

**Description of IEC 61850 data maps 9 and 10
in VAMP 257 protection relays**

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1 Introduction

The goal of this document is to give a description of the IEC 61850 Logical Nodes (LN) in data maps 9 and 10 available in VAMP 257 protection relays.

Abbreviations used in this document are explained in Table 1.1 below.

Table 1.1: List of abbreviations.

Abbreviation	Meaning
LN	Logical Node
DO	DATA in IEC 61850-7-2, data object type or instance, depending on the context
DA	Data Attribute
SDO	Substructure Data Object
BDA	Basic Data Attribute that is not structured
GOOSE	Generic Object Oriented Subscriber Events

2 Description of Logical Nodes and their Data Objects and Data Attributes

2.1 Information common to all Logical Nodes

The following table contains the information which is common to all Logical Nodes, and will thus not be repeated again in this document.

Element	Description
LN: X	Description of Logical node "X"
DO: Mod	Mode (1 p. 80)
DA: stVal	Status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: ctrlModel	Specifies the control model of IEC 61850-7-2 that corresponds to the behaviour of the data (1 p. 51).
DO: Beh	Behaviour (2 p. 71).
DA: stVal	Status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: Health	This information reflects the state of the logical node related HW and SW (2 p. 75).
DA: stVal	Status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: NamePlt	Name plate.
DA: vendor	Vendor name.
DA: swRev	Software revision.
DA: d	Textual description of the data.

2.2 Data map 9

2.2.1 EA12GGIO174 – External AI 12

Element	Description
LN: EA01GGIO164	External Analog Input 1 (External AI 12).
DO: AnIn	Analogue input.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of the external AI 12.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.

2.2.2 External AI's 13 – 16

The rest of the external analog inputs have the same structure as external AI 12.

The LN:s of the external analog inputs not already covered in this document are listed below:

1. EA13GGIO175 (External AI 13)
2. EA14GGIO176 (External AI 14)
3. EA15GGIO177 (External AI 15)
4. EA16GGIO178 (External AI 16)

2.2.3 ED01GGIO146 – External DI 1

Element	Description
LN: ED01GGIO146	The value of external digital input 1.
DO: Ind	Indication of the status.
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).

2.2.4 External DI's 2 – 18

The rest of the external digital inputs have the same structure as external DI 1 above.

The LN:s of the external digital inputs not already covered in this document are listed below:

1. ED02GGIO147 (External DI 2)
2. ED03GGIO148 (External DI 3)
3. ED04GGIO149 (External DI 4)
4. ED05GGIO150 (External DI 5)
5. ED06GGIO151 (External DI 6)
6. ED07GGIO152 (External DI 7)
7. ED08GGIO153 (External DI 8)
8. ED09GGIO154 (External DI 9)
9. ED10GGIO155 (External DI 10)
10. ED11GGIO156 (External DI 11)
11. ED12GGIO157 (External DI 12)
12. ED13GGIO158 (External DI 13)
13. ED14GGIO159 (External DI 14)
14. ED15GGIO160 (External DI 15)
15. ED16GGIO161 (External DI 16)
16. ED17GGIO162 (External DI 17)
17. ED18GGIO163 (External DI 18)

2.2.5 HIMHAI3 – Harmonics IL1, IL2, IL3

Element	Description
LN: HIMHAI3	Harmonics of Line 1 current (IL1), Line 2 current (IL2) and Line 3 current (IL3)
DO: Hz	Frequency.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of the frequency.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DO: HA	Phase related sequence of Harmonics current for A, B C, N, Net, Res.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: phsAHar	Array that contains the harmonic and subharmonics or interharmonic values related to phase A (line 1).
BDA: mag	Deadbanded value (2 p. 53).

