (−)	Float upper 2 bytes
0387	30387	0182	Ipk6−	CH6 current waveform	Float lower 2 bytes
0388	30388	0183		peak (−)	Float upper 2 bytes
0389	30389	0184	Ipk7−	CH7 current waveform	Float lower 2 bytes
0390	30390	0185		peak (−)	Float upper 2 bytes
0391	30391	0186	Ipk8−	CH8 current waveform	Float lower 2 bytes
0392	30392	0187		peak (−)	Float upper 2 bytes
0393	30393	0188	Ithd1	CH1 total harmonic	Float lower 2 bytes
0394	30394	0189		current distortion	Float upper 2 bytes
0395	30395	018A	Ithd2	CH2 total harmonic	Float lower 2 bytes
0396	30396	018B		current distortion	Float upper 2 bytes
0397	30397	018C	Ithd3	CH3 total harmonic	Float lower 2 bytes
0398	30398	018D		current distortion	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0399	30399	018E	Ithd4	CH4 total harmonic current distortion	Float lower 2 bytes
0400	30400	018F			Float upper 2 bytes
0401	30401	0190	Ithd5	CH5 total harmonic current distortion	Float lower 2 bytes
0402	30402	0191			Float upper 2 bytes
0403	30403	0192	Ithd6	CH6 total harmonic current distortion	Float lower 2 bytes
0404	30404	0193			Float upper 2 bytes
0405	30405	0194	Ithd7	CH7 total harmonic current distortion	Float lower 2 bytes
0406	30406	0195			Float upper 2 bytes
0407	30407	0196	Ithd8	CH8 total harmonic current distortion	Float lower 2 bytes
0408	30408	0197			Float upper 2 bytes
0409	30409	0198	Irf1	CH1 current ripple factor	Float lower 2 bytes
0410	30410	0199			Float upper 2 bytes
0411	30411	019A	Irf2	CH2 current ripple factor	Float lower 2 bytes
0412	30412	019B			Float upper 2 bytes
0413	30413	019C	Irf3	CH3 current ripple factor	Float lower 2 bytes
0414	30414	019D			Float upper 2 bytes
0415	30415	019E	Irf4	CH4 current ripple factor	Float lower 2 bytes
0416	30416	019F			Float upper 2 bytes
0417	30417	01A0	Irf5	CH5 current ripple factor	Float lower 2 bytes
0418	30418	01A1			Float upper 2 bytes
0419	30419	01A2	Irf6	CH6 current ripple factor	Float lower 2 bytes
0420	30420	01A3			Float upper 2 bytes
0421	30421	01A4	Irf7	CH7 current ripple factor	Float lower 2 bytes
0422	30422	01A5			Float upper 2 bytes
0423	30423	01A6	Irf8	CH8 current ripple factor	Float lower 2 bytes
0424	30424	01A7			Float upper 2 bytes
0425	30425	01A8	Iunb123	CH123 current unbalance rate	Float lower 2 bytes
0426	30426	01A9			Float upper 2 bytes
0427	30427	01AA	Iunb234	CH234 current unbalance rate	Float lower 2 bytes
0428	30428	01AB			Float upper 2 bytes
0429	30429	01AC	Iunb345	CH345 current unbalance rate	Float lower 2 bytes
0430	30430	01AD			Float upper 2 bytes
0431	30431	01AE	Iunb456	CH456 current unbalance rate	Float lower 2 bytes
0432	30432	01AF			Float upper 2 bytes
0433	30433	01B0	Iunb567	CH567 current unbalance rate	Float lower 2 bytes
0434	30434	01B1			Float upper 2 bytes
0435	30435	01B2	Iunb678	CH678 current unbalance rate	Float lower 2 bytes
0436	30436	01B3			Float upper 2 bytes
0437	30437	01B4	P1	CH1 active power	Float lower 2 bytes
0438	30438	01B5			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0439	30439	01B6	P2	CH2 active power	Float lower 2 bytes
0440	30440	01B7			Float upper 2 bytes
0441	30441	01B8	P3	CH3 active power	Float lower 2 bytes
0442	30442	01B9			Float upper 2 bytes
0443	30443	01BA	P4	CH4 active power	Float lower 2 bytes
0444	30444	01BB			Float upper 2 bytes
0445	30445	01BC	P5	CH5 active power	Float lower 2 bytes
0446	30446	01BD			Float upper 2 bytes
0447	30447	01BE	P6	CH6 active power	Float lower 2 bytes
0448	30448	01BF			Float upper 2 bytes
0449	30449	01C0	P7	CH7 active power	Float lower 2 bytes
0450	30450	01C1			Float upper 2 bytes
0451	30451	01C2	P8	CH8 active power	Float lower 2 bytes
0452	30452	01C3			Float upper 2 bytes
0453	30453	01C4	P12	CH12 active power	Float lower 2 bytes
0454	30454	01C5			Float upper 2 bytes
0455	30455	01C6	P23	CH23 active power	Float lower 2 bytes
0456	30456	01C7			Float upper 2 bytes
0457	30457	01C8	P34	CH34 active power	Float lower 2 bytes
0458	30458	01C9			Float upper 2 bytes
0459	30459	01CA	P45	CH45 active power	Float lower 2 bytes
0460	30460	01CB			Float upper 2 bytes
0461	30461	01CC	P56	CH56 active power	Float lower 2 bytes
0462	30462	01CD			Float upper 2 bytes
0463	30463	01CE	P67	CH67 active power	Float lower 2 bytes
0464	30464	01CF			Float upper 2 bytes
0465	30465	01D0	P78	CH78 active power	Float lower 2 bytes
0466	30466	01D1			Float upper 2 bytes
0467	30467	01D2	P123	CH123 active power	Float lower 2 bytes
0468	30468	01D3			Float upper 2 bytes
0469	30469	01D4	P234	CH234 active power	Float lower 2 bytes
0470	30470	01D5			Float upper 2 bytes
0471	30471	01D6	P345	CH345 active power	Float lower 2 bytes
0472	30472	01D7			Float upper 2 bytes
0473	30473	01D8	P456	CH456 active power	Float lower 2 bytes
0474	30474	01D9			Float upper 2 bytes
0475	30475	01DA	P567	CH567 active power	Float lower 2 bytes
0476	30476	01DB			Float upper 2 bytes
0477	30477	01DC	P678	CH678 active power	Float lower 2 bytes
0478	30478	01DD			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0479	30479	01DE	Pfnd1	CH1 fundamental wave	Float lower 2 bytes
0480	30480	01DF		active power	Float upper 2 bytes
0481	30481	01E0	Pfnd2	CH2 fundamental wave	Float lower 2 bytes
0482	30482	01E1		active power	Float upper 2 bytes
0483	30483	01E2	Pfnd3	CH3 fundamental wave	Float lower 2 bytes
0484	30484	01E3		active power	Float upper 2 bytes
0485	30485	01E4	Pfnd4	CH4 fundamental wave	Float lower 2 bytes
0486	30486	01E5		active power	Float upper 2 bytes
0487	30487	01E6	Pfnd5	CH5 fundamental wave	Float lower 2 bytes
0488	30488	01E7		active power	Float upper 2 bytes
0489	30489	01E8	Pfnd6	CH6 fundamental wave	Float lower 2 bytes
0490	30490	01E9		active power	Float upper 2 bytes
0491	30491	01EA	Pfnd7	CH7 fundamental wave	Float lower 2 bytes
0492	30492	01EB		active power	Float upper 2 bytes
0493	30493	01EC	Pfnd8	CH8 fundamental wave	Float lower 2 bytes
0494	30494	01ED		active power	Float upper 2 bytes
0495	30495	01EE	Pfnd12	CH12 fundamental wave	Float lower 2 bytes
0496	30496	01EF		active power	Float upper 2 bytes
0497	30497	01F0	Pfnd23	CH23 fundamental wave	Float lower 2 bytes
0498	30498	01F1		active power	Float upper 2 bytes
0499	30499	01F2	Pfnd34	CH34 fundamental wave	Float lower 2 bytes
0500	30500	01F3		active power	Float upper 2 bytes
0501	30501	01F4	Pfnd45	CH45 fundamental wave	Float lower 2 bytes
0502	30502	01F5		active power	Float upper 2 bytes
0503	30503	01F6	Pfnd56	CH56 fundamental wave	Float lower 2 bytes
0504	30504	01F7		active power	Float upper 2 bytes
0505	30505	01F8	Pfnd67	CH67 fundamental wave	Float lower 2 bytes
0506	30506	01F9		active power	Float upper 2 bytes
0507	30507	01FA	Pfnd78	CH78 fundamental wave	Float lower 2 bytes
0508	30508	01FB		active power	Float upper 2 bytes
0509	30509	01FC	Pfnd123	CH123 fundamental wave	Float lower 2 bytes
0510	30510	01FD		active power	Float upper 2 bytes
0511	30511	01FE	Pfnd234	CH234 fundamental wave	Float lower 2 bytes
0512	30512	01FF		active power	Float upper 2 bytes
0513	30513	0200	Pfnd345	CH345 fundamental wave	Float lower 2 bytes
0514	30514	0201		active power	Float upper 2 bytes
0515	30515	0202	Pfnd456	CH456 fundamental wave	Float lower 2 bytes
0516	30516	0203		active power	Float upper 2 bytes
0517	30517	0204	Pfnd567	CH567 fundamental wave	Float lower 2 bytes
0518	30518	0205		active power	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0519	30519	0206	Pfnd678	CH678 fundamental wave	Float lower 2 bytes
0520	30520	0207		active power	Float upper 2 bytes
0521	30521	0208	S1	CH1 apparent power	Float lower 2 bytes
0522	30522	0209			Float upper 2 bytes
0523	30523	020A	S2	CH2 apparent power	Float lower 2 bytes
0524	30524	020B			Float upper 2 bytes
0525	30525	020C	S3	CH3 apparent power	Float lower 2 bytes
0526	30526	020D			Float upper 2 bytes
0527	30527	020E	S4	CH4 apparent power	Float lower 2 bytes
0528	30528	020F			Float upper 2 bytes
0529	30529	0210	S5	CH5 apparent power	Float lower 2 bytes
0530	30530	0211			Float upper 2 bytes
0531	30531	0212	S6	CH6 apparent power	Float lower 2 bytes
0532	30532	0213			Float upper 2 bytes
0533	30533	0214	S7	CH7 apparent power	Float lower 2 bytes
0534	30534	0215			Float upper 2 bytes
0535	30535	0216	S8	CH8 apparent power	Float lower 2 bytes
0536	30536	0217			Float upper 2 bytes
0537	30537	0218	S12	CH12 apparent power	Float lower 2 bytes
0538	30538	0219			Float upper 2 bytes
0539	30539	021A	S23	CH23 apparent power	Float lower 2 bytes
