



Open Metering System Specification

OMS-Data Point List

**Annex B to
Volume 2: Primary Communication
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Document History

Version	Date	Comment	Editor
A 0.1.0	2013-09-25	Generation of first Draft	U.Pahl
A 0.2.0	2013-10-16	Update of OMS-DPL	U.Pahl
A 0.2.1	2013-10-17	Correction T.Banz	U.Pahl
A 0.2.2	2013-10-18	Foot note 15 for Heat/cooling	U.Pahl
A 0.2.3	2013-10-21	Bugfix	U.Pahl
A 0.3.0	2014-01-17	Changes according final vote	U.Pahl
A 0.3.1	2014-01-25	Rename VIF-Type->VIB-Type Release A	U.Pahl
B 0.4.0	2014-11-07	Add encryption requirements Add symbols Θ and \varnothing	U.Pahl
B 4.1.0	2016-06-22	Add alternative optional description	Thomas Banz
C 4.2.0	2019-10-28	Add declaration of "No Data", "C", "C", "Ox", "Empty"; Footnote 16 and 17; Device type "Breaker / Valve"; MB-Tag Section "DC- Disconnecter Control", "YD-Descriptors"; MB- Tag "DC1!", "MM8!", "VM4!", "VM5!", "YD1!", "YD1!T", "YD2!P", "YD3!P"; VIB-Type section "CL-Control", "YD-Descriptor"; VIB-Types "MM07", "MM08", "MM09", "MM09", "MM10", "MM11", "VM07", "VM08", "VM09", "VM10", "YD01", "YD02", "YD03", "YD04", "YD05", "YD06", "YD07"	Thomas Banz

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B.1 Overview about the OMS-Data Point List

B.1.1 General

The OMS-Data Point List (OMS-DPL) list all harmonised M-Bus-Tags. An M-Bus Tag is an abstract description of one or several M-Bus data points, which may differ in scaler or resolution or data type (according to [EN13757-3:2018], Table 4).

The OMS-DPL consists of two lists:

- VIB-Type List (VTL)
- M-Bus Tag List (MBTL)

B.1.2 The VIB-Type List

A VIB-Type describes a physical unit with a scaler and an optional VIF property like direction of flow. Each VIB-Type in the VIB-Type-List is associated with one unique combination of VIF and VIFE.

Example "EW02" means energy in Watt with special scaler 10^5 to 10^6 used only for imported energy.

B.1.3 The M-Bus Tag List

Each MB-Tag listed in the OMS-DPL is associated with a unique combination of Tarif "T", Function "F", Storage number "X", the final DIFE "FD" and a set of VIB-Types. The set of VIB-Types has always the same VIF-properties, the same physical unit, but may be different scalers or different data types. One MB-Tag can be used by different device types (e.g. EW1! – Energy in Watt is in use for Electricity, Heat and Cooling meters).

Example: MB-Tag EW1!R describes a recent value of energy used for billing. This MB-Tag declares

- a historical (recent) value by a set FD
- a register (declared by Storage number X)
- an instantaneous value (declared by function F=0)
- applies no tariff (T=0)
- Unit is always Watt (declared by the VIB-Type)
- The scaler has a range of 10^{-6} to 10^{+6} (declared by the VIB-Types EW01, EW02 and EW03)

Such a MB-Tag could be coded as shown in Table 1.

Example	DIF/DIFE	VIF/VIFE	Value
12,3 MWh (in register 5)	C2h 82h 00h	FBh 00h	7Bh 00h
12300 kWh (in register 5)	CBh 82h 00h	06h	00h 23h 01h

Table 1: Example of MB-Tag EW1!R

B.2 M-Bus Tag List

B.2.1 Legend and Notes

Legends M-Bus

Data Field:

INT = Integer (8 Bit - 64 Bit) refer to [EN13757-3:2018], Table 4
8INT = 8 Bit Integer/Binary refer to [EN13757-3:2018], Table 4
64INT = 64 Bit Integer/Binary refer to [EN13757-3:2018], Table 4
BCD = Binary Coded Decimal refer to [EN13757-3:2018], Table 4
8BCD = 4 Byte BCD refer to [EN13757-3:2018], Table 4
VarLen = variable length refer to [EN13757-3:2018], Table 4
Type F = Compound CP32: Date and Time refer to [EN13757-3:2018], Annex A
Type G = Compound CP16: Date refer to [EN13757-3:2018], Annex A
Type I = Year down to second refer to [EN13757-3:2018], Annex A
Type J = Time of day refer to [EN13757-3:2018], Annex A
No Data = No Data refer to [EN13757-3:2018], Table 4

M = Mandatory (These data objects have to be specified)

Ax = Alternatively (One of the with "A" and identical number marked data objects are mandatory)

O = Optional (These data objects do not need to exist)

Ox = Optional alternatively (Only one of the with 'O' and identical number marked data objects are allowed in the datagram)

C = Conditional (Mandatory if condition applies). If condition does not apply, optional 'O' is valid.





