

M2M/DMTME Instruments – Communication Protocol

Technical specification V.2.0

Memory map

The following table indicates the correspondence between the address of the location, the number of accessible words beginning with that address, the description of the measurement value, the unit of measurement of the measurement value and the binary format.

Address	Word	Measurement description	Unit	Format
1000h	2	3-PHASE SYSTEM VOLTAGE	Volt	Unsigned Long
1002h	2	PHASE VOLTAGE L1-N	Volt	Unsigned Long
1004h	2	PHASE VOLTAGE L2-N	Volt	Unsigned Long
1006h	2	PHASE VOLTAGE L3-N	Volt	Unsigned Long
1008h	2	LINE VOLTAGE L1-2	Volt	Unsigned Long
100Ah	2	LINE VOLTAGE L2-3	Volt	Unsigned Long
100Ch	2	LINE VOLTAGE L3-1	Volt	Unsigned Long
100Eh	2	3-PHASE SYSTEM CURRENT	mA	Unsigned Long
1010h	2	LINE CURRENT L1	mA	Unsigned Long
1012h	2	LINE CURRENT L2	mA	Unsigned Long
1014h	2	LINE CURRENT L3	mA	Unsigned Long
1016h	2	3-PHASE SYS. POWER FACTOR ¹	* 1000	Signed Long
1018h	2	POWER FACTOR L1 ¹	* 1000	Signed Long
101Ah	2	POWER FACTOR L2 ¹	* 1000	Signed Long
101Ch	2	POWER FACTOR L3 ¹	* 1000	Signed Long
101Eh	2	3-PHASE SYSTEM COS φ ¹	* 1000	Signed Long
1020h	2	PHASE COS φ1 ¹	* 1000	Signed Long
1022h	2	PHASE COS φ2 ¹	* 1000	Signed Long
1024h	2	PHASE COS φ3 ¹	* 1000	Signed Long
1026h	2	3-PHASE S. APPARENT POWER	VA	Unsigned Long
1028h	2	APPARENT POWER L1	VA	Unsigned Long
102Ah	2	APPARENT POWER L2	VA	Unsigned Long
102Ch	2	APPARENT POWER L3	VA	Unsigned Long
102Eh	2	3-PHASE SYS. ACTIVE POWER	Watt	Signed Long ^(S)
1030h	2	ACTIVE POWER L1	Watt	Signed Long ^(S)
1032h	2	ACTIVE POWER L2	Watt	Signed Long ^(S)
1034h	2	ACTIVE POWER L3	Watt	Signed Long ^(S)
1036h	2	3-PHASE S. REACTIVE POWER	VAr	Signed Long ^(S)
1038h	2	REACTIVE POWER L1	VAr	Signed Long ^(S)
103Ah	2	REACTIVE POWER L2	VAr	Signed Long ^(S)
103Ch	2	REACTIVE POWER L3	VAr	Signed Long ^(S)
103Eh	2	3-PHASE SYS. ACTIVE ENERGY	Wh * 100	Unsigned Long
1040h	2	3-PHASE S. REACTIVE ENERGY	Varh * 100	Unsigned Long
1046h	2	FREQUENCY	mHz	Unsigned Long
1060h	2	MAX LINE CURRENT L1	mA	Unsigned Long
1062h	2	MAX LINE CURRENT L2	mA	Unsigned Long
1064h	2	MAX LINE CURRENT L3	mA	Unsigned Long
1066h	2	MAX 3-PHASE SYS. ACTIVE POWER	Watt	Signed Long ^(S)
1068h	2	MAX 3-PHASE S. APPARENT POWER	VA	Unsigned Long ^(S)
1070h	2	3-PHASE SYS. ACTIVE POWER 15' AVER	Watt	Signed Long ^(S)
1072h ["]	2	3-PHASE SYS. APPARENT POWER 15' AVER	VA	Unsigned Long
1074h ["]	2	ACTIVE ENERGY L1	Wh * 100	Unsigned Long
1076h ["]	2	ACTIVE ENERGY L2	Wh * 100	Unsigned Long
1078h ["]	2	ACTIVE ENERGY L3	Wh * 100	Unsigned Long
107Ah ["]	2	REACTIVE ENERGY L1	Varh * 100	Unsigned Long
107Ch ["]	2	REACTIVE ENERGY L2	Varh * 100	Unsigned Long
107Eh ["]	2	REACTIVE ENERGY L3	Varh * 100	Unsigned Long
1080h ["]	2	MAX 3-PHASE SYS. ACTIVE POWER 15' AVER	Watt	Signed Long ^(S)
1082h ["]	2	VOLTAGE ThdF L1 (NORMAL VISUALISATION) ^{IV}	* 100	Unsigned Long
1084h ["]	2	VOLTAGE ThdF L2 (NORMAL VISUALISATION) ^{IV}	* 100	Unsigned Long
1086h ["]	2	VOLTAGE ThdF L3 (NORMAL VISUALISATION) ^{IV}	* 100	Unsigned Long
1088h ["]	2	CURRENT ThdF L1 (NORMAL VISUALISATION) ^{IV}	* 100	Unsigned Long
108Ah ["]	2	CURRENT ThdF L2 (NORMAL VISUALISATION) ^{IV}	* 100	Unsigned Long
108Ch ["]	2	CURRENT ThdF L3 (NORMAL VISUALISATION) ^{IV}	* 100	Unsigned Long
108Eh ["]	2	MAX ACTIVE POWER 15' AVER L1	Watt	Signed Long ^(S)
1090h ["]	2	MAX ACTIVE POWER 15' AVER L2	Watt	Signed Long ^(S)
1092h ["]	2	MAX ACTIVE POWER 15' AVER L3	Watt	Signed Long ^(S)
1094h ["]	2	MAX 3-PHASE SYS. APPARENT POWER 15' AVER VA	VA	Unsigned Long
1096h ["]	2	MAX APPARERENT POWER 15' AVER L1	VA	Unsigned Long
1098h ["]	2	MAX APPARERENT POWER 15' AVER L2	VA	Unsigned Long
109Ah ["]	2	MAX APPARERENT POWER 15' AVER L3	VA	Unsigned Long