0540	30540	021B			Float upper 2 bytes
0541	30541	021C	S34	CH34 apparent power	Float lower 2 bytes
0542	30542	021D			Float upper 2 bytes
0543	30543	021E	S45	CH45 apparent power	Float lower 2 bytes
0544	30544	021F			Float upper 2 bytes
0545	30545	0220	S56	CH56 apparent power	Float lower 2 bytes
0546	30546	0221			Float upper 2 bytes
0547	30547	0222	S67	CH67 apparent power	Float lower 2 bytes
0548	30548	0223			Float upper 2 bytes
0549	30549	0224	S78	CH78 apparent power	Float lower 2 bytes
0550	30550	0225			Float upper 2 bytes
0551	30551	0226	S123	CH123 apparent power	Float lower 2 bytes
0552	30552	0227			Float upper 2 bytes
0553	30553	0228	S234	CH234 apparent power	Float lower 2 bytes
0554	30554	0229			Float upper 2 bytes
0555	30555	022A	S345	CH345 apparent power	Float lower 2 bytes
0556	30556	022B			Float upper 2 bytes
0557	30557	022C	S456	CH456 apparent power	Float lower 2 bytes
0558	30558	022D			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0559	30559	022E	S567	CH567 apparent power	Float lower 2 bytes
0560	30560	022F			Float upper 2 bytes
0561	30561	0230	S678	CH678 apparent power	Float lower 2 bytes
0562	30562	0231			Float upper 2 bytes
0563	30563	0232	Sfnd1	CH1 fundamental wave	Float lower 2 bytes
0564	30564	0233		apparent power	Float upper 2 bytes
0565	30565	0234	Sfnd2	CH2 fundamental wave	Float lower 2 bytes
0566	30566	0235		apparent power	Float upper 2 bytes
0567	30567	0236	Sfnd3	CH3 fundamental wave	Float lower 2 bytes
0568	30568	0237		apparent power	Float upper 2 bytes
0569	30569	0238	Sfnd4	CH4 fundamental wave	Float lower 2 bytes
0570	30570	0239		apparent power	Float upper 2 bytes
0571	30571	023A	Sfnd5	CH5 fundamental wave	Float lower 2 bytes
0572	30572	023B		apparent power	Float upper 2 bytes
0573	30573	023C	Sfnd6	CH6 fundamental wave	Float lower 2 bytes
0574	30574	023D		apparent power	Float upper 2 bytes
0575	30575	023E	Sfnd7	CH7 fundamental wave	Float lower 2 bytes
0576	30576	023F		apparent power	Float upper 2 bytes
0577	30577	0240	Sfnd8	CH8 fundamental wave	Float lower 2 bytes
0578	30578	0241		apparent power	Float upper 2 bytes
0579	30579	0242	Sfnd12	CH12 fundamental wave	Float lower 2 bytes
0580	30580	0243		apparent power	Float upper 2 bytes
0581	30581	0244	Sfnd23	CH23 fundamental wave	Float lower 2 bytes
0582	30582	0245		apparent power	Float upper 2 bytes
0583	30583	0246	Sfnd34	CH34 fundamental wave	Float lower 2 bytes
0584	30584	0247		apparent power	Float upper 2 bytes
0585	30585	0248	Sfnd45	CH45 fundamental wave	Float lower 2 bytes
0586	30586	0249		apparent power	Float upper 2 bytes
0587	30587	024A	Sfnd56	CH56 fundamental wave	Float lower 2 bytes
0588	30588	024B		apparent power	Float upper 2 bytes
0589	30589	024C	Sfnd67	CH67 fundamental wave	Float lower 2 bytes
0590	30590	024D		apparent power	Float upper 2 bytes
0591	30591	024E	Sfnd78	CH78 fundamental wave	Float lower 2 bytes
0592	30592	024F		apparent power	Float upper 2 bytes
0593	30593	0250	Sfnd123	CH123 fundamental wave	Float lower 2 bytes
0594	30594	0251		apparent power	Float upper 2 bytes
0595	30595	0252	Sfnd234	CH234 fundamental wave	Float lower 2 bytes
0596	30596	0253		apparent power	Float upper 2 bytes
0597	30597	0254	Sfnd345	CH345 fundamental wave	Float lower 2 bytes
0598	30598	0255		apparent power	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0599	30599	0256	Sfnd456	CH456 fundamental wave	Float lower 2 bytes
0600	30600	0257		apparent power	Float upper 2 bytes
0601	30601	0258	Sfnd567	CH567 fundamental wave	Float lower 2 bytes
0602	30602	0259		apparent power	Float upper 2 bytes
0603	30603	025A	Sfnd678	CH678 fundamental wave	Float lower 2 bytes
0604	30604	025B		apparent power	Float upper 2 bytes
0605	30605	025C	Q1	CH1 reactive power	Float lower 2 bytes
0606	30606	025D			Float upper 2 bytes
0607	30607	025E	Q2	CH2 reactive power	Float lower 2 bytes
0608	30608	025F			Float upper 2 bytes
0609	30609	0260	Q3	CH3 reactive power	Float lower 2 bytes
0610	30610	0261			Float upper 2 bytes
0611	30611	0262	Q4	CH4 reactive power	Float lower 2 bytes
0612	30612	0263			Float upper 2 bytes
0613	30613	0264	Q5	CH5 reactive power	Float lower 2 bytes
0614	30614	0265			Float upper 2 bytes
0615	30615	0266	Q6	CH6 reactive power	Float lower 2 bytes
0616	30616	0267			Float upper 2 bytes
0617	30617	0268	Q7	CH7 reactive power	Float lower 2 bytes
0618	30618	0269			Float upper 2 bytes
0619	30619	026A	Q8	CH8 reactive power	Float lower 2 bytes
0620	30620	026B			Float upper 2 bytes
0621	30621	026C	Q12	CH12 reactive power	Float lower 2 bytes
0622	30622	026D			Float upper 2 bytes
0623	30623	026E	Q23	CH23 reactive power	Float lower 2 bytes
0624	30624	026F			Float upper 2 bytes
0625	30625	0270	Q34	CH34 reactive power	Float lower 2 bytes
0626	30626	0271			Float upper 2 bytes
0627	30627	0272	Q45	CH45 reactive power	Float lower 2 bytes
0628	30628	0273			Float upper 2 bytes
0629	30629	0274	Q56	CH56 reactive power	Float lower 2 bytes
0630	30630	0275			Float upper 2 bytes
0631	30631	0276	Q67	CH67 reactive power	Float lower 2 bytes
0632	30632	0277			Float upper 2 bytes
0633	30633	0278	Q78	CH78 reactive power	Float lower 2 bytes
0634	30634	0279			Float upper 2 bytes
0635	30635	027A	Q123	CH123 reactive power	Float lower 2 bytes
0636	30636	027B			Float upper 2 bytes
0637	30637	027C	Q234	CH234 reactive power	Float lower 2 bytes
0638	30638	027D			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0639	30639	027E	Q345	CH345 reactive power	Float lower 2 bytes
0640	30640	027F			Float upper 2 bytes
0641	30641	0280	Q456	CH456 reactive power	Float lower 2 bytes
0642	30642	0281			Float upper 2 bytes
0643	30643	0282	Q567	CH567 reactive power	Float lower 2 bytes
0644	30644	0283			Float upper 2 bytes
0645	30645	0284	Q678	CH678 reactive power	Float lower 2 bytes
0646	30646	0285			Float upper 2 bytes
0647	30647	0286	Qfnd1	CH1 fundamental wave	Float lower 2 bytes
0648	30648	0287		reactive power	Float upper 2 bytes
0649	30649	0288	Qfnd2	CH2 fundamental wave	Float lower 2 bytes
0650	30650	0289		reactive power	Float upper 2 bytes
0651	30651	028A	Qfnd3	CH3 fundamental wave	Float lower 2 bytes
0652	30652	028B		reactive power	Float upper 2 bytes
0653	30653	028C	Qfnd4	CH4 fundamental wave	Float lower 2 bytes
0654	30654	028D		reactive power	Float upper 2 bytes
0655	30655	028E	Qfnd5	CH5 fundamental wave	Float lower 2 bytes
0656	30656	028F		reactive power	Float upper 2 bytes
0657	30657	0290	Qfnd6	CH6 fundamental wave	Float lower 2 bytes
0658	30658	0291		reactive power	Float upper 2 bytes
0659	30659	0292	Qfnd7	CH7 fundamental wave	Float lower 2 bytes
0660	30660	0293		reactive power	Float upper 2 bytes
0661	30661	0294	Qfnd8	CH8 fundamental wave	Float lower 2 bytes
0662	30662	0295		reactive power	Float upper 2 bytes
0663	30663	0296	Qfnd12	CH12 fundamental wave	Float lower 2 bytes
0664	30664	0297		reactive power	Float upper 2 bytes
0665	30665	0298	Qfnd23	CH23 fundamental wave	Float lower 2 bytes
0666	30666	0299		reactive power	Float upper 2 bytes
0667	30667	029A	Qfnd34	CH34 fundamental wave	Float lower 2 bytes
0668	30668	029B		reactive power	Float upper 2 bytes
0669	30669	029C	Qfnd45	CH45 fundamental wave	Float lower 2 bytes
0670	30670	029D		reactive power	Float upper 2 bytes
0671	30671	029E	Qfnd56	CH56 fundamental wave	Float lower 2 bytes
0672	30672	029F		reactive power	Float upper 2 bytes
0673	30673	02A0	Qfnd67	CH67 fundamental wave	Float lower 2 bytes
0674	30674	02A1		reactive power	Float upper 2 bytes
0675	30675	02A2	Qfnd78	CH78 fundamental wave	Float lower 2 bytes
0676	30676	02A3		reactive power	Float upper 2 bytes
0677	30677	02A4	Qfnd123	CH123 fundamental wave	Float lower 2 bytes
0678	30678	02A5		reactive power	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0679	30679	02A6	Qfnd234	CH234 fundamental wave	Float lower 2 bytes
0680	30680	02A7		reactive power	Float upper 2 bytes
0681	30681	02A8	Qfnd345	CH345 fundamental wave	Float lower 2 bytes
0682	30682	02A9		reactive power	Float upper 2 bytes
0683	30683	02AA	Qfnd456	CH456 fundamental wave	Float lower 2 bytes
0684	30684	02AB		reactive power	Float upper 2 bytes
0685	30685	02AC	Qfnd567	CH567 fundamental wave	Float lower 2 bytes
0686	30686	02AD		reactive power	Float upper 2 bytes
0687	30687	02AE	Qfnd678	CH678 fundamental wave	Float lower 2 bytes
0688	30688	02AF		reactive power	Float upper 2 bytes
0689	30689	02B0	λ1	CH1 power factor	Float lower 2 bytes