C Ox = Conditional or optional alternatively (mandatory if condition applies). If condition does not apply, optional alternatively 'Ox' is valid.

Empty = An empty field indicates that this MB-Tag is not applicable to this device type.

Encryption

The column "type" also shows the encryption requirements. In the headline of each value group a respective symbol can be found which is valid for each M-Bus-Tag below in this group. Only in case of exceptions a separate symbol is shown directly after the type definition of this single M-Bus-Tag (e.g. ID6!).

Symbols:

-  = Encryption is mandatory required
-   = Encryption is not required but can be used optionally
-  = Encryption is not allowed

For data points that are not listed in the M-Bus Tag List encryption is optional. This includes manufacturer specific data. However, it is strongly recommended to encrypt all consumer relevant data.

The letters and numbers in front of the alert sign "!" declare the supported combination of VIB-Types. The letters after the alert sign are optional and declare additional conditions. Every letter after alert sign is used once only)

Declaration of Measurement condition (F)

- * [] instant
- * [A] maximum

- * [I] minimum
- * [E] Error condition

Declaration of Time point (S and final DIFE)

- * [] current value
- * [D] due date value (X=1)
- * [P] periodical values (X=8..99)
- * [R] Recent value (X=0..99 + final DIFE)
- * [C] cumulative value of a maximum/minimum

Declaration of Tarif-Register

- * [] No tarif
- * [T] Tariff 1..15

Example: 1-0:1.6.e*f "Actual maximum of active power import (+P), recent value for billing, total (value + time stamp)" is coded as "DT1!ART"

¹⁰ This MB-Tag is several times used. The description for this MB-Tag depends on the Device Type of the transmitting device.

¹¹ Recent values are always coded with a final DIFE with the value 00h. The number of DIFEs is variable. For downward compatibility reasons and for realization of constant data record length it is allowed to use more DIFEs (between the DIF and the final DIFE = 00h) than necessary.

¹² Depending on Data field: Identification number (8BCD) or Application Layer Address (64INT)
Order of Application Layer Address (ALA) according [EN13757-7:2018], Table 12.





¹⁴ Refer to [EN13757-3:2018], Annex E.1










¹⁵ For device type comb. Heat/Cooling the tariff 1 is allowed only!

¹⁶ According to [EN13757-3:2018], Annex C.3, subunit must be 1 if the disconnecter is integrated into a meter.














¹⁷ The subunit of the subunit descriptor shall be >0


B.2.2 List of MB-Tags









Type / Encryption	MB-Tag	Description	Data field	Tariff [T]	Function [F]	Storage [X]	Final DIFE [FD] ¹¹	VIB-Type Reference	Electricity (02h)	HCA (08h)	Cooling (0Ah;0Bh)	Comb. Heat/Cooling (0Dh)	Heat (04h;0Ch)	Gas (03h)	Cold Water (07h;16h)	Hot Water (06h;15h)	Breaker / Valve (20h; 21h)
	CA	Current [A]															
Meter reading	CA1!	Current at phase L1, instantaneous value	INT, BCD	0	0	0	no	CA01	O								
Meter reading	CA2!	Current at phase L2, instantaneous value	INT, BCD	0	0	0	no	CA02	O								
Meter reading	CA3!	Current at phase L3, instantaneous value	INT, BCD	0	0	0	no	CA03	O								
Meter reading	CA4!	Current at neutral L0, instantaneous value	INT, BCD	0	0	0	no	CA04	O								
	DC	Disconnecter Control															
Meter/actor reading	DC1!	Current state of breaker/valve ¹⁶	INT	0	0	0	no	CL01	O					O	O	O	M
 	DP	Duration/Period															
Time, date of reading ¹⁰	DP1!	Run time difference between measurement of current value and transmission <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	DP01	C	C	C	C	C	C	C	C	
Time integral ¹⁰	DP2!	Averaging duration for actual value	INT, BCD	0	0	0	no	DP02	O		O	O	O	O	O	O	