BDA: f	Array containing the values of line 1 current harmonics. This is an array of 16 elements holding: Phase A DC component (index 0) Phase A fundamental component (index 1) Phase A harmonics from 2 nd to 15 th (indexes from 2 to 15) The value is given as % of fundamental component, so value of index 1 should always be 100 (unless amplitude of current or voltage is 0).
DA: phsBHar	Array that contains the harmonic and subharmonics or interharmonic values related to phase B (line 2).
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Array containing the values of line 2 current harmonics. This is an array of 16 elements holding: Phase B DC component (index 0) Phase B fundamental component (index 1) Phase A harmonics from 2 nd to 15 th (indexes from 2 to 15) The value is given as % of fundamental component, so value of index 1 should always be 100 (unless amplitude of current or voltage is 0).
DA: phsCHar	Array that contains the harmonic and subharmonics or interharmonic values related to phase C (line 3).
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Array containing the values of line 3 current harmonics. This is an array of 16 elements holding: Phase C DC component (index 0) Phase C fundamental component (index 1) Phase A harmonics from 2 nd to 15 th (indexes from 2 to 15). The value is given as % of fundamental component, so value of index 1 should always be 100 (unless amplitude of current or voltage is 0).
DA: numHar	Number of harmonic and subharmonics or interharmonic values that are to be returned as the value attribute. (2 p. 54)
DA: numCyc	Number of cycles of power frequency, which are used for harmonic, subharmonic and interharmonic calculation. (2 p. 54)
DA: evalTm	Time window applied to interharmonic calculations. The value shall be represented in ms. (2 p. 52)
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DA: frequency	Frequency.

2.2.6 HUMHA14 – Harmonics Ua, Ub, Uc

Element	Description
LN: HUMHA14	Harmonics of Ua,Ub,Uc.
DO: Hz	Frequency.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of the frequency.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DO: HPhV	Sequence of Harmonics or Interharmonics for phase to ground voltages AN, BN, CN, NG.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: phsAHar	Array containing the harmonic and subharmonics or interharmonic values related to phase A (Line 1).
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Array containing the values of line 1 voltage harmonics. This is an array of 16 elements holding: Phase A DC component (index 0) Phase A fundamental component (index 1) Phase A harmonics from 2 nd to 15 th (indexes from 2 to 15) The value is given as % of fundamental component, so value of index 1 should always be 100 (unless amplitude of current or voltage is 0).
DA: phsBHar	Array containing the harmonic and subharmonics or interharmonic values related to phase B (Line 2).
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Array containing the values of line 2 voltage harmonics. This is an array of 16 elements holding: Phase B DC component (index 0) Phase B fundamental component (index 1) Phase B harmonics from 2 nd to 15 th (indexes from 2 to 15) The value is given as % of fundamental component, so value of index 1 should always be 100 (unless amplitude of current or voltage is 0).
DA: phsCHar	Array containing the harmonic and subharmonics or interharmonic values related to phase C (Line 3).

BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Array containing the values of line 3 voltage harmonics. This is an array of 16 elements holding: Phase C DC component (index 0) Phase C fundamental component (index 1) Phase C harmonics from 2 nd to 15 th (indexes from 2 to 15) The value is given as % of fundamental component, so value of index 1 should always be 100 (unless amplitude of current or voltage is 0).
DA: numHar	Number of harmonic and subharmonics or interharmonic values that are to be returned as the value attribute. (2 p. 54)
DA: numCyc	Number of cycles of power frequency, which are used for harmonic, subharmonic and interharmonic calculation. (2 p. 54)
DA: evalTm	Time window applied to interharmonic calculations. The value shall be represented in ms. (2 p. 52)
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DA: frequency	Frequency.

2.3 Data map 10

2.3.1 UssQVVR1 – Voltage Sag & Swell

Element	Description
LN: UssQVVR1	Voltage Sag & Swell.
DO: VarStr	Start (voltage variation event in progress).
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: DipStr	Start (voltage dip event in progress).
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: SwlStr	Start (voltage swell event in progress).
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute

	(1 p. 58).
DO: IntrStr	Start (voltage interruption event in progress).
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: VarEnd	Event finished but not reset.
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: VVa1	Voltage variation magnitude of Phase A (Line 1) of the last completed event.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of phase A voltage as percent of nominal during last disturbance. In case of sag (dip) – value is min value detected during disturbance. In case of swell – value is max value detected during disturbance. In case of interrupt value is 0.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DO: VVa2	Voltage variation magnitude of Phase B (Line 2) of the last completed event. In case of sag (dip) – value is min value detected during disturbance. In case of swell – value is max value detected during disturbance. In case of interrupt value is 0.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of phase A voltage as percent of nominal during last disturbance.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.