0690	30690	02B1			Float upper 2 bytes
0691	30691	02B2	λ2	CH2 power factor	Float lower 2 bytes
0692	30692	02B3			Float upper 2 bytes
0693	30693	02B4	λ3	CH3 power factor	Float lower 2 bytes
0694	30694	02B5			Float upper 2 bytes
0695	30695	02B6	λ4	CH4 power factor	Float lower 2 bytes
0696	30696	02B7			Float upper 2 bytes
0697	30697	02B8	λ5	CH5 power factor	Float lower 2 bytes
0698	30698	02B9			Float upper 2 bytes
0699	30699	02BA	λ6	CH6 power factor	Float lower 2 bytes
0700	30700	02BB			Float upper 2 bytes
0701	30701	02BC	λ7	CH7 power factor	Float lower 2 bytes
0702	30702	02BD			Float upper 2 bytes
0703	30703	02BE	λ8	CH8 power factor	Float lower 2 bytes
0704	30704	02BF			Float upper 2 bytes
0705	30705	02C0	λ12	CH12 power factor	Float lower 2 bytes
0706	30706	02C1			Float upper 2 bytes
0707	30707	02C2	λ23	CH23 power factor	Float lower 2 bytes
0708	30708	02C3			Float upper 2 bytes
0709	30709	02C4	λ34	CH34 power factor	Float lower 2 bytes
0710	30710	02C5			Float upper 2 bytes
0711	30711	02C6	λ45	CH45 power factor	Float lower 2 bytes
0712	30712	02C7			Float upper 2 bytes
0713	30713	02C8	λ56	CH56 power factor	Float lower 2 bytes
0714	30714	02C9			Float upper 2 bytes
0715	30715	02CA	λ67	CH67 power factor	Float lower 2 bytes
0716	30716	02CB			Float upper 2 bytes
0717	30717	02CC	λ78	CH78 power factor	Float lower 2 bytes
0718	30718	02CD			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0719	30719	02CE	λ123	CH123 power factor	Float lower 2 bytes
0720	30720	02CF			Float upper 2 bytes
0721	30721	02D0	λ234	CH234 power factor	Float lower 2 bytes
0722	30722	02D1			Float upper 2 bytes
0723	30723	02D2	λ345	CH345 power factor	Float lower 2 bytes
0724	30724	02D3			Float upper 2 bytes
0725	30725	02D4	λ456	CH456 power factor	Float lower 2 bytes
0726	30726	02D5			Float upper 2 bytes
0727	30727	02D6	λ567	CH567 power factor	Float lower 2 bytes
0728	30728	02D7			Float upper 2 bytes
0729	30729	02D8	λ678	CH678 power factor	Float lower 2 bytes
0730	30730	02D9			Float upper 2 bytes
0731	30731	02DA	λfnd1	CH1 fundamental wave power factor	Float lower 2 bytes
0732	30732	02DB			Float upper 2 bytes
0733	30733	02DC	λfnd2	CH2 fundamental wave power factor	Float lower 2 bytes
0734	30734	02DD			Float upper 2 bytes
0735	30735	02DE	λfnd3	CH3 fundamental wave power factor	Float lower 2 bytes
0736	30736	02DF			Float upper 2 bytes
0737	30737	02E0	λfnd4	CH4 fundamental wave power factor	Float lower 2 bytes
0738	30738	02E1			Float upper 2 bytes
0739	30739	02E2	λfnd5	CH5 fundamental wave power factor	Float lower 2 bytes
0740	30740	02E3			Float upper 2 bytes
0741	30741	02E4	λfnd6	CH6 fundamental wave power factor	Float lower 2 bytes
0742	30742	02E5			Float upper 2 bytes
0743	30743	02E6	λfnd7	CH7 fundamental wave power factor	Float lower 2 bytes
0744	30744	02E7			Float upper 2 bytes
0745	30745	02E8	λfnd8	CH8 fundamental wave power factor	Float lower 2 bytes
0746	30746	02E9			Float upper 2 bytes
0747	30747	02EA	λfnd12	CH12 fundamental wave power factor	Float lower 2 bytes
0748	30748	02EB			Float upper 2 bytes
0749	30749	02EC	λfnd23	CH23 fundamental wave power factor	Float lower 2 bytes
0750	30750	02ED			Float upper 2 bytes
0751	30751	02EE	λfnd34	CH34 fundamental wave power factor	Float lower 2 bytes
0752	30752	02EF			Float upper 2 bytes
0753	30753	02F0	λfnd45	CH45 fundamental wave power factor	Float lower 2 bytes
0754	30754	02F1			Float upper 2 bytes
0755	30755	02F2	λfnd56	CH56 fundamental wave power factor	Float lower 2 bytes
0756	30756	02F3			Float upper 2 bytes
0757	30757	02F4	λfnd67	CH67 fundamental wave power factor	Float lower 2 bytes
0758	30758	02F5			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0759	30759	02F6	λfnd78	CH78 fundamental wave power factor	Float lower 2 bytes
0760	30760	02F7			Float upper 2 bytes
0761	30761	02F8	λfnd123	CH123 fundamental wave power factor	Float lower 2 bytes
0762	30762	02F9			Float upper 2 bytes
0763	30763	02FA	λfnd234	CH234 fundamental wave power factor	Float lower 2 bytes
0764	30764	02FB			Float upper 2 bytes
0765	30765	02FC	λfnd345	CH345 fundamental wave power factor	Float lower 2 bytes
0766	30766	02FD			Float upper 2 bytes
0767	30767	02FE	λfnd456	CH456 fundamental wave power factor	Float lower 2 bytes
0768	30768	02FF			Float upper 2 bytes
0769	30769	0300	λfnd567	CH567 fundamental wave power factor	Float lower 2 bytes
0770	30770	0301			Float upper 2 bytes
0771	30771	0302	λfnd678	CH678 fundamental wave power factor	Float lower 2 bytes
0772	30772	0303			Float upper 2 bytes
0773	30773	0304	ΘU1	CH1 voltage phase angle	Float lower 2 bytes
0774	30774	0305			Float upper 2 bytes
0775	30775	0306	ΘU2	CH2 voltage phase angle	Float lower 2 bytes
0776	30776	0307			Float upper 2 bytes
0777	30777	0308	ΘU3	CH3 voltage phase angle	Float lower 2 bytes
0778	30778	0309			Float upper 2 bytes
0779	30779	030A	ΘU4	CH4 voltage phase angle	Float lower 2 bytes
0780	30780	030B			Float upper 2 bytes
0781	30781	030C	ΘU5	CH5 voltage phase angle	Float lower 2 bytes
0782	30782	030D			Float upper 2 bytes
0783	30783	030E	ΘU6	CH6 voltage phase angle	Float lower 2 bytes
0784	30784	030F			Float upper 2 bytes
0785	30785	0310	ΘU7	CH7 voltage phase angle	Float lower 2 bytes
0786	30786	0311			Float upper 2 bytes
0787	30787	0312	ΘU8	CH8 voltage phase angle	Float lower 2 bytes
0788	30788	0313			Float upper 2 bytes
0789	30789	0314	ΘI1	CH1 current phase angle	Float lower 2 bytes
0790	30790	0315			Float upper 2 bytes
0791	30791	0316	ΘI2	CH2 current phase angle	Float lower 2 bytes
0792	30792	0317			Float upper 2 bytes
0793	30793	0318	ΘI3	CH3 current phase angle	Float lower 2 bytes
0794	30794	0319			Float upper 2 bytes
0795	30795	031A	ΘI4	CH4 current phase angle	Float lower 2 bytes
0796	30796	031B			Float upper 2 bytes
0797	30797	031C	ΘI5	CH5 current phase angle	Float lower 2 bytes
0798	30798	031D			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0799	30799	031E	ΘI6	CH6 current phase angle	Float lower 2 bytes
0800	30800	031F			Float upper 2 bytes
0801	30801	0320	ΘI7	CH7 current phase angle	Float lower 2 bytes
0802	30802	0321			Float upper 2 bytes
0803	30803	0322	ΘI8	CH8 current phase angle	Float lower 2 bytes
0804	30804	0323			Float upper 2 bytes
0805	30805	0324	Φ1	CH1 power phase angle	Float lower 2 bytes
0806	30806	0325			Float upper 2 bytes
0807	30807	0326	Φ2	CH2 power phase angle	Float lower 2 bytes
0808	30808	0327			Float upper 2 bytes
0809	30809	0328	Φ3	CH3 power phase angle	Float lower 2 bytes
0810	30810	0329			Float upper 2 bytes
0811	30811	032A	Φ4	CH4 power phase angle	Float lower 2 bytes
0812	30812	032B			Float upper 2 bytes
0813	30813	032C	Φ5	CH5 power phase angle	Float lower 2 bytes
0814	30814	032D			Float upper 2 bytes
0815	30815	032E	Φ6	CH6 power phase angle	Float lower 2 bytes
0816	30816	032F			Float upper 2 bytes
0817	30817	0330	Φ7	CH7 power phase angle	Float lower 2 bytes
0818	30818	0331			Float upper 2 bytes
0819	30819	0332	Φ8	CH8 power phase angle	Float lower 2 bytes
0820	30820	0333			Float upper 2 bytes
0821	30821	0334	Φ12	CH12 power phase angle	Float lower 2 bytes
0822	30822	0335			Float upper 2 bytes
0823	30823	0336	Φ23	CH23 power phase angle	Float lower 2 bytes
0824	30824	0337			Float upper 2 bytes
0825	30825	0338	Φ34	CH34 power phase angle	Float lower 2 bytes
0826	30826	0339			Float upper 2 bytes
0827	30827	033A	Φ45	CH45 power phase angle	Float lower 2 bytes
0828	30828	033B			Float upper 2 bytes
0829	30829	033C	Φ56	CH56 power phase angle	Float lower 2 bytes
0830	30830	033D			Float upper 2 bytes
0831	30831	033E	Φ67	CH67 power phase angle	Float lower 2 bytes
0832	30832	033F			Float upper 2 bytes
0833	30833	0340	Φ78	CH78 power phase angle	Float lower 2 bytes
0834	30834	0341			Float upper 2 bytes
0835	30835	0342	Φ123	CH123 power phase angle	Float lower 2 bytes
0836	30836	0343			Float upper 2 bytes
0837	30837	0344	Φ234	CH234 power phase angle	Float lower 2 bytes
0838	30838	0345			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
0839	30839	0346	Φ345	CH345 power phase	Float lower 2 bytes
0840	30840	0347		angle	Float upper 2 bytes
0841	30841	0348	Φ456	CH456 power phase	Float lower 2 bytes
0842	30842	0349		angle	Float upper 2 bytes
0843	30843	034A	Φ567	CH567 power phase	Float lower 2 bytes
0844	30844	034B		angle	Float upper 2 bytes
0845	30845	034C	Φ678	CH678 power phase	Float lower 2 bytes
0846	30846	034D		angle	Float upper 2 bytes