Transmission interval	DP3!	Nominal period of synchronous transmission	INT, BCD	0	0	0	no	DP03	O	O	O	O	O	O	O	O	O	
-	DP4!	Valid only until OMS-S2 V4.1.2. => Replaced by YD2!P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DT	Date / Time (Time stamp)																
Date/Time of device ¹⁰	DT1!	Current date/time at time of transmission	Type F,I	0	0	0	no	DT01	O1	O1	O1	O1	O1	O1	O1	O1	O1	
Time, date of reading ¹⁰	DT1!R	Local date at time of recent meter value	Type F,I	0	0	0..99, 101..124	yes	DT01	O2					O2				
Date, time of max. 	DT1!A	Point of time of actual maximum of active power import (+P), current value, total	Type F,I	0	1	0	no	DT01	O3									
Date, time of max. 	DT1!AR	Point of time of actual maximum of active power import (+P). recent value, total	Type F,I	0	1	0..99, 101..124	yes	DT01	O5									
Date, time of max. 	DT1!AT	Point of time of actual maximum of active power import (+P), current value, tariff 1..15	Type F,I	1..15	1	0	no	DT01	O4									
Date, time of max. 	DT1!ART	Point of time of actual maximum of active power import (+P). recent value, tariff 1..15	Type F,I	1..15	1	0..99, 101..124	yes	DT01	O6									
Date of reading ¹⁰	DT2!R	Local date at time of recent meter value	Type G	0	0	0..99, 101..124	yes	DT02	O2					O2				
Date of device ¹⁰	DT2!	Current date at time of transmission	Type G	0	0	0	no	DT02	O1	O1	O1	O1	O1	O1	O1	O1	O1	
Date of reading ¹⁰	DT2!D	Local date at due date	Type G	0	0	1	no	DT02		M	O	O	O		O	O		
Date of max. 	DT2!A	Point of time of actual maximum of active power import (+P), current value, total	Type G	0	1	0	no	DT02	O3									
Date of max. 	DT2!AR	Point of time of actual maximum of active power import (+P). recent value, total	Type G	0	1	0..99, 101..124	yes	DT02	O5									
Date of max. 	DT2!AT	Point of time of actual maximum of active power import (+P), current value, tariff 1..15	Type G	1..15	1	0	no	DT02	O4									
Date of max. 	DT2!ART	Point of time of actual maximum of active power import (+P). recent value, tariff	Type G	1..15	1	0..99, 101..124	yes	DT02	O6									


1..15





Date, time of max. 	DT3!A	Point of time of actual maximum of active power export (-P), current value, total	Type F,I	0	1	0	no	DT03	O7								
Date, time of max. 	DT3!AR	Point of time of actual maximum of active power export (-P), recent value, total	Type F,I	0	1	0..99, 101..124	yes	DT03	O8								
Date, time of max. 	DT3!AT	Point of time of actual maximum of active power export (-P), current value, tariff 1..15	Type F,I	1..15	1	0	no	DT03	O9								
Date, time of max. 	DT3!ART	Point of time of actual maximum of active power export (-P), recent value, tariff 1..15	Type F,I	1..15	1	0..99, 101..124	yes	DT03	O10								
Date of max. 	DT4!A	Point of time of actual maximum of active power export (-P), current value, total	Type G	0	1	0	no	DT04	O7								
Date of max. 	DT4!AR	Point of time of actual maximum of active power export (-P), recent value, total	Type G	0	1	0..99, 101..124	yes	DT04	O8								
Date of max. 	DT4!AT	Point of time of actual maximum of active power export (-P), current value, tariff 1..15	Type G	1..15	1	0	no	DT04	O9								
Date of max. 	DT4!ART	Point of time of actual maximum of active power export (-P), recent value, tariff 1..15	Type G	1..15	1	0..99, 101..124	yes	DT04	O10								
Time of device  10	DT5!	Current time at time of transmission	Type J	0	0	0	no	DT01	O1								
	EJ	Energy in Joule															
Meter reading  10	EJ1!	Energy import	INT, BCD	0	0	0	no	EJ01, EJ02, EJ03			A1	A1	A1				
Meter reading  15	EJ1!T	Energy import (2nd value for cooling), current value in Joule, total	INT, BCD	1	0	0	no	EJ01, EJ02, EJ03,				A2					
Meter reading	EJ2!	Energy import (2nd value for cooling), current value in Joule, total	INT, BCD	0	0	0	no	EJ04, EJ05, EJ06,				A2					
Meter reading  10	EJ1!D	Energy import	INT, BCD	0	0	1	no	EJ01, EJ02, EJ03			O3	O3	O3				
Meter reading	EJ1!DT	Energy import (2nd value for cooling), due date value in Joule, total	INT, BCD	1	0	1	no	EJ01, EJ02, EJ03,				O5					