BDA: multiplier	Multiplier.
DO: VVa3	Voltage variation magnitude of Phase C (Line 3) of the last completed event. In case of sag (dip) – value is min value detected during disturbance In case of swell – value is max value detected during disturbance In case of interrupt value is 0
DA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DO: VVaTm	Voltage variation duration of the last completed event.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	Duration of last disturbance in seconds
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
DO: DipStrVal	Voltage dip set point.
DA: setMag	Indication of the set point value.
BDA: f	The value of the set point.
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
DO: SwlStrVal	Voltage swell set point
DA: setMag	Indication of the set point value.
BDA: f	The value of the set point.
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
DO: IntrStrVal	Voltage Interruption set point.
DA: setMag	Indication of the set point value.
BDA: f	The value of the set point.
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.

2.3.2 ARCIGGIO179 – L> inputs

Element	Description
LN: ARCIGGIO179	The values of Delayed Arc (L>) inputs.
DO: Ind1	Indication of the status. Input 1.
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: Ind2	Indication of the status. Input 2.
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DO: Ind3	Indication of the status. Input 3.
DA: stVal	The status value of the data.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).

2.3.3 SlpdaMMXU25 – IL1-3 demand

Element	Description
LN: SlpdaMMXU25 (IL1-3 demand)	Line 1, Line 2 and Line 3 current demands. The whole structure containing all 3 currents is assigned to dataset as one element.
DO: A	Phase currents (IL1, IL2, IL3).
SDO: phsA	Value of phase A (line 1).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 1 current demand.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsB	Value of phase B (line 2).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 2 current demand.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsC	Value of phase C (line 3).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 3 current demand.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.

2.3.4 SIpMMXU23 – IL1-3

Element	Description
LN: SIpMMXU23 (IL1-3)	Line 1, Line 2 and Line 3 currents. The whole structure containing all 3 currents is assigned to dataset as one element.
DO: A	Phase currents (IL1, IL2, IL3).
SDO: phsA	Value of phase A (line 1).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 1 current.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsB	Value of phase B (line 2).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 2 current.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsC	Value of phase C (line 3).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 3 current.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.

2.3.5 SlprMMXU24 – IL1-3 RMS

Element	Description
LN: SlprMMXU24(IL1-3 RMS)	Line 1, Line 2 and Line 3 RMS currents. The whole structure containing all 3 currents is assigned to dataset as one element.
DO: A	Phase currents (IL1, IL2, IL3).
SDO: phsA	Value of phase A (line 1).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 1 RMS current.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsB	Value of phase B (line 2).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 2 RMS current.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsC	Value of phase C (line 3).
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of Line 3 RMS current.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.

2.3.6 STHDIMHAI7 – THD IL1-3

Element	Description
LN: STHDIMHAI7 (THD IL1-3)	Total harmonic distortions of Line 1-, Line 2- and Line 3 currents. The whole structure containing all 3 currents is assigned to dataset as one element.
DO: Hz	Frequency.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of the frequency.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DO: ThdA	Current total Harmonic or Interharmonic Distortion (different methods, phase related).
SDO: phsA	Value of phase A (Line 1) current THD.
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of Line 1 current THD.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsB	Value of phase B (Line 2) current THD.
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of Line 2 current THD.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsC	Value of phase C (Line 3) current THD.
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of Line 3 current THD.
DA: q	Quality (1 p. 55).

DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.

2.3.7 STHDUMHAI9 – THD Uabc

Element	Description
LN: STHDUMHAI9(THD Uabc)	Total harmonic distortions of Line 1-, Line 2- and Line 3 voltages. The whole structure containing all 3 voltages is assigned to dataset as one element.
DO: Hz	Frequency.
DA: mag	Deadbanded value (2 p. 53).
BDA: f	The value of the frequency.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
DO: ThdPhV	Phase to ground voltage total harmonic distortion.
SDO: phsA	Value of phase A (Line 1) to neutral voltage THD.
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of Line 1 to neutral voltage THD.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsB	Value of phase A (Line 2) to neutral voltage THD.
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of Line 2 to neutral voltage THD.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.

BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.
SDO: phsC	Value of phase A (Line 3) to neutral voltage THD.
DA: cVal	Deadbanded complex value. (2 p. 52)
BDA: mag	Deadbanded value (2 p. 53).
BDA: f	Value of Line 3 to neutral voltage THD.
DA: q	Quality (1 p. 55).
DA: t	Timestamp of the last change in one of the attribute(s) representing the value of the data or in the q attribute (1 p. 58).
DA: units	Units of the attribute(s) representing the value of the data.
BDA: SIUnit	SI unit.
BDA: multiplier	Multiplier.

3 Bibliography

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