3.1.3 Integration measurement items

Reg No.	Ref No.	Hex No.	Register name	Register description	
1001	31001	03E8	Ih1+	CH1 positive-direction	Float lower 2 bytes
1002	31002	03E9		current integrated value	Float upper 2 bytes
1003	31003	03EA	Ih2+	CH2 positive-direction	Float lower 2 bytes
1004	31004	03EB		current integrated value	Float upper 2 bytes
1005	31005	03EC	Ih3+	CH3 positive-direction	Float lower 2 bytes
1006	31006	03ED		current integrated value	Float upper 2 bytes
1007	31007	03EE	Ih4+	CH4 positive-direction	Float lower 2 bytes
1008	31008	03EF		current integrated value	Float upper 2 bytes
1009	31009	03F0	Ih5+	CH5 positive-direction	Float lower 2 bytes
1010	31010	03F1		current integrated value	Float upper 2 bytes
1011	31011	03F2	Ih6+	CH6 positive-direction	Float lower 2 bytes
1012	31012	03F3		current integrated value	Float upper 2 bytes
1013	31013	03F4	Ih7+	CH7 positive-direction	Float lower 2 bytes
1014	31014	03F5		current integrated value	Float upper 2 bytes
1015	31015	03F6	Ih8+	CH8 positive-direction	Float lower 2 bytes
1016	31016	03F7		current integrated value	Float upper 2 bytes
1017	31017	03F8	Ih1−	CH1 negative-direction	Float lower 2 bytes
1018	31018	03F9		current integrated value	Float upper 2 bytes
1019	31019	03FA	Ih2−	CH2 negative-direction	Float lower 2 bytes
1020	31020	03FB		current integrated value	Float upper 2 bytes
1021	31021	03FC	Ih3−	CH3 negative-direction	Float lower 2 bytes
1022	31022	03FD		current integrated value	Float upper 2 bytes
1023	31023	03FE	Ih4−	CH4 negative-direction	Float lower 2 bytes
1024	31024	03FF		current integrated value	Float upper 2 bytes
1025	31025	0400	Ih5−	CH5 negative-direction	Float lower 2 bytes
1026	31026	0401		current integrated value	Float upper 2 bytes
1027	31027	0402	Ih6−	CH6 negative-direction	Float lower 2 bytes
1028	31028	0403		current integrated value	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1029	31029	0404	Ih7−	CH7 negative-direction current integrated value	Float lower 2 bytes
1030	31030	0405			Float upper 2 bytes
1031	31031	0406	Ih8−	CH8 negative-direction current integrated value	Float lower 2 bytes
1032	31032	0407			Float upper 2 bytes
1033	31033	0408	Ih1	CH1 positive- and negative-direction integrated current sum	Float lower 2 bytes
1034	31034	0409			Float upper 2 bytes
1035	31035	040A	Ih2	CH2 positive- and negative-direction integrated current sum	Float lower 2 bytes
1036	31036	040B			Float upper 2 bytes
1037	31037	040C	Ih3	CH3 positive- and negative-direction integrated current sum	Float lower 2 bytes
1038	31038	040D			Float upper 2 bytes
1039	31039	040E	Ih4	CH4 positive- and negative-direction integrated current sum	Float lower 2 bytes
1040	31040	040F			Float upper 2 bytes
1041	31041	0410	Ih5	CH5 positive- and negative-direction integrated current sum	Float lower 2 bytes
1042	31042	0411			Float upper 2 bytes
1043	31043	0412	Ih6	CH6 positive- and negative-direction integrated current sum	Float lower 2 bytes
1044	31044	0413			Float upper 2 bytes
1045	31045	0414	Ih7	CH7 positive- and negative-direction integrated current sum	Float lower 2 bytes
1046	31046	0415			Float upper 2 bytes
1047	31047	0416	Ih8	CH8 positive- and negative-direction integrated current sum	Float lower 2 bytes
1048	31048	0417			Float upper 2 bytes
1049	31049	0418	WP1+	CH1 positive-direction active power integrated value	Float lower 2 bytes
1050	31050	0419			Float upper 2 bytes
1051	31051	041A	WP2+	CH2 positive-direction active power integrated value	Float lower 2 bytes
1052	31052	041B			Float upper 2 bytes
1053	31053	041C	WP3+	CH3 positive-direction active power integrated value	Float lower 2 bytes
1054	31054	041D			Float upper 2 bytes
1055	31055	041E	WP4+	CH4 positive-direction active power integrated value	Float lower 2 bytes
1056	31056	041F			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1057	31057	0420	WP5+	CH5 positive-direction active power integrated value	Float lower 2 bytes
1058	31058	0421			Float upper 2 bytes
1059	31059	0422	WP6+	CH6 positive-direction active power integrated value	Float lower 2 bytes
1060	31060	0423			Float upper 2 bytes
1061	31061	0424	WP7+	CH7 positive-direction active power integrated value	Float lower 2 bytes
1062	31062	0425			Float upper 2 bytes
1063	31063	0426	WP8+	CH8 positive-direction active power integrated value	Float lower 2 bytes
1064	31064	0427			Float upper 2 bytes
1065	31065	0428	WP12+	CH12 positive-direction active power integrated value	Float lower 2 bytes
1066	31066	0429			Float upper 2 bytes
1067	31067	042A	WP23+	CH23 positive-direction active power integrated value	Float lower 2 bytes
1068	31068	042B			Float upper 2 bytes
1069	31069	042C	WP34+	CH34 positive-direction active power integrated value	Float lower 2 bytes
1070	31070	042D			Float upper 2 bytes
1071	31071	042E	WP45+	CH45 positive-direction active power integrated value	Float lower 2 bytes
1072	31072	042F			Float upper 2 bytes
1073	31073	0430	WP56+	CH56 positive-direction active power integrated value	Float lower 2 bytes
1074	31074	0431			Float upper 2 bytes
1075	31075	0432	WP67+	CH67 positive-direction active power integrated value	Float lower 2 bytes
1076	31076	0433			Float upper 2 bytes
1077	31077	0434	WP78+	CH78 positive-direction active power integrated value	Float lower 2 bytes
1078	31078	0435			Float upper 2 bytes
1079	31079	0436	WP123+	CH123 positive-direction active power integrated value	Float lower 2 bytes
1080	31080	0437			Float upper 2 bytes
1081	31081	0438	WP234+	CH234 positive-direction active power integrated value	Float lower 2 bytes
1082	31082	0439			Float upper 2 bytes
1083	31083	043A	WP345+	CH345 positive-direction active power integrated value	Float lower 2 bytes
1084	31084	043B			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1085	31085	043C	WP456+	CH456 positive-direction active power integrated value	Float lower 2 bytes
1086	31086	043D			Float upper 2 bytes
1087	31087	043E	WP567+	CH567 positive-direction active power integrated value	Float lower 2 bytes
1088	31088	043F			Float upper 2 bytes
1089	31089	0440	WP678+	CH678 positive-direction active power integrated value	Float lower 2 bytes
1090	31090	0441			Float upper 2 bytes
1091	31091	0442	WP1−	CH1 negative-direction active power integrated value	Float lower 2 bytes
1092	31092	0443			Float upper 2 bytes
1093	31093	0444	WP2−	CH2 negative-direction active power integrated value	Float lower 2 bytes
1094	31094	0445			Float upper 2 bytes
1095	31095	0446	WP3−	CH3 negative-direction active power integrated value	Float lower 2 bytes
1096	31096	0447			Float upper 2 bytes
1097	31097	0448	WP4−	CH4 negative-direction active power integrated value	Float lower 2 bytes
1098	31098	0449			Float upper 2 bytes
1099	31099	044A	WP5−	CH5 negative-direction active power integrated value	Float lower 2 bytes
1100	31100	044B			Float upper 2 bytes
1101	31101	044C	WP6−	CH6 negative-direction active power integrated value	Float lower 2 bytes
1102	31102	044D			Float upper 2 bytes
1103	31103	044E	WP7−	CH7 negative-direction active power integrated value	Float lower 2 bytes
1104	31104	044F			Float upper 2 bytes
1105	31105	0450	WP8−	CH8 negative-direction active power integrated value	Float lower 2 bytes
1106	31106	0451			Float upper 2 bytes
1107	31107	0452	WP12−	CH12 negative-direction active power integrated value	Float lower 2 bytes
1108	31108	0453			Float upper 2 bytes
1109	31109	0454	WP23−	CH23 negative-direction active power integrated value	Float lower 2 bytes
1110	31110	0455			Float upper 2 bytes
1111	31111	0456	WP34−	CH34 negative-direction active power integrated value	Float lower 2 bytes
1112	31112	0457			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1113	31113	0458	WP45−	CH45 negative-direction active power integrated value	Float lower 2 bytes
1114	31114	0459			Float upper 2 bytes
1115	31115	045A	WP56−	CH56 negative-direction active power integrated value	Float lower 2 bytes
1116	31116	045B			Float upper 2 bytes
1117	31117	045C	WP67−	CH67 negative-direction active power integrated value	Float lower 2 bytes
1118	31118	045D			Float upper 2 bytes
1119	31119	045E	WP78−	CH78 negative-direction active power integrated value	Float lower 2 bytes
1120	31120	045F			Float upper 2 bytes
1121	31121	0460	WP123−	CH123 negative-direction active power integrated value	Float lower 2 bytes
1122	31122	0461			Float upper 2 bytes
1123	31123	0462	WP234−	CH234 negative-direction active power integrated value	Float lower 2 bytes
1124	31124	0463			Float upper 2 bytes
1125	31125	0464	WP345−	CH345 negative-direction active power integrated value	Float lower 2 bytes
1126	31126	0465			Float upper 2 bytes
1127	31127	0466	WP456−	CH456 negative-direction active power integrated value	Float lower 2 bytes
1128	31128	0467			Float upper 2 bytes
1129	31129	0468	WP567−	CH567 negative-direction active power integrated value	Float lower 2 bytes
1130	31130	0469			Float upper 2 bytes
1131	31131	046A	WP678−	CH678 negative-direction active power integrated value	Float lower 2 bytes
1132	31132	046B			Float upper 2 bytes
1133	31133	046C	WP1	CH1 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1134	31134	046D			Float upper 2 bytes
1135	31135	046E	WP2	CH2 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1136	31136	046F			Float upper 2 bytes
1137	31137	0470	WP3	CH3 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1138	31138	0471			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1139	31139	0472	WP4	CH4 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1140	31140	0473			Float upper 2 bytes
1141	31141	0474	WP5	CH5 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1142	31142	0475			Float upper 2 bytes
1143	31143	0476	WP6	CH6 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1144	31144	0477			Float upper 2 bytes
1145	31145	0478	WP7	CH7 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1146	31146	0479			Float upper 2 bytes
1147	31147	047A	WP8	CH8 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1148	31148	047B			Float upper 2 bytes
1149	31149	047C	WP12	CH12 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1150	31150	047D			Float upper 2 bytes
1151	31151	047E	WP23	CH23 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1152	31152	047F			Float upper 2 bytes
1153	31153	0480	WP34	CH34 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1154	31154	0481			Float upper 2 bytes
1155	31155	0482	WP45	CH45 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1156	31156	0483			Float upper 2 bytes
1157	31157	0484	WP56	CH56 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1158	31158	0485			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1159	31159	0486	WP67	CH67 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1160	31160	0487			Float upper 2 bytes
1161	31161	0488	WP78	CH78 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1162	31162	0489			Float upper 2 bytes
1163	31163	048A	WP123	CH123 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1164	31164	048B			Float upper 2 bytes
1165	31165	048C	WP234	CH234 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1166	31166	048D			Float upper 2 bytes
1167	31167	048E	WP345	CH345 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1168	31168	048F			Float upper 2 bytes
1169	31169	0490	WP456	CH456 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1170	31170	0491			Float upper 2 bytes
1171	31171	0492	WP567	CH567 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1172	31172	0493			Float upper 2 bytes
1173	31173	0494	WP678	CH678 positive- and negative-direction integrated active power sum	Float lower 2 bytes
1174	31174	0495			Float upper 2 bytes
1175	31175	0496	Etime1	CH1 integrated elapsed time (sec.)	uint32 lower 2 bytes
1176	31176	0497			uint32 upper 2 bytes
1177	31177	0498		CH1 integrated elapsed time (msec.)	uint32 lower 2 bytes
1178	31178	0499			uint32 upper 2 bytes
1179	31179	049A	Etime2	CH2 integrated elapsed time (sec.)	uint32 lower 2 bytes
1180	31180	049B			uint32 upper 2 bytes
1181	31181	049C		CH2 integrated elapsed time (msec.)	uint32 lower 2 bytes
1182	31182	049D			uint32 upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
1183	31183	049E	Etime3	CH3 integrated elapsed time (sec.)	uint32 lower 2 bytes
1184	31184	049F			uint32 upper 2 bytes
1185	31185	04A0		CH3 integrated elapsed time (msec.)	uint32 lower 2 bytes
1186	31186	04A1			uint32 upper 2 bytes
1187	31187	04A2	Etime4	CH4 integrated elapsed time (sec.)	uint32 lower 2 bytes
1188	31188	04A3			uint32 upper 2 bytes
1189	31189	04A4		CH4 integrated elapsed time (msec.)	uint32 lower 2 bytes
1190	31190	04A5			uint32 upper 2 bytes
1191	31191	04A6	Etime5	CH5 integrated elapsed time (sec.)	uint32 lower 2 bytes
1192	31192	04A7			uint32 upper 2 bytes
1193	31193	04A8		CH5 integrated elapsed time (msec.)	uint32 lower 2 bytes
1194	31194	04A9			uint32 upper 2 bytes
1195	31195	04AA	Etime6	CH6 integrated elapsed time (sec.)	uint32 lower 2 bytes
1196	31196	04AB			uint32 upper 2 bytes
1197	31197	04AC		CH6 integrated elapsed time (msec.)	uint32 lower 2 bytes
1198	31198	04AD			uint32 upper 2 bytes
1199	31199	04AE	Etime7	CH7 integrated elapsed time (sec.)	uint32 lower 2 bytes
1200	31200	04AF			uint32 upper 2 bytes
1201	31201	04B0		CH7 integrated elapsed time (msec.)	uint32 lower 2 bytes
1202	31202	04B1			uint32 upper 2 bytes
1203	31203	04B2	Etime8	CH8 integrated elapsed time (sec.)	uint32 lower 2 bytes
1204	31204	04B3			uint32 upper 2 bytes
1205	31205	04B4		CH8 integrated elapsed time (msec.)	uint32 lower 2 bytes
1206	31206	04B5			uint32 upper 2 bytes