Meter reading	EJ2!D	Energy import (2nd value for cooling), due date value in Joule, total	INT, BCD	0	0	1	no	EJ04, EJ05, EJ06,				O6					
	EW	Energy in Watt hour															
Meter reading ₁₀	EW1!	(Active) energy import	INT, BCD	0	0	0	no	EW01, EW02, EW03	A1		A1	A1	A1				
Meter reading ₁₀	EW1!D	Energy import	INT, BCD	0	0	1	no	EW01, EW02, EW03			O3	O3	O3				
Meter reading _{10 15}	EW1!T	(Active) energy import	INT, BCD	1..15	0	0	no	EW01, EW02, EW03	O			A2					
Meter reading	EW1!DT	Energy import (2nd value for cooling), due date value in Watt, total	INT, BCD	1	0	1	no	EW01, EW02, EW03				O5					
Meter reading	EW1!R	Active energy import (+A), recent value for billing in Watt, total	INT, BCD	0	0	0..99, 101..124	yes	EW01, EW02, EW03	O								
Meter reading	EW1!RT	Active energy import (+A), recent value for billing in Watt, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	EW01, EW02, EW03	O								
Meter reading ₁₀	EW2!	energy	INT, BCD	0	0	0	no	EW04, EW05, EW06	A1			A2					
Meter reading	EW2!D	Energy import (2nd value for cooling), due date value in Watt, total	INT, BCD	0	0	1	no	EW04, EW05, EW06				O6					
Meter reading	EW2!T	Active energy export (-A), current value in Watt, tariff 1-15	INT, BCD	1..15	0	0	no	EW04, EW05, EW06	O								
Meter reading	EW2!R	Active energy export (-A), recent value for billing in Watt, total	INT, BCD	0	0	0..99, 101..124	yes	EW04, EW05, EW06	O								
Meter reading	EW2!RT	Active energy export (-A), recent value for billing in Watt, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	EW04, EW05, EW06	O								
Meter reading	EW3!	Active energy import (abs.(A)), current value in Watt, total	INT, BCD	0	0	0	no	EW07, EW08, EW09	A1								
Meter reading	EW3!T	Active energy import (abs.(A)), current value in Watt, tariff 1-15	INT, BCD	1..15	0	0	no	EW07, EW08, EW09	O								
Meter reading	EW3!R	Active energy import (abs.(A)), recent value for billing in Watt, total	INT, BCD	0	0	0..99, 101..124	yes	EW07, EW08, EW09	O								
Meter reading	EW3!RT	Active energy import (abs.(A)), recent value for billing in Watt, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	EW07, EW08, EW09	O								



	FR	Frequency														
Meter reading	FR1!	Supply frequency, instantaneous value	INT, BCD	0	0	0	no	FR01	O							
	HC	Heat coast allocation units														
Meter reading	HC1!	Unrated integral, current value	INT, BCD	0	0	0	no	HC01		M						
Meter reading	HC1!D	Unrated integral, due date value	INT, BCD	0	0	1	no	HC01		M						
	ID	Identification														
Fabrication number	ID1!	Serial number (not changeable number assigned by the manufacturer)	8BCD	0	0	0	no	ID01	O	O	O	O	O	O	O	O
(Enhanced) identification ¹²	ID2!	Identification number or full Application Layer Address	64INT, 8BCD	0	0	0	no	ID02	O	O	O	O	O	O	O	O
Primary address	ID3!	One byte Link Layer Address	8INT	0	0	0	no	ID03	O	O	O	O	O	O	O	O
Ownership number 	ID4!	Ownership number	INT, BCD, VarLen	0	0	0	no	ID04	O	O	O	O	O	O	O	O
Metering point ID 	ID5!	Identification of the metering point	INT, BCD, VarLen	0	0	0	no	ID05	O	O	O	O	O	O	O	O
Unique message identification 	ID6!	Unique message identification	INT	0	0	0	no	ID06	O	O	O	O	O	O	O	O
 	MM	Meter Management														
Quality of Service	MM1!	Reception level	INT, BCD	0	0	0	no	MM01	O	O	O	O	O	O	O	O
Quality of Service	MM1!!	Quality limit of reception level	INT, BCD	0	2	0	no	MM01	O	O	O	O	O	O	O	O
Quality of Service	MM1!E	Noise level	INT, BCD	0	3	0	no	MM01	O	O	O	O	O	O	O	O
Error	MM2!	Error flags	INT	0	0	0	no	MM02	O	O	O	O	O	O	O	O
Error	MM3!	Error flags (standard) ¹⁴	INT	0	0	0	no	MM03	O	O	O	O	O	O	O	O

Operator data	MM4!	Operator specific data (reserved for the operator)	INT, BCD, VarLen	0	0	0	no	MM04	O	O	O	O	O	O	O	O	O
-	MM5!	Valid only until OMS-S2 V4.1.2. => Replaced by YD3!P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meter reading 🔒	MM7!	Cumulation counter (contains the last written register)	INT	0	0	0	no	MM06	O	O	O	O	O	O	O	O	O
Device information	MM8!	Remaining battery lifetime	INT, BCD	0	0	0	no	MM09, MM10	O	O	O	O	O	O	O	O	O
🔒	PD	Phase in Degree															
Meter reading	PD1!	Angle between voltage on phase L1 and L2, instantaneous value	INT, BCD	0	0	0	no	PD01	O	O	O	O	O	O	O	O	O
Meter reading	PD2!	Angle between voltage on phase L2 and L3, instantaneous value	INT, BCD	0	0	0	no	PD02	O	O	O	O	O	O	O	O	O
Meter reading	PD3!	Angle between voltage on phase L3 and L1, instantaneous value	INT, BCD	0	0	0	no	PD03	O	O	O	O	O	O	O	O	O
Meter reading	PD4!	Angle between voltage and current on phase L1, instantaneous value	INT, BCD	0	0	0	no	PD04	O	O	O	O	O	O	O	O	O
Meter reading	PD5!	Angle between voltage and current on phase L2, instantaneous value	INT, BCD	0	0	0	no	PD05	O	O	O	O	O	O	O	O	O
Meter reading	PD6!	Angle between voltage and current on phase L3, instantaneous value	INT, BCD	0	0	0	no	PD06	O	O	O	O	O	O	O	O	O
🔒	PJ	Power in Joule per hour															
Power ¹⁰	PJ1!	Power (energy flow) (P), average, current value <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	PJ01			O2	O2	O2				
Power	PJ1!T	Power (energy flow) (P), average, current value, tarif 1	INT, BCD	1	0	0	no	PJ01				O4					
🔒	PR	Pressure															
Base pressure	PR1!	defined Pressure, absolute, at base conditions (pb)	INT, BCD	0	0	0	no	PR01, PR02						O			