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109Ch ^{III}	2	AVER. ACTIVE POWER from PULSES INPUT (CH1) Watt	Unsigned Long
109Eh ^{III}	2	AVER. REACT. POWER from PULSES INPUT (CH2) Var	Unsigned Long
10A0h ^{III}	2	ACTIVE ENERGY from PULSES INPUT (CH1) Wh * 100	Unsigned Long
10A2h ^{III}	2	REACTIVE ENERGY from PULSES INPUT (CH2) VArh * 100	Unsigned Long
10A4h ^{III}	2	CURRENT THRESHOLD for TIMER-2 ACTIVATION mA	Unsigned Long
10A6h ^{III}	2	3-PHASE SYS. APPARENT ENERGY VAh * 100	Unsigned Long
10A8h ^{III}	2	APPARENT ENERGY L1 VAh * 100	Unsigned Long
10AAh ^{III}	2	APPARENT ENERGY L2 VAh * 100	Unsigned Long
10ACh ^{III}	2	APPARENT ENERGY L3 VAh * 100	Unsigned Long
10AEh ^{III}	2	3-PHASE SYS. GENERATED ACTIVE ENERGY Wh * 100	Unsigned Long
10B0h ^{III}	2	GENERATED ACTIVE ENERGY L1 Wh * 100	Unsigned Long
10B2h ^{III}	2	GENERATED ACTIVE ENERGY L2 Wh * 100	Unsigned Long
10B4h ^{III}	2	GENERATED ACTIVE ENERGY L3 Wh * 100	Unsigned Long
10B6h ^{III}	2	3-PHASE S. GENERATED REACTIVE ENERGY VArh * 100	Unsigned Long
10B8h ^{III}	2	GENERATED REACTIVE ENERGY L1 VArh * 100	Unsigned Long
10BAh ^{III}	2	GENERATED REACTIVE ENERGY L2 VArh * 100	Unsigned Long
10BCh ^{III}	2	GENERATED REACTIVE ENERGY L3 VArh * 100	Unsigned Long
10BEh ^{III}	2	3-PHASE S. GENERATED APPARENT ENERGY VAh * 100	Unsigned Long
10C0h ^{III}	2	GENERATED APPARENT ENERGY L1 VAh * 100	Unsigned Long
10C2h ^{III}	2	GENERATED APPARENT ENERGY L2 VAh * 100	Unsigned Long
10C4h ^{III}	2	GENERATED APPARENT ENERGY L3 VAh * 100	Unsigned Long
11A0h	2	CURRENT TRANSFORM RATIO (CT)	1 – 1250 ^V _(DMTME) Unsigned Long 1 – 2000 ^V _(M2M)
11A2h	2	VOLTAGE TRANSFORM RATIO (VT)	1 – 500 ^V _(DMTME) Unsigned Long 1 – 600 ^V _(M2M)
11A4h	2	PULSE ENERGY WEIGHT	1 – 4 ^{VI} Unsigned Long

Unsigned Long is a 2-words (32 bit) value without sign

Signed Long is a 2-words (32-bit) value expressed in 2's complement format; for example the integer value “-7” is FFFF FF9h

^(S)This value is Signed only in M2M (unsigned in MTME).

^I When the power factor or cos φ is undefined (e.g. in case of no current) the instrument places the value “cos φ = 2” (value = 2000 on this register) to indicate unavailability of the measure

^{II} Only for M2M instruments

^{III} Only for M2M I/O model

^{IV} When ThdF is undefined (e.g. in case of no current) the related reading register yields the value 0.

^V For M2M instruments the maximum selectable value is 2000; the reading register yields the CT “ratio” programmed in the instrument. For example if in the instrument the CT value is set as 100/5A, this register will yield 20.

^{VI} For M2M instruments the maximum selectable value is 600; the reading register yields the VT “ratio” programmed in the instrument.

^{VII} Possible values:

1. each pulse weight 10 Wh/VArh
2. each pulse weight 100 Wh/VArh
3. each pulse weight 1000 Wh/VArh
4. each pulse weight 10000 Wh/VArh