3.1.4 Frequency and calculation measurement items

Reg No.	Ref No.	Hex No.	Register name	Register description	
2001	32001	07D0	fU1	CH1 voltage frequency	Float lower 2 bytes
2002	32002	07D1			Float upper 2 bytes
2003	32003	07D2	fU2	CH2 voltage frequency	Float lower 2 bytes
2004	32004	07D3			Float upper 2 bytes
2005	32005	07D4	fU3	CH3 voltage frequency	Float lower 2 bytes
2006	32006	07D5			Float upper 2 bytes
2007	32007	07D6	fU4	CH4 voltage frequency	Float lower 2 bytes
2008	32008	07D7			Float upper 2 bytes
2009	32009	07D8	fU5	CH5 voltage frequency	Float lower 2 bytes
2010	32010	07D9			Float upper 2 bytes
2011	32011	07DA	fU6	CH6 voltage frequency	Float lower 2 bytes
2012	32012	07DB			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
2013	32013	07DC	fU7	CH7 voltage frequency	Float lower 2 bytes
2014	32014	07DD			Float upper 2 bytes
2015	32015	07DE	fU8	CH8 voltage frequency	Float lower 2 bytes
2016	32016	07DF			Float upper 2 bytes
2017	32017	07E0	fI1	CH1 current frequency	Float lower 2 bytes
2018	32018	07E1			Float upper 2 bytes
2019	32019	07E2	fI2	CH2 current frequency	Float lower 2 bytes
2020	32020	07E3			Float upper 2 bytes
2021	32021	07E4	fI3	CH3 current frequency	Float lower 2 bytes
2022	32022	07E5			Float upper 2 bytes
2023	32023	07E6	fI4	CH4 current frequency	Float lower 2 bytes
2024	32024	07E7			Float upper 2 bytes
2025	32025	07E8	fI5	CH5 current frequency	Float lower 2 bytes
2026	32026	07E9			Float upper 2 bytes
2027	32027	07EA	fI6	CH6 current frequency	Float lower 2 bytes
2028	32028	07EB			Float upper 2 bytes
2029	32029	07EC	fI7	CH7 current frequency	Float lower 2 bytes
2030	32030	07ED			Float upper 2 bytes
2031	32031	07EE	fI8	CH8 current frequency	Float lower 2 bytes
2032	32032	07EF			Float upper 2 bytes
2033	32033	07F0	η1	Efficiency 1	Float lower 2 bytes
2034	32034	07F1			Float upper 2 bytes
2035	32035	07F2	η2	Efficiency 2	Float lower 2 bytes
2036	32036	07F3			Float upper 2 bytes
2037	32037	07F4	η3	Efficiency 3	Float lower 2 bytes
2038	32038	07F5			Float upper 2 bytes
2039	32039	07F6	η4	Efficiency 4	Float lower 2 bytes
2040	32040	07F7			Float upper 2 bytes
2041	32041	07F8	Loss1	Loss 1	Float lower 2 bytes
2042	32042	07F9			Float upper 2 bytes
2043	32043	07FA	Loss2	Loss 2	Float lower 2 bytes
2044	32044	07FB			Float upper 2 bytes
2045	32045	07FC	Loss3	Loss 3	Float lower 2 bytes
2046	32046	07FD			Float upper 2 bytes
2047	32047	07FE	Loss4	Loss 4	Float lower 2 bytes
2048	32048	07FF			Float upper 2 bytes
2049	32049	0800	UDF1	User-defined calculation 1	Float lower 2 bytes
2050	32050	0801			Float upper 2 bytes
2051	32051	0802	UDF2	User-defined calculation 2	Float lower 2 bytes
2052	32052	0803			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
2053	32053	0804	UDF3	User-defined calculation 3	Float lower 2 bytes
2054	32054	0805			Float upper 2 bytes
2055	32055	0806	UDF4	User-defined calculation 4	Float lower 2 bytes
2056	32056	0807			Float upper 2 bytes
2057	32057	0808	UDF5	User-defined calculation 5	Float lower 2 bytes
2058	32058	0809			Float upper 2 bytes
2059	32059	080A	UDF6	User-defined calculation 6	Float lower 2 bytes
2060	32060	080B			Float upper 2 bytes
2061	32061	080C	UDF7	User-defined calculation 7	Float lower 2 bytes
2062	32062	080D			Float upper 2 bytes
2063	32063	080E	UDF8	User-defined calculation 8	Float lower 2 bytes
2064	32064	080F			Float upper 2 bytes
2065	32065	0810	UDF9	User-defined calculation 9	Float lower 2 bytes
2066	32066	0811			Float upper 2 bytes
2067	32067	0812	UDF10	User-defined calculation 10	Float lower 2 bytes
2068	32068	0813			Float upper 2 bytes
2069	32069	0814	UDF11	User-defined calculation 11	Float lower 2 bytes
2070	32070	0815			Float upper 2 bytes
2071	32071	0816	UDF12	User-defined calculation 12	Float lower 2 bytes
2072	32072	0817			Float upper 2 bytes
2073	32073	0818	UDF13	User-defined calculation 13	Float lower 2 bytes
2074	32074	0819			Float upper 2 bytes
2075	32075	081A	UDF14	User-defined calculation 14	Float lower 2 bytes
2076	32076	081B			Float upper 2 bytes
2077	32077	081C	UDF15	User-defined calculation 15	Float lower 2 bytes
2078	32078	081D			Float upper 2 bytes
2079	32079	081E	UDF16	User-defined calculation 16	Float lower 2 bytes
2080	32080	081F			Float upper 2 bytes
2081	32081	0820	UDF17	User-defined calculation 17	Float lower 2 bytes
2082	32082	0821			Float upper 2 bytes
2083	32083	0822	UDF18	User-defined calculation 18	Float lower 2 bytes
2084	32084	0823			Float upper 2 bytes
2085	32085	0824	UDF19	User-defined calculation 19	Float lower 2 bytes
2086	32086	0825			Float upper 2 bytes
2087	32087	0826	UDF20	User-defined calculation 20	Float lower 2 bytes
2088	32088	0827			Float upper 2 bytes

3.1.5 Motor analysis measurement items

Reg No.	Ref No.	Hex No.	Register name	Register description	
3001	33001	0BB8	Tq1	Torque 1	Float lower 2 bytes
3002	33002	0BB9			Float upper 2 bytes
3003	33003	0BBA	Tq2	Torque 2	Float lower 2 bytes
3004	33004	0BBB			Float upper 2 bytes
3005	33005	0BBC	Tq3	Torque 3	Float lower 2 bytes
3006	33006	0BBD			Float upper 2 bytes
3007	33007	0BBE	Tq4	Torque 4	Float lower 2 bytes
3008	33008	0BBF			Float upper 2 bytes
3009	33009	0BC0	Spd1	RPM 1	Float lower 2 bytes
3010	33010	0BC1			Float upper 2 bytes
3011	33011	0BC2	Spd2	RPM 2	Float lower 2 bytes
3012	33012	0BC3			Float upper 2 bytes
3013	33013	0BC4	Spd3	RPM 3	Float lower 2 bytes
3014	33014	0BC5			Float upper 2 bytes
3015	33015	0BC6	Spd4	RPM 4	Float lower 2 bytes
3016	33016	0BC7			Float upper 2 bytes
3017	33017	0BC8	Pm1	Motor power 1	Float lower 2 bytes
3018	33018	0BC9			Float upper 2 bytes
3019	33019	0BCA	Pm2	Motor power 2	Float lower 2 bytes
3020	33020	0BCB			Float upper 2 bytes
3021	33021	0BCC	Pm3	Motor power 3	Float lower 2 bytes
3022	33022	0BCD			Float upper 2 bytes
3023	33023	0BCE	Pm4	Motor power 4	Float lower 2 bytes
3024	33024	0BCF			Float upper 2 bytes
3025	33025	0BD0	Slip1	Slip 1	Float lower 2 bytes
3026	33026	0BD1			Float upper 2 bytes
3027	33027	0BD2	Slip2	Slip 2	Float lower 2 bytes
3028	33028	0BD3			Float upper 2 bytes
3029	33029	0BD4	Slip3	Slip 3	Float lower 2 bytes
3030	33030	0BD5			Float upper 2 bytes
3031	33031	0BD6	Slip4	Slip 4	Float lower 2 bytes
3032	33032	0BD7			Float upper 2 bytes
3033	33033	0BD8	CHA	CHA free input during independent input mode operation	Float lower 2 bytes
3034	33034	0BD9			Float upper 2 bytes
3035	33035	0BDA	CHB	CHB free input during independent input mode operation	Float lower 2 bytes
3036	33036	0BDB			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
3037	33037	0BDC	CHC	CHC free input during independent input mode operation	Float lower 2 bytes
3038	33038	0BDD			Float upper 2 bytes
3039	33039	0BDE	CHD	CHD free input during independent input mode operation	Float lower 2 bytes
3040	33040	0BDF			Float upper 2 bytes
3041	33041	0BE0	CHE	CHE free input during independent input mode operation	Float lower 2 bytes
3042	33042	0BE1			Float upper 2 bytes
3043	33043	0BE2	CHF	CHF free input during independent input mode operation	Float lower 2 bytes
3044	33044	0BE3			Float upper 2 bytes
3045	33045	0BE4	CHG	CHG free input during independent input mode operation	Float lower 2 bytes
3046	33046	0BE5			Float upper 2 bytes
3047	33047	0BE6	CHH	CHH free input during independent input mode operation	Float lower 2 bytes
3048	33048	0BE7			Float upper 2 bytes