	PW	Power in Watt																
Meter reading ¹⁰	PW1!	Active power, current value <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	PW01	O		O2	O2	O2					
Meter reading	PW1!T	Power (energy flow) (P), average, current value, tariff1	INT, BCD	1	0	0	no	PW01				O4						
Meter reading	PW1!A	Actual maximum of active power import (+P), current value, total	INT, BCD	0	1	0	no	PW01	O									
Meter reading	PW1!AT	Actual maximum of active power import (+P), current value, tariff 1..15	INT, BCD	1..15	1	0	no	PW01	O									
Meter reading	PW1!AR	Actual maximum of active power import (+P), recent value for billing, total	INT, BCD	0	1	0..99, 101..124	yes	PW01	O									
Meter reading	PW1!ART	Actual maximum of active power import (+P), recent value for billing, tariff 1..15	INT, BCD	1..15	1	0..99, 101..124	yes	PW01	O									
Meter reading	PW3!	Active power export (-P), current value <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	PW03	C									
Meter reading	PW3!A	Actual maximum of active power export (-P), current value, total	INT, BCD	0	1	0	no	PW03	O									
Meter reading	PW3!AT	Actual maximum of active power export (-P), current value, tariff 1..15	INT, BCD	1..15	1	0	no	PW03	O									
Meter reading	PW3!AR	Actual maximum of active power export (-P), recent value for billing, total	INT, BCD	0	1	0..99, 101..124	yes	PW03	O									
Meter reading	PW3!ART	Actual maximum of active power export (-P), recent value for billing, tariff 1..15	INT, BCD	1..15	1	0..99, 101..124	yes	PW03	O									
Meter reading	PW4!AC	Cumulative maximum of active power import (+P), total	INT, BCD	0	1	0	no	PW04	O									
Meter reading	PW4!ACT	Cumulative maximum of active power import (+P), tariff 1-15	INT, BCD	1..15	1	0	no	PW04	O									
Meter reading	PW6!AC	Cumulative maximum of active power export (-P), total	INT, BCD	0	1	0	no	PW06	O									
Meter reading	PW6!ACT	Cumulative maximum of active power export (-P), tariff 1-15	INT, BCD	1..15	1	0	no	PW06	O									

Meter reading	PW7!	Active power absolute (P), instantaneous value, total <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	PW07, PW08	C									
Meter reading	PW8!	Active power absolute (P), instantaneous value, total	INT, BCD	0	0	0	no	PW09, PW10	O									
	RE	Reactive Energy																
Meter reading	RE1!	Reactive energy import (+R), current value, total	INT, BCD	0	0	0	no	RE01, RE02	O									
Meter reading	RE1!T	Reactive energy import (+R), current value, tariff 1-15	INT, BCD	1..15	0	0	no	RE01, RE02	O									
Meter reading	RE1!R	Reactive energy import (+R), recent value for billing, total	INT, BCD	0	0	0..99, 101..124	yes	RE01, RE02	O									
Meter reading	RE1!RT	Reactive energy import (+R), recent value for billing, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	RE01, RE02	O									
Meter reading	RE2!	Reactive energy export (-R), current value, total	INT, BCD	0	0	0	no	RE03, RE04	O									
Meter reading	RE2!T	Reactive energy export (-R), current value, tariff 1-15	INT, BCD	1..15	0	0	no	RE03, RE04	O									
Meter reading	RE2!R	Reactive energy export (-R), recent value for billing, total	INT, BCD	0	0	0..99, 101..124	yes	RE03, RE04	O									
Meter reading	RE2!RT	Reactive energy export (-R), recent value for billing, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	RE03, RE04	O									
	RH	Relative Humidity																
Sensor reading	RH1!	Relative Humidity in %	INT, BCD	0	0	0	no	RH01										
	RP	Reactive Power																
Meter reading	RP1!	Reactive power import (+Q), current value	INT, BCD	0	0	0	no	RP01	O									
Meter reading	RP2!	Reactive power export (-Q), current value	INT, BCD	0	0	0	no	RP02	O									
	TC	Temperature in °C																
Temperatur ¹⁰	TC1!	Flow temperature, current value	INT, BCD	0	0	0	no	TC01		O	O	O	O					