3.1.6 Harmonic measurement items

The following items are all primary measurement data in the initial settings

Reference: 3.3 Harmonic Measurement Items

Reg No.	Ref No.	Hex No.	Register name	Register description	
4001	34001	0FA0	HARMStatus	Status	uint32 lower 2 bytes
4002	34002	0FA1			uint32 upper 2 bytes
4003	34003	0FA2	Uk1	CH1 harmonic voltage RMS value	Float lower 2 bytes
4004	34004	0FA3			Float upper 2 bytes
4005	34005	0FA4	Uk2	CH2 harmonic voltage RMS value	Float lower 2 bytes
4006	34006	0FA5			Float upper 2 bytes
4007	34007	0FA6	Uk3	CH3 harmonic voltage RMS value	Float lower 2 bytes
4008	34008	0FA7			Float upper 2 bytes
4009	34009	0FA8	Uk4	CH4 harmonic voltage RMS value	Float lower 2 bytes
4010	34010	0FA9			Float upper 2 bytes
4011	34011	0FAA	Uk5	CH5 harmonic voltage RMS value	Float lower 2 bytes
4012	34012	0FAB			Float upper 2 bytes
4013	34013	0FAC	Uk6	CH6 harmonic voltage RMS value	Float lower 2 bytes
4014	34014	0FAD			Float upper 2 bytes
4015	34015	0FAE	Uk7	CH7 harmonic voltage RMS value	Float lower 2 bytes
4016	34016	0FAF			Float upper 2 bytes
4017	34017	0FB0	Uk8	CH8 harmonic voltage RMS value	Float lower 2 bytes
4018	34018	0FB1			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
4019	34019	0FB2	ΘUk1	CH1 harmonic voltage	Float lower 2 bytes
4020	34020	0FB3		phase angle	Float upper 2 bytes
4021	34021	0FB4	ΘUk2	CH2 harmonic voltage	Float lower 2 bytes
4022	34022	0FB5		phase angle	Float upper 2 bytes
4023	34023	0FB6	ΘUk3	CH3 harmonic voltage	Float lower 2 bytes
4024	34024	0FB7		phase angle	Float upper 2 bytes
4025	34025	0FB8	ΘUk4	CH4 harmonic voltage	Float lower 2 bytes
4026	34026	0FB9		phase angle	Float upper 2 bytes
4027	34027	0FBA	ΘUk5	CH5 harmonic voltage	Float lower 2 bytes
4028	34028	0FBB		phase angle	Float upper 2 bytes
4029	34029	0FBC	ΘUk6	CH6 harmonic voltage	Float lower 2 bytes
4030	34030	0FBD		phase angle	Float upper 2 bytes
4031	34031	0FBE	ΘUk7	CH7 harmonic voltage	Float lower 2 bytes
4032	34032	0FBF		phase angle	Float upper 2 bytes
4033	34033	0FC0	ΘUk8	CH8 harmonic voltage	Float lower 2 bytes
4034	34034	0FC1		phase angle	Float upper 2 bytes
4035	34035	0FC2	Ik1	CH1 harmonic current	Float lower 2 bytes
4036	34036	0FC3		RMS value	Float upper 2 bytes
4037	34037	0FC4	Ik2	CH2 harmonic current	Float lower 2 bytes
4038	34038	0FC5		RMS value	Float upper 2 bytes
4039	34039	0FC6	Ik3	CH3 harmonic current	Float lower 2 bytes
4040	34040	0FC7		RMS value	Float upper 2 bytes
4041	34041	0FC8	Ik4	CH4 harmonic current	Float lower 2 bytes
4042	34042	0FC9		RMS value	Float upper 2 bytes
4043	34043	0FCA	Ik5	CH5 harmonic current	Float lower 2 bytes
4044	34044	0FCB		RMS value	Float upper 2 bytes
4045	34045	0FCC	Ik6	CH6 harmonic current	Float lower 2 bytes
4046	34046	0FCD		RMS value	Float upper 2 bytes
4047	34047	0FCE	Ik7	CH7 harmonic current	Float lower 2 bytes
4048	34048	0FCF		RMS value	Float upper 2 bytes
4049	34049	0FD0	Ik8	CH8 harmonic current	Float lower 2 bytes
4050	34050	0FD1		RMS value	Float upper 2 bytes
4051	34051	0FD2	ΘIk1	CH1 harmonic current	Float lower 2 bytes
4052	34052	0FD3		phase angle	Float upper 2 bytes
4053	34053	0FD4	ΘIk2	CH2 harmonic current	Float lower 2 bytes
4054	34054	0FD5		phase angle	Float upper 2 bytes
4055	34055	0FD6	ΘIk3	CH3 harmonic current	Float lower 2 bytes
4056	34056	0FD7		phase angle	Float upper 2 bytes
4057	34057	0FD8	ΘIk4	CH4 harmonic current	Float lower 2 bytes
4058	34058	0FD9		phase angle	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
4059	34059	0FDA	Θlk5	CH5 harmonic current	Float lower 2 bytes
4060	34060	0FDB		phase angle	Float upper 2 bytes
4061	34061	0FDC	Θlk6	CH6 harmonic current	Float lower 2 bytes
4062	34062	0FDD		phase angle	Float upper 2 bytes
4063	34063	0FDE	Θlk7	CH7 harmonic current	Float lower 2 bytes
4064	34064	0FDF		phase angle	Float upper 2 bytes
4065	34065	0FE0	Θlk8	CH8 harmonic current	Float lower 2 bytes
4066	34066	0FE1		phase angle	Float upper 2 bytes
4067	34067	0FE2	Pk1	CH1 harmonic active	Float lower 2 bytes
4068	34068	0FE3		power	Float upper 2 bytes
4069	34069	0FE4	Pk2	CH2 harmonic active	Float lower 2 bytes
4070	34070	0FE5		power	Float upper 2 bytes
4071	34071	0FE6	Pk3	CH3 harmonic active	Float lower 2 bytes
4072	34072	0FE7		power	Float upper 2 bytes
4073	34073	0FE8	Pk4	CH4 harmonic active	Float lower 2 bytes
4074	34074	0FE9		power	Float upper 2 bytes
4075	34075	0FEA	Pk5	CH5 harmonic active	Float lower 2 bytes
4076	34076	0FEB		power	Float upper 2 bytes
4077	34077	0FEC	Pk6	CH6 harmonic active	Float lower 2 bytes
4078	34078	0FED		power	Float upper 2 bytes
4079	34079	0FEE	Pk7	CH7 harmonic active	Float lower 2 bytes
4080	34080	0FEF		power	Float upper 2 bytes
4081	34081	0FF0	Pk8	CH8 harmonic active	Float lower 2 bytes
4082	34082	0FF1		power	Float upper 2 bytes
4083	34083	0FF2	Pk12	CH12 harmonic active	Float lower 2 bytes
4084	34084	0FF3		power	Float upper 2 bytes
4085	34085	0FF4	Pk23	CH23 harmonic active	Float lower 2 bytes
4086	34086	0FF5		power	Float upper 2 bytes
4087	34087	0FF6	Pk34	CH34 harmonic active	Float lower 2 bytes
4088	34088	0FF7		power	Float upper 2 bytes
4089	34089	0FF8	Pk45	CH45 harmonic active	Float lower 2 bytes
4090	34090	0FF9		power	Float upper 2 bytes
4091	34091	0FFA	Pk56	CH56 harmonic active	Float lower 2 bytes
4092	34092	0FFB		power	Float upper 2 bytes
4093	34093	0FFC	Pk67	CH67 harmonic active	Float lower 2 bytes
4094	34094	0FFD		power	Float upper 2 bytes
4095	34095	0FFE	Pk78	CH78 harmonic active	Float lower 2 bytes
4096	34096	0FFF		power	Float upper 2 bytes
4097	34097	1000	Pk123	CH123 harmonic active	Float lower 2 bytes
4098	34098	1001		power	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
4099	34099	1002	Pk234	CH234 harmonic active	Float lower 2 bytes
4100	34100	1003		power	Float upper 2 bytes
4101	34101	1004	Pk345	CH345 harmonic active	Float lower 2 bytes
4102	34102	1005		power	Float upper 2 bytes
4103	34103	1006	Pk456	CH456 harmonic active	Float lower 2 bytes
4104	34104	1007		power	Float upper 2 bytes
4105	34105	1008	Pk567	CH567 harmonic active	Float lower 2 bytes
4106	34106	1009		power	Float upper 2 bytes
4107	34107	100A	Pk678	CH678 harmonic active	Float lower 2 bytes
4108	34108	100B		power	Float upper 2 bytes
4109	34109	100C	Θk1	CH1 harmonic voltage/	Float lower 2 bytes
4110	34110	100D		current phase difference	Float upper 2 bytes
4111	34111	100E	Θk2	CH2 harmonic voltage/	Float lower 2 bytes
4112	34112	100F		current phase difference	Float upper 2 bytes
4113	34113	1010	Θk3	CH3 harmonic voltage/	Float lower 2 bytes
4114	34114	1011		current phase difference	Float upper 2 bytes
4115	34115	1012	Θk4	CH4 harmonic voltage/	Float lower 2 bytes
4116	34116	1013		current phase difference	Float upper 2 bytes
4117	34117	1014	Θk5	CH5 harmonic voltage/	Float lower 2 bytes
4118	34118	1015		current phase difference	Float upper 2 bytes
4119	34119	1016	Θk6	CH6 harmonic voltage/	Float lower 2 bytes
4120	34120	1017		current phase difference	Float upper 2 bytes
4121	34121	1018	Θk7	CH7 harmonic voltage/	Float lower 2 bytes
4122	34122	1019		current phase difference	Float upper 2 bytes
4123	34123	101A	Θk8	CH8 harmonic voltage/	Float lower 2 bytes
4124	34124	101B		current phase difference	Float upper 2 bytes
4125	34125	101C	Θ12	CH12 harmonic voltage/	Float lower 2 bytes
4126	34126	101D		current phase difference	Float upper 2 bytes
4127	34127	101E	Θ23	CH23 harmonic voltage/	Float lower 2 bytes
4128	34128	101F		current phase difference	Float upper 2 bytes
4129	34129	1020	Θ34	CH34 harmonic voltage/	Float lower 2 bytes
4130	34130	1021		current phase difference	Float upper 2 bytes
4131	34131	1022	Θ45	CH45 harmonic voltage/	Float lower 2 bytes
4132	34132	1023		current phase difference	Float upper 2 bytes
4133	34133	1024	Θ56	CH56 harmonic voltage/	Float lower 2 bytes
4134	34134	1025		current phase difference	Float upper 2 bytes
4135	34135	1026	Θ67	CH67 harmonic voltage/	Float lower 2 bytes
4136	34136	1027		current phase difference	Float upper 2 bytes
4137	34137	1028	Θ78	CH78 harmonic voltage/	Float lower 2 bytes
4138	34138	1029		current phase difference	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
4139	34139	102A	Θ123	CH123 harmonic voltage/	Float lower 2 bytes
4140	34140	102B		current phase difference	Float upper 2 bytes
4141	34141	102C	Θ234	CH234 harmonic voltage/	Float lower 2 bytes
4142	34142	102D		current phase difference	Float upper 2 bytes
4143	34143	102E	Θ345	CH345 harmonic voltage/	Float lower 2 bytes
4144	34144	102F		current phase difference	Float upper 2 bytes
4145	34145	1030	Θ456	CH456 harmonic voltage/	Float lower 2 bytes
4146	34146	1031		current phase difference	Float upper 2 bytes
4147	34147	1032	Θ567	CH567 harmonic voltage/	Float lower 2 bytes
4148	34148	1033		current phase difference	Float upper 2 bytes
4149	34149	1034	Θ678	CH678 harmonic voltage/	Float lower 2 bytes
4150	34150	1035		current phase difference	Float upper 2 bytes
4151	34151	1036	HDUk1	CH1 harmonic voltage	Float lower 2 bytes
4152	34152	1037		content percentage	Float upper 2 bytes
4153	34153	1038	HDUk2	CH2 harmonic voltage	Float lower 2 bytes
4154	34154	1039		content percentage	Float upper 2 bytes
4155	34155	103A	HDUk3	CH3 harmonic voltage	Float lower 2 bytes
4156	34156	103B		content percentage	Float upper 2 bytes
4157	34157	103C	HDUk4	CH4 harmonic voltage	Float lower 2 bytes
4158	34158	103D		content percentage	Float upper 2 bytes
4159	34159	103E	HDUk5	CH5 harmonic voltage	Float lower 2 bytes
4160	34160	103F		content percentage	Float upper 2 bytes
4161	34161	1040	HDUk6	CH6 harmonic voltage	Float lower 2 bytes
4162	34162	1041		content percentage	Float upper 2 bytes
4163	34163	1042	HDUk7	CH7 harmonic voltage	Float lower 2 bytes
4164	34164	1043		content percentage	Float upper 2 bytes
4165	34165	1044	HDUk8	CH8 harmonic voltage	Float lower 2 bytes
4166	34166	1045		content percentage	Float upper 2 bytes
4167	34167	1046	HDIk1	CH1 harmonic current	Float lower 2 bytes
4168	34168	1047		content percentage	Float upper 2 bytes
4169	34169	1048	HDIk2	CH2 harmonic current	Float lower 2 bytes
4170	34170	1049		content percentage	Float upper 2 bytes
4171	34171	104A	HDIk3	CH3 harmonic current	Float lower 2 bytes
4172	34172	104B		content percentage	Float upper 2 bytes
4173	34173	104C	HDIk4	CH4 harmonic current	Float lower 2 bytes
4174	34174	104D		content percentage	Float upper 2 bytes
4175	34175	104E	HDIk5	CH5 harmonic current	Float lower 2 bytes
4176	34176	104F		content percentage	Float upper 2 bytes
4177	34177	1050	HDIk6	CH6 harmonic current	Float lower 2 bytes
4178	34178	1051		content percentage	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
4179	34179	1052	HDIk7	CH7 harmonic current	Float lower 2 bytes
4180	34180	1053		content percentage	Float upper 2 bytes
4181	34181	1054	HDIk8	CH8 harmonic current	Float lower 2 bytes
4182	34182	1055		content percentage	Float upper 2 bytes
4183	34183	1056	HDPk1	CH1 harmonic power	Float lower 2 bytes
4184	34184	1057		content percentage	Float upper 2 bytes
4185	34185	1058	HDPk2	CH2 harmonic power	Float lower 2 bytes
4186	34186	1059		content percentage	Float upper 2 bytes
4187	34187	105A	HDPk3	CH3 harmonic power	Float lower 2 bytes
4188	34188	105B		content percentage	Float upper 2 bytes
4189	34189	105C	HDPk4	CH4 harmonic power	Float lower 2 bytes
4190	34190	105D		content percentage	Float upper 2 bytes
4191	34191	105E	HDPk5	CH5 harmonic power	Float lower 2 bytes
4192	34192	105F		content percentage	Float upper 2 bytes
4193	34193	1060	HDPk6	CH6 harmonic power	Float lower 2 bytes
4194	34194	1061		content percentage	Float upper 2 bytes
4195	34195	1062	HDPk7	CH7 harmonic power	Float lower 2 bytes
4196	34196	1063		content percentage	Float upper 2 bytes
4197	34197	1064	HDPk8	CH8 harmonic power	Float lower 2 bytes
4198	34198	1065		content percentage	Float upper 2 bytes
4199	34199	1066	HDPk12	CH12 harmonic power	Float lower 2 bytes
4200	34200	1067		content percentage	Float upper 2 bytes
4201	34201	1068	HDPk23	CH23 harmonic power	Float lower 2 bytes
4202	34202	1069		content percentage	Float upper 2 bytes
4203	34203	106A	HDPk34	CH34 harmonic power	Float lower 2 bytes
4204	34204	106B		content percentage	Float upper 2 bytes
4205	34205	106C	HDPk45	CH45 harmonic power	Float lower 2 bytes
4206	34206	106D		content percentage	Float upper 2 bytes
4207	34207	106E	HDPk56	CH56 harmonic power	Float lower 2 bytes
4208	34208	106F		content percentage	Float upper 2 bytes
4209	34209	1070	HDPk67	CH67 harmonic power	Float lower 2 bytes
4210	34210	1071		content percentage	Float upper 2 bytes
4211	34211	1072	HDPk78	CH78 harmonic power	Float lower 2 bytes
4212	34212	1073		content percentage	Float upper 2 bytes
4213	34213	1074	HDPk123	CH123 harmonic power	Float lower 2 bytes
4214	34214	1075		content percentage	Float upper 2 bytes
4215	34215	1076	HDPk234	CH234 harmonic power	Float lower 2 bytes
4216	34216	1077		content percentage	Float upper 2 bytes
4217	34217	1078	HDPk345	CH345 harmonic power	Float lower 2 bytes
4218	34218	1079		content percentage	Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
4219	34219	107A	HDPk456	CH456 harmonic power	Float lower 2 bytes
4220	34220	107B		content percentage	Float upper 2 bytes
4221	34221	107C	HDPk567	CH567 harmonic power	Float lower 2 bytes
4222	34222	107D		content percentage	Float upper 2 bytes
4223	34223	107E	HDPk678	CH678 harmonic power	Float lower 2 bytes
4224	34224	107F		content percentage	Float upper 2 bytes
4225	34225	1080	fHRM1	CH1 harmonics	Float lower 2 bytes
4226	34226	1081		synchronization frequency	Float upper 2 bytes
4227	34227	1082	fHRM2	CH2 harmonics	Float lower 2 bytes
4228	34228	1083		synchronization frequency	Float upper 2 bytes
4229	34229	1084	fHRM3	CH3 harmonics	Float lower 2 bytes
4230	34230	1085		synchronization frequency	Float upper 2 bytes
4231	34231	1086	fHRM4	CH4 harmonics	Float lower 2 bytes
4232	34232	1087		synchronization frequency	Float upper 2 bytes
4233	34233	1088	fHRM5	CH5 harmonics	Float lower 2 bytes
4234	34234	1089		synchronization frequency	Float upper 2 bytes
4235	34235	108A	fHRM6	CH6 harmonics	Float lower 2 bytes
4236	34236	108B		synchronization frequency	Float upper 2 bytes
4237	34237	108C	fHRM7	CH7 harmonics	Float lower 2 bytes
4238	34238	108D		synchronization frequency	Float upper 2 bytes
4239	34239	108E	fHRM8	CH8 harmonics	Float lower 2 bytes
4240	34240	108F		synchronization frequency	Float upper 2 bytes

3.1.7 CUSTOM screen items

Reg No.	Ref No.	Hex No.	Register name	Register description	
5001	35001	1388	8Item1	Measurement data	Float lower 2 bytes
5002	35002	1389		assigned to 8Item1	Float upper 2 bytes
:	:	:			
5015	35015	1396	8Item8	Measurement data	Float lower 2 bytes
5016	35016	1397		assigned to 8Item8	Float upper 2 bytes
5017	35017	1398	16Item1	Measurement data	Float lower 2 bytes
5018	35018	1399		assigned to 16Item1	Float upper 2 bytes
:	:	:			
5047	35047	13B6	16Item16	Measurement data	Float lower 2 bytes
5048	35048	13B7		assigned to 16Item16	Float upper 2 bytes
5049	35049	13B8	36Item1	Measurement data	Float lower 2 bytes
5050	35050	13B9		assigned to 36Item1	Float upper 2 bytes
:	:	:			
5119	35119	13FE	36Item36	Measurement data	Float lower 2 bytes
5120	35120	13FF		assigned to 36Item36	Float upper 2 bytes
5121	35121	1400	64Item1	Measurement data	Float lower 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
5122	35122	1401		assigned to 64Item1	Float upper 2 bytes
:	:	:			
5247	35247	147E	64Item64	Measurement data	Float lower 2 bytes
5248	35248	147F		assigned to 64Item64	Float upper 2 bytes

3.1.8 Optional output items

Output items specified using the communications command :MODBus:ITEM <Output No.>,<Output item>

Reg No.	Ref No.	Hex No.	Register name	Register description	
6001	36001	1770	Item1	Output items with	Float lower 2 bytes
6002	36002	1771		<Output No.>=1	Float upper 2 bytes
6003	36003	1772	Item2	Output items with	Float lower 2 bytes
6004	36004	1773		<Output No.>=2	Float upper 2 bytes
:	:	:			
Reg No.:6001+(X−1)×2			ItemX	Output items with	Float lower 2 bytes
Reg No.:6001+(X−1)×2+1				<Output No.>=X	Float upper 2 bytes
:	:	:			
7997	37997	1F3C	Item999	Output items with	Float lower 2 bytes
7998	37998	1F3D		<Output No.>=999	Float upper 2 bytes
7999	37999	1F3E	Item1000	Output items with	Float lower 2 bytes
8000	3800	1F3F		<Output No.>=1000	Float upper 2 bytes

3.1.9 Measurement range setting items

Reg No.	Ref No.	Hex No.	Register name	Register description	
8001	38001	1F40	URange1	CH1 voltage range value	Float lower 2 bytes
8002	38002	1F41			Float upper 2 bytes
8003	38003	1F42	URange2	CH2 voltage range value	Float lower 2 bytes
8004	38004	1F43			Float upper 2 bytes
8005	38005	1F44	URange3	CH3 voltage range value	Float lower 2 bytes
8006	38006	1F45			Float upper 2 bytes
8007	38007	1F46	URange4	CH4 voltage range value	Float lower 2 bytes
8008	38008	1F47			Float upper 2 bytes
8009	38009	1F48	URange5	CH5 voltage range value	Float lower 2 bytes
8010	38010	1F49			Float upper 2 bytes
8011	38011	1F4A	URange6	CH6 voltage range value	Float lower 2 bytes
8012	38012	1F4B			Float upper 2 bytes
8013	38013	1F4C	URange7	CH7 voltage range value	Float lower 2 bytes
8014	38014	1F4D			Float upper 2 bytes

Reg No.	Ref No.	Hex No.	Register name	Register description	
8015	38015	1F4E	URange8	CH8 voltage range value	Float lower 2 bytes
8016	38016	1F4F			Float upper 2 bytes
8017	38017	1F50	IRange1	CH1 current range value	Float lower 2 bytes
8018	38018	1F51			Float upper 2 bytes
8019	38019	1F52	IRange2	CH2 current range value	Float lower 2 bytes
8020	38020	1F53			Float upper 2 bytes
8021	38021	1F54	IRange3	CH3 current range value	Float lower 2 bytes
8022	38022	1F55			Float upper 2 bytes
8023	38023	1F56	IRange4	CH4 current range value	Float lower 2 bytes
8024	38024	1F57			Float upper 2 bytes
8025	38025	1F58	IRange5	CH5 current range value	Float lower 2 bytes
8026	38026	1F59			Float upper 2 bytes
8027	38027	1F5A	IRange6	CH6 current range value	Float lower 2 bytes
8028	38028	1F5B			Float upper 2 bytes
8029	38029	1F5C	IRange7	CH7 current range value	Float lower 2 bytes
8030	38030	1F5D			Float upper 2 bytes
8031	38031	1F5E	IRange8	CH8 current range value	Float lower 2 bytes
8032	38032	1F5F			Float upper 2 bytes
8033	38033	1F60	URangeA	CHA voltage range	Float lower 2 bytes
8034	38034	1F61			Float upper 2 bytes
8035	38035	1F62	URangeC	CHC voltage range	Float lower 2 bytes
8036	38036	1F63			Float upper 2 bytes
8037	38037	1F64	URangeE	CHE voltage range	Float lower 2 bytes
8038	38038	1F65			Float upper 2 bytes
8039	38039	1F66	URangeG	CHG voltage range	Float lower 2 bytes
8040	38040	1F67			Float upper 2 bytes

3.2 Float Format Data

Float is IEEE single-precision floating-point format (32-bit) data.

One Modbus register is fixed to 16 bits and the Float format data is divided and saved to two registers with 16 bits each.

As all Float format data for this instrument is arranged in Little Endian order (in order of lower 16 bits and upper 16 bits), specify “Little” for the data order in which Float format data is handled on the client side.

Example: When CH1 voltage RMS value Urms1 is 100 V, the reading of the register is as follows.

Input register: 0021 = “0x0000”

Input register: 0022 = “0x42C8”

Data when an error occurs is as follows.

Exceeded value	+99999.9E+30
Error value	+77777.7E+30
Unassigned register Example: 0847 to 1000	0x7FC00000 (NAN)

3.3 Harmonic Measurement Items

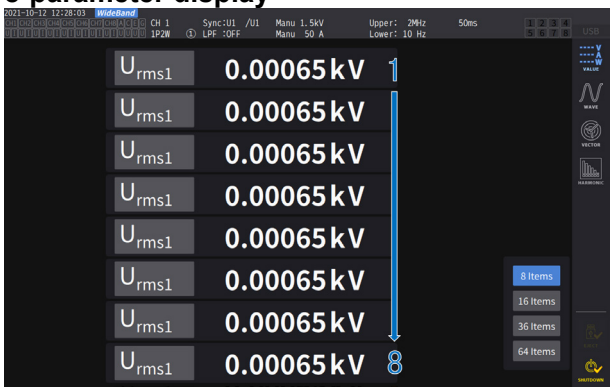
The harmonic measurement items for the input register (register No.: 4001 to 4240) are all primary measured data in the initial settings. By specifying the harmonic order in Harmonic Order (register No.: 0008) of the holding register, you can acquire the measured data of any order. For details of the register harmonic order, see “4.2.8 Harmonic order”.

Example: If you specify “100” for the harmonic order (register No.: 0008) for the holding register, the harmonic measurement items (register No.: 4001 to 4240) for the input register are all 100th measurement data.

3.4 CUSTOM Screen Items

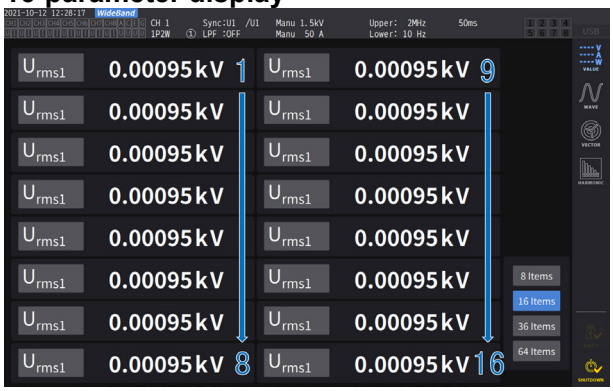
The correspondence between CUSTOM screen items of the input register (register No.: 5001 to 5248) 8ITEM1 to 8ITEM8, 16Item1 to 16Item16, 36Item1 to 36Item36, and 64Item1 to 64Item64 and the CUSTOM screen display of the instrument is as follows.