Temperatur ¹⁰	TC2!	Return temperature, current value	INT, BCD	0	0	0	no	TC02		O	O	O	O				
Base temperatur	TC3!	defined Temperature, absolute, at base conditions (Tb) or for conversion (Ttc)	INT, BCD	0	0	0	no	TC03						O			
	VF	Volume Flow															
Flow rate ¹⁰	VF1!	Flow rate <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	VF01			O	O	O	O	O	O	
Flow rate	VF1!T	Flow rate, average (Va/t), current value, tariff 1	INT, BCD	1	0	0	no	VF01				O					
Flow rate	VF2!	Flow rate <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	VF02						C			
Flow rate	VF3!	Flow rate <i>Condition: See CEN/TR 17167:2018 Annex C.2</i>	INT, BCD	0	0	0	no	VF03						C			
	VM	Volume in m3															
Meter reading ¹⁰	VM1!	Volume, current value, total	INT, BCD	0	0	0	no	VM01, VM02			O	O	O	A1	M	M	
Meter reading ¹⁰	VM1!D	Volume (V), accumulated, total, due date value	INT, BCD	0	0	1	no	VM01, VM02			O	O	O		O	O	
Meter reading ^{10 15}	VM1!T	Volume, current value, tariff	INT, BCD	1..15	0	0	no	VM01, VM02				O		O			
Meter reading	VM1!DT	Volume (V), accumulated, due date value, tariff 1 (2nd value for cooling)	INT, BCD	1	0	1	no	VM01, VM02				O					
Meter reading	VM1!R	Volume (meter), temperature converted (Vtc), forward, absolute, recent value for billing, total	INT, BCD	0	0	0..99, 101..124	yes	VM01, VM02						O			
Meter reading	VM1!RT	Volume (meter), temperature converted (Vtc), forward, absolute, recent value for billing, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	VM01, VM02						O			
Meter reading	VM2!	Volume (meter), measuring conditions (Vm), forward, absolute, current value, total	INT, BCD	0	0	0	no	VM03, VM04						A1			

Meter reading	VM2!T	Volume (meter), measuring conditions (Vm), forward, absolute, current value, tariff 1-15	INT, BCD	1..15	0	0	no	VM03, VM04						O			
Meter reading	VM2!R	Volume (meter), measuring conditions (Vm), forward, absolute, recent value for billing, total	INT, BCD	0	0	0..99, 101..124	yes	VM03, VM04						O			
Meter reading	VM2!RT	Volume (meter), measuring conditions (Vm), forward, absolute, recent value for billing, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	VM03, VM04						O			
Meter reading	VM3!	Volume (meter), base conditions (Vb), forward, absolute, current value, total	INT, BCD	0	0	0	no	VM05, VM06						A1			
Meter reading	VM3!T	Volume (meter), base conditions (Vb), forward, absolute, current value, tariff 1-15	INT, BCD	1..15	0	0	no	VM05, VM06						O			
Meter reading	VM3!R	Volume (meter), base conditions (Vb), forward, absolute, recent value for billing, total	INT, BCD	0	0	0..99, 101..124	yes	VM05, VM06						O			
Meter reading	VM3!RT	Volume (meter), base conditions (Vb), forward, absolute, recent value for billing, tariff 1-15	INT, BCD	1..15	0	0..99, 101..124	yes	VM05, VM06						O			
Meter reading	VM4!	Volume, forward value	INT, BCD	0	0	0	no	VM07, VM08							O	O	
Meter reading	VM5!	Volume, backward value	INT, BCD	0	0	0	no	VM09, VM10							O	O	
	VV	Voltage in Volt															
Meter reading	VV1!	Voltage at phase L1, instantaneous value	INT, BCD	0	0	0	no	VV01	O								
Meter reading	VV2!	Voltage at phase L2, instantaneous value	INT, BCD	0	0	0	no	VV02	O								
Meter reading	VV3!	Voltage at phase L3, instantaneous value	INT, BCD	0	0	0	no	VV03	O								
	YD	Descriptors															
Descriptor	YD1!	Subunit descriptor ¹⁷ Condition: See OMS-S2 Annex K	INT, BCD	0	0	0	no	YD01	C	C	C	C	C	C	C	C	



Descriptor	YD1!T	Tariff descriptor <i>Condition: See OMS-S2 Annex K</i>	INT, BCD	1..15	0	0	no	YD01	C	C	C	C	C	C	C	C	C
Descriptor	YD2!P	Storage interval descriptor <i>Condition: See OMS-S2 Annex K</i>	INT, BCD	0	0	1..99	no	YD02, YD03, YD04	C	C	C	C	C	C	C	C	C
Descriptor	YD3!P	Storage range descriptor <i>Condition: See OMS-S2 Annex K</i>	INT, BCD	0	0	1..99	no	YD05, YD06, YD07	C	C	C	C	C	C	C	C	C

B.3 VIB-Type List

B.3.1 Legend and Notes

VIB-Type list

n One or more Bits, according to tables 10, 12, 14, 15 of [EN 13757-3:2018].

²⁰ 'Temperature converted value' is just applicable for device type 03h (gas). All other device types consider this data Point as 'normal value'.

B.3.2 List of VIB-Types

VIB-Type Reference	VIF / VIFE	Scaler+Unit/Type	Remark
CA Current [A]			
CA01	1111 1101 1101 nnnn 1111 1100 0000 0001	A 10e-12 ... 10e+3	Curr_L1
CA02	1111 1101 1101 nnnn 1111 1100 0000 0010	A 10e-12 ... 10e+3	Curr_L2
CA03	1111 1101 1101 nnnn 1111 1100 0000 0011	A 10e-12 ... 10e+3	Curr_L3
CA04	1111 1101 1101 nnnn 1111 1100 0000 0100	A 10e-12 ... 10e+3	Curr_N
CL Control			
CL01	1111 1101 0001 1111		disconnector control state
DP Duration/Period			
DP01	0111 01nn	s, min, h, d	actuality dur.
DP02	0111 00nn	s, min, h, d	average dur.
DP03	1111 1101 0011 110n	s, min	Period of nominal transmission
DP04	Valid only until OMS-S2 V4.1.2. => Replaced by YD03		-
DT Date / Time (Duration and Time stamp)			
DT01	0110 1101	Date+Time / Time	forward
DT02	0110 1100	Date	forward
DT03	1110 1101 0011 1100	Date+Time / Time	backward
DT04	1110 1100 0011 1100	Date	backward
EJ Energy [GJ]			
EJ01	0000 1nnn	GJ 10e-9 ... 10e-2	forward
EJ02	1111 1011 0000 100n	GJ 10e-1 ... 10e0	forward

EJ03	1111 1011 1000 100n 0111 1101	GJ 10e+2 ... 10e+3	forward
EJ04	1000 1nnn 0011 1100	GJ 10e-9 ... 10e-2	backward
EJ05	1111 1011 1000 100n 0011 1100	GJ 10e-1 ... 10e+0	backward
EJ06	1111 1011 1000 100n 1111 1101 0011 1100	GJ 10e+2 ... 10e+3	backward
EW Energy [kWh]			
EW01	000 0nnn	kWh 10e-6 ... 10e+1	forward
EW02	1111 1011 0000 000n	kWh 10e+2 ... 10e+3	forward
EW03	1111 1011 1000 000n 0111 1101	kWh 10e+5 ... 10e+6	forward
EW04	1000 0nnn 0011 1100	kWh 10e-6 ... 10e+1	backward
EW05	1111 1011 1000 000n 0011 1100	kWh 10e+2 ... 10e+3	backward
EW06	1111 1011 1000 000n 1111 1101 0011 1100	kWh 10e+5 ... 10e+6	backward
EW07	1000 0nnn 1111 1100 0001 0000	kWh 10e-6 ... 10e+1	abs.
EW08	1111 1011 1000 000n 1111 1100 0001 0000	kWh 10e+2 ... 10e+3	abs.
EW09	1111 1011 1000 000n 1111 1101 1111 1100 0001 0000	kWh 10e+5 ... 10e+6	abs.
FR Frequency [Hz]			
FR01	1111 1011 0010 11nn	Hz 10e-3 ... 10e0	
HC Heat Cost Allocation unit			
HC01	0110 1110	HCA 10e+0	
ID Identification Numbers			
ID01	0111 1000		Fabrication number
ID02	0111 1001		(Enhanced) identification
ID03	0111 1010		Primary address
ID04	1111 1101 0001 0001		Ownership number
ID05	1111 1101 0001 0000		Metering Point ID
ID06	1111 1101 0000 1000		Unique message identification
MM Meter Management			
MM01	1111 1101 0111 0001	dBm	Reception or noise level
MM02	1111 1101 0001 0111	binary	Error flags
MM03	1111 1101 1001 0111 0001 1101	binary	Error flags (standard)
MM04	1111 1101 0010 1010		Operator specific data
MM05	Valid only until OMS-S2 V4.1.2. => Replaced by YD07		-
MM06	1111 1101 0110 0001	Register index	Cumulation Counter