8-parameter display



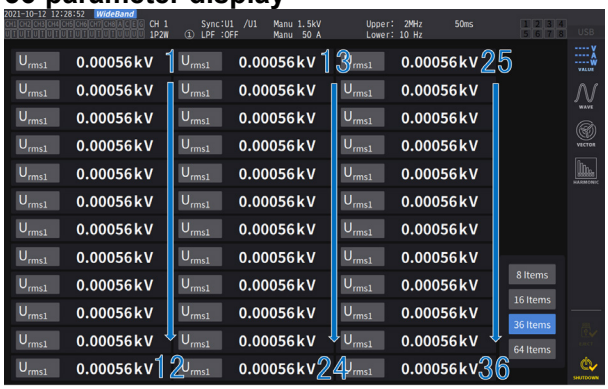
8Item1 to 8Item8 from top

16-parameter display



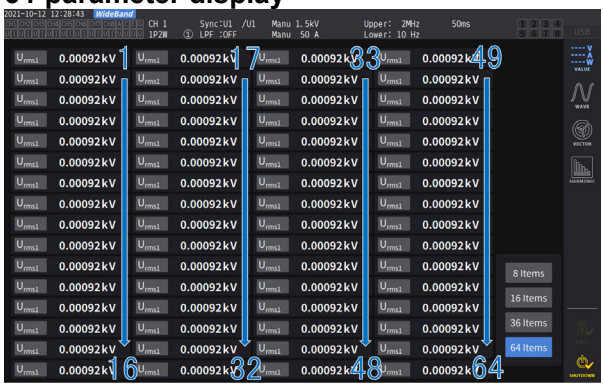
1st column from left: 16Item1 to 16Item8 from top
2nd column from left: 16Item9 to 16Item16 from top

36-parameter display



1st column from left: 36Item1 to 36Item12 from top
2nd column from left: 36Item13 to 36Item24 from top
3rd column from left: 36Item25 to 36Item36 from top

64-parameter display



1st column from left: 64Item1 to 64Item16 from top
2nd column from left: 64Item17 to 64Item32 from top
3rd column from left: 64Item33 to 64tem48 from top
4th column from left: 64Item49 to 64Item64 from top

3.5 Registering Optional Output Items

3.5.1 Registration of optional output items

For the input register optional output items (register No.: 6001 to 8000), up to 1000 optional output items can be assigned using the communications command :MODBus:ITEM. For details, see the register map under “3.1.8 Optional output items”. In the initial settings, “Pattern 1” of the preset output items is assigned to this area. For details on the preset output items, see “3.5.2 Preset output items”.

The optional output item registration is reset when the power is turned on again and “Pattern 1” of the preset output items is set every time the instrument starts up. The registration information of the optional output items cannot be saved in the settings file.

For the procedure to assign and preset output items using a communications command, see the PW8001 Communications Command Instruction Manual.

3.5.2 Preset output items

Preset output items can be specified using the communications command :MODBus:ITEM:PRESet. There is only one pattern for the preset output items that can be specified. The information of preset pattern 1 is as follows.

Pattern 1

Output No.	Output item
1	Urms1
2	Umn1
3	Uac1
4	Udc1
5	Ufnd1
6	PUpk1
7	MUpk1
8	Uthd1
9	Urf1
10	Irms1
11	Imn1
12	Iac1
13	Idc1
14	Ifnd1
15	PIpk1
16	MIpk1
17	Ithd1
18	Irf1
19	P1
20	Pfnd1
21	S1
22	Sfnd1
23	Q1

Output No.	Output item
24	Qfnd1
25	PF1
26	PFfnd1
27	Udeg1
28	Ideg1
29	DEG1
30	FU1
31	FI1
32	PIH1
33	MIH1
34	IH1
35	PWP1
36	MWP1
37	WP1
38 to 74	Urms2 to WP2
75 to 111	Urms3 to WP3
112 to 148	Urms4 to WP4
149 to 185	Urms5 to WP5
186 to 222	Urms6 to WP6
223 to 259	Urms7 to WP7
260 to 296	Urms8 to WP8
297	Urms12
298	Umn12
299	Irms12
300	Imn12
301	P12
302	Pfnd12
303	S12
304	Sfnd12
305	Q12
306	Qfnd12
307	PF12
308	PFfnd12
309	DEG12
310	PWP12
311	MWP12
312	WP12
313 to 328	Urms23 to WP23
329 to 344	Urms34 to WP34
345 to 360	Urms45 to WP45
361 to 376	Urms56to WP56
377 to 392	Urms67 to WP67

Output No.	Output item
393 to 408	Urms78 to WP78
409	Urms123
410	Umn123
411	Uunb123
412	Irms123
413	Imn123
414	Iunb123
415	P123
416	Pfnd123
417	S123
418	Sfnd123
419	Q123
420	Qfnd123
421	PF123
422	PFfnd123
423	DEG123
424	PWP123
425	MWP123
426	WP123
427 to 444	Urms234 to WP234
445 to 462	Urms345 to WP345
463 to 480	Urms456 to WP456
481 to 498	Urms567 to WP567
499 to 516	Urms678 to WP678
517 to 1000	OFF

Note: When items to which OFF is specified are read, an error value is returned.

4 Holding Register

4.1 Register Map

4.1.1 Control data

Reg No.	Ref No.	Hex No.	Register name	Register description		R/W
0001	40001	0000	Regster Hold	Register value hold/reset	uint16	R/W
0002	40002	0001	INTEG:All:Start/ Stop	All wiring integration start/stop	uint16	R/W
0003	40003	0002	INTEG:All:Reset	All wiring integration reset	uint16	W
0004	40004	0003	INTEG:Start	Each wiring integration start	uint16	R/W
0005	40005	0004	INTEG Stop	Each wiring integration stop	uint16	W
0006	40006	0005	INTEG:Reset	Each wiring integration reset	uint16	W
0007	40007	0006	HOLD	Measured value hold	uint16	R/W
0008	40008	0007	Harmonic Order	Harmonic order	uint16	R/W

For the procedure to use each register, see “4.2 Details of Control by Holding Register” in the following section.

4.2 Details of Control by Holding Register

4.2.1 Register value hold/reset

Reg No.	0001
Register name	Regster Hold
Description	Register value hold When the register value hold is executed, the input register values at that time are retained and set so that they cannot be updated even if the measured values of the instrument are updated. The values read from the input register in this state are saved as data at the time of execution of the register value hold. When the data is overwritten with 1 with the register value in the hold state, the input register is updated with the latest values at that time and retained with those values from then on. Register value reset Register value hold is reset. Along with the update of the measured values of the instrument, the input register values are updated to the latest measurement data.
Effective range	0 Reset 1 Hold Other Invalid
R/W	Read/write
Reference	・Reading of Harmonic measurement items in the register value hold state When the harmonic order is changed with the register value in hold state, the harmonic measurement items of the input register are changed to the measurement data for the newly specified order. The data read at this time is measurement data at the time of execution of the register value hold but not the latest measurement data. When the register value hold is reset, the input register is updated with the latest measurement data. ・Reading of CUSTOM screen items in the register value hold state When the display items of the CUSTOM screen are changed with the register value in hold state, the CUSTOM screen items of the input register are also changed in conjunction with the display items specified on the screen. The data read at this time is measurement data at the time of execution of the register value hold but not the latest measurement data. When the register value hold is reset, the input register is updated with the latest measurement data. ・Reading of optional output items in the register value hold state When the output items using a communications command are changed with the register value in hold state, the optional output items of the input register are changed to the newly specified output items. The data read at this time is measurement data at the time of execution of the register value hold but not the latest measurement data. When the register value hold is reset, the input register is updated with the latest measurement data.

4.2.2 All wiring integration start/stop

Reg No.	0002
Register name	INTEG:All:Start/Stop
Description	All wiring integration start Starts the integration (time control) in the all wiring integration mode. If the integration control method is not all wiring integration, it is changed to the all wiring integration and the integration starts. When the integration state is RUN, 0ADJ, or OTHER, the integration start is not executed. All wiring integration stop Stops the integration (time control) of all wiring integration. If the integration control method is not all wiring integration, the integration stop is not executed. When the integration state is RESET, STOP, 0ADJ, or OTHER, the integration stop is not executed.
Effective range	0 Stop 1 Start Other Invalid
R/W	Read/write While the wiring integration is being executed, the read value of the register is 0 (stop).
Reference	The integration can be queried using the communications command :INTEGrate:STATe?. <Integration state> Integration state: RESET Integration is in reset; STOP Integration is in stop; WAIT Integration is in standby; RUN Integration is in process; OTHER States other than the above; 0ADJ Various zero adjustments are in process For details, see the PW8001 Communications Command Instruction Manual.

4.2.3 All wiring integration reset

Reg No.	0003
Register name	INTEG:All:Reset
Description	Resets the integrated data of all wiring integration. If the integration control method is not all wiring integration, the integration reset is not executed. When the integration state is WAIT, RUN, 0ADJ, or OTHER, the integration reset is not executed.
Effective range	0 Reset Other Invalid
R/W	Write only
Reference	The integration can be queried using the communications command :INTEGrate:STATe?. For details, see the PW8001 Communications Command Instruction Manual.

4.2.4 Start of each wiring integration

Reg No.	0004
Register name	INTEG:Start
Description	Starts the integration (time control) of the wiring including the specified channel. If the integration control method is not each wiring integration, it is changed to the each wiring integration and the integration starts. Each wiring integration is executed in only the channel of the target channels that can start the integration. When the integration state is RUN, 0ADJ, or OTHER, the integration start is not executed in this channel. Specification of the channel to be controlled Specifies the channel in a value from 0 to 255. Set the channel so that the bit of the target channel is 1.

128	64	32	16	8	4	2	1
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
CH8	CH7	CH6	CH5	CH4	CH3	CH2	CH1

Effective range	0 to 255
R/W	Read/write For the read value, the bit of the channel for which integration is being executed is 1 regardless of the integration control method.
Reference	The integration can be queried using the communications command :INTEGrate:STATe?. For details, see the PW8001 Communications Command Instruction Manual.

4.2.5 Stop of each wiring integration

Reg No.	0005
Register name	INTEG:Stop
Description	Stops the integration (time control) of the wiring including the specified channel. If the integration control method is not each wiring integration, this control is not executed. The integration stop is executed in only the channel of the target channels that can stop the integration. When the integration state is RESET, STOP, 0ADJ, or OTHER, the integration stop is not executed in that channel. Specification of the channel to be controlled Specifies the channel in a value from 0 to 255. Set the channel so that the bit of the target channel is 1.

128	64	32	16	8	4	2	1
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
CH8	CH7	CH6	CH5	CH4	CH3	CH2	CH1

Effective range	0 to 255
R/W	Write only
Reference	The integration can be queried using the communications command :INTEGrate:STATe?. For details, see the PW8001 Communications Command Instruction Manual.

4.2.6 Each wiring integration reset

Reg No.	0006
Register name	INTEG:Reset
Description	Resets the integrated data of the wiring including the specified channel. If the integration control method is not each wiring integration, this control is not executed. The integration reset is executed only in the channel of the target channels that can be reset. When the integration state is WAIT, RUN, 0ADJ, or OTHER, the integration reset is not executed in that channel. Specification of the channel to be controlled Specifies the channel in a value from 0 to 255. Set the channel so that the bit of the target channel is 1.

128	64	32	16	8	4	2	1
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
CH8	CH7	CH6	CH5	CH4	CH3	CH2	CH1

Effective range	0 to 255
R/W	Write only
Reference	The integration can be queried using the communications command :INTEGrate:STATe?. For details, see the PW8001 Communications Command Instruction Manual.

4.2.7 Measured value hold

Reg No.	0007	
Register name	HOLD	
Description	Sets hold state.	
Effective range	0	Hold OFF
	1	Hold ON
	2	Peak hold ON
	Other	Invalid
R/W	Read/write	
Reference		

4.2.8 Harmonic order

Reg No.	0008
Register name	Harmonic Order
Description	Specifies the order for the harmonic measurement items of the input register. The initial value is “1”.
Effective range	0 to 500
R/W	Read/write
Reference	For details, see “3.3 Harmonic Measurement Items”.

5 Troubleshooting

Problem	Cause	Solution/Reference
No communications.	The cable is not connected properly. The cable in use is an item other than specified.	Refer to “9 Connecting the Instrument to a PC” in the PW8001 Instruction Manual.
	Power supply to some of the devices in connection is not turned ON.	Turn ON all the devices.
	The communication setting of the Modbus/TCP client instrument is not identical to the one for the instrument. The IP address setting is identical to the one for another device.	Refer to “9 Connecting the Instrument to a PC” in the PW8001 Instruction Manual.
	The TCP/IP port number is incorrect.	Set the port number to 502.
Communications are not working properly.	Function codes not supported by the instrument are used.	See “1.2 Function Code”.
	The ID (server address) is not correct.	Sets the unit ID (server address) to “1”.
The response message is not the same as what is displayed on the instrument panel.	It is not an error. A response message is created when the instrument receives a message. The message may not be identical to the display when it is loaded by the computer.	

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