MM07	1111 1101 1001 0111 1001 1101 0000 0110	binary	Masked clear error flags (standard)
MM08	1111 1101 1001 0111 0000 0110	binary	Masked clear error flags
MM09	1111 1101 0111 0100	days	Remaining battery life time
MM10	1111 1101 1111 1101 0000 001p	p = 0 month(s) / 1 year(s)	Remaining battery life time
MM11	1111 1101 1001 0111 1001 1101 0000 0111	none	Clear error flags (standard and manufacturer specific)
PD Phase in Degree [°]			
PD01	1111 1011 1010 1010 1111 1100 0000 0101	° 10e-1	Volt_L1-L2
PD02	1111 1011 1010 1010 1111 1100 0000 0110	° 10e-1	Volt_L2-L3
PD03	1111 1011 1010 1010 1111 1100 0000 0111	° 10e-1	Volt_L3-L1
PD04	1111 1011 1010 1011 1111 1100 0000 0001	° 10e-1	Curr_L1
PD05	1111 1011 1010 1011 1111 1100 0000 0010	° 10e-1	Curr_L2
PD06	1111 1011 1010 1011 1111 1100 0000 0011	° 10e-1	Curr_L3
PJ Power [kJ/h]			
PJ01	0011 0nnn	kJ/h 10e-3 ... 10e+4	
PR Pressure [bar]			
PR01	1110 10nn 0011 1110	bar 10e-3 ... 10e+0	base condition
PR02	1110 10nn 1111 0011 0011 1110	bar 10e-6 ... 10e-3	base condition
PW Power [W]			
PW01	0010 1nnn	W 10e-3 ... 10e+4	forward
PW03	1010 1nnn 0011 1100	W 10e-3 ... 10e+4	backward
PW04	1111 1011 0111 1nnn	W 10e-3 ... 10e+4	cum. forward
PW06	1111 1011 1111 1nnn 0011 1100	W 10e-3 ... 10e+4	cum. backward
PW07	1010 1nnn 1111 1100 0001 0000	kW 10e-6 ... 10e+1	abs.
PW08	1111 1011 1010 100n 1111 1100 0001 0000	kW 10e+2 ... 10e+3	abs.
PW09	1010 1nnn 1111 1100 0000 1100	kW 10e-6 ... 10e+1	delta
PW10	1111 1011 1010 100n 1111 1100 0000 1100	kW 10e+2 ... 10e+3	delta
RE Reactive Energy [kvarh]			
RE01	1111 1011 0000 001n	kvarh 10e0 ... 10e+1	forward
RE02	1111 1011 1000 001n 0111 0nnn	kvarh 10e-6 ... 10e+2	forward
RE03	1111 1011 1000 001n 0011 1100	kvarh 10e0 ... 10e+1	backward

RE04	1111 1011 1000 001n 1111 0nnn 0011 1100	kvarh 10e-6 ... 10e+2	backward
RH Relative Humidity [%]			
RH01	1111 1011 0001 101n	% 10e-01 ... 10e0	
RP Reactive Power [kvar]			
RP01	1111 1011 0001 01nn	kvar 10e-3 ... 10e+0	forward
RP02	1111 1011 1001 01nn 0011 1100	kvar 10e-3 ... 10e+0	backward
TC Temperature [°C]			
TC01	0101 10nn	°C 10e-3 ... 10e+0	flow
TC02	0101 11nn	°C 10e-3 ... 10e+0	return
TC03	1101 10nn 0011 1110	°C 10e-3 ... 10e+0	base condition
VF Volume Flow [m³ / h]			
VF01	0011 1nnn	m³/h 10e-6 ... 10e+1	normal / temp. Converted ²⁰
VF02	1011 1nnn 0011 1010	m³/h 10e-6 ... 10e+1	meas. condition
VF03	1011 1nnn 0011 1110	m³/h 10e-6 ... 10e+1	base condition
VM Volume [m³]			
VM01	0001 0nnn	m³ 10e-6 ... 10e+1	normal / temp. Converted ²⁰
VM02	1001 0nnn 0111 1101	m³ 10e-3 ... 10e+4	normal / temp. Converted ²⁰
VM03	1001 0nnn 0011 1010	m³ 10e-6 ... 10e+1	meas. condition
VM04	1001 0nnn 1111 1101 0011 1010	m³ 10e-3 ... 10e+4	meas. condition
VM05	1001 0nnn 0011 1110	m³ 10e-6 ... 10e+1	base condition
VM06	1001 0nnn 1111 1101 0011 1110	m³ 10e-3 ... 10e+4	base condition
VM07	1001 0nnn 0011 1011	m³ 10e-6 ... 10e+1	forward volume
VM08	1001 0nnn 1111 1101 0011 1011	m³ 10e-3 ... 10e+4	forward volume
VM09	1001 0nnn 0011 1100	m³ 10e-6 ... 10e+1	backward volume
VM10	1001 0nnn 1111 1101 0011 1100	m³ 10e-3 ... 10e+4	backward volume
VV Voltage [V]			
VV01	1111 1101 1100 nnnn 1111 1100 0000 0001	V 10e-9 ... 10e6	Volt_L1
VV02	1111 1101 1100 nnnn 1111 1100 0000 0010	V 10e-9 ... 10e6	Volt_L2
VV03	1111 1101 1100 nnnn 1111 1100 0000 0011	V 10e-9 ... 10e6	Volt_L3

YD	Descriptor			
YD01	1111	1101	0010 0011	Descriptor tariff and subunit
YD02	1111	1101	0010 01nn	s, min, h, d Storage interval
YD03	1111	1101	0010 1000	month Storage interval
YD04	1111	1101	0010 1001	years Storage interval
YD05	1111	1101	0010 0000	First storage no. for cyclic storage
YD06	1111	1101	0010 0001	Last storage no. for cyclic storage
YD07	1111	1101	0010 0010	Size of storage block