

# **SIEMENS**

SICAM Q200

IEC 61850

Logical nodes and  
data objects

**V1.00**

Manual

E50417-L1040-C617-A2



# Preface

## **Purpose of this manual**

In this manual you will find the description of implemented logical nodes of the IEC 61850 interface.

## **Target audience**

This manual is intended mainly for all persons who configure, parameterize and operate a SICAM Q200 device.

## **Scope of validity**

This manual is valid for SICAM Q200 devices running Edition 2 mode of IEC 61850.

## **Standards**

This manual has been created according to the ISO 9001 quality standards.



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# 1 General

The IEC 61850 protocol is also used for communication via the Ethernet interface. The IEC 61850 specification with a detailed explanation of the protocol is given in "International Standard IEC 61850". The device supports IEC 61850, Edition 2.

SICAM Q200 supports 6 input configurations (see Device Manual SICAM Q200):

- 1P2W: 1-phase system
- 3P3WB: 3-wire network - balanced (1I)
- 3P3W3I: 3-wire network - unbalanced (3I)
- 3P3W2I: 3-wire network - unbalanced (2I)
- 3P4WB: 4-wire network - balanced (1I)
- 3P4W: 4-wire network - unbalanced (3I)

Each input configuration contains specific logical nodes and data objects which are described in the following tables.

## 2 Logical nodes in all network types (1P2W, 3P3W2I, 3P3W3I, 3P3WB, 3P4W, 3P4WB)

### 2.1 Logical node GGIO (generic function references)

Table 1: BinInGGIO1: Binary inputs

<b>prefix</b>		BinIn
<b>InClass</b>		GGIO
<b>inst</b>		1
<b>desc</b>		Binary in.
<b>InName</b>		IED_nameMEAS/BinInGGIO1
<b>Data object name</b>	<b>Common data class</b>	<b>Status information</b>
Ind1 ~ 3	SPS	Binary input 1-R to 3-R
Ind4 ~ 6	SPS	Binary input 1-S to 3-S

Table 2: BinOutGGIO1: Binary outputs

<b>prefix</b>		BinOut
<b>InClass</b>		GGIO
<b>inst</b>		1
<b>desc</b>		Binary out.
<b>InName</b>		IED_nameMEAS/BinOutGGIO1
<b>Data object name</b>	<b>Common data class</b>	<b>Status information</b>
Ind1 ~ 3	SPS	Binary output 1-R to 3-R
Ind4 ~ 6	SPS	Binary output 1-S to 3-S

Table 3: GrpIndGGIO1: Group indications

<b>prefix</b>		GrpInd
<b>InClass</b>		GGIO
<b>inst</b>		1
<b>desc</b>		Grp.-ind.
<b>InName</b>		IED_nameMEAS/GrpIndGGIO1
<b>Data object name</b>	<b>Common data class</b>	<b>Status information</b>
Alm1 ~ 4	SPS	Group indication 1 to 4

Table 4: IndGGIO1: Indications

<b>prefix</b>		Ind
<b>InClass</b>		GGIO
<b>inst</b>		1
<b>desc</b>		Indications
<b>InName</b>		IED_nameMEAS/IndGGIO1
<b>Data object name</b>	<b>Common data class</b>	<b>Status information</b>
SPCSO1	SPC	Remote ind. 1
SPCSO2	SPC	Remote ind. 2
Alm1	SPS	Reset energy
Alm2	SPS	Para. load
Alm3	SPS	Time sync err.
Alm4	SPS	Rotation
Alm5	SPS	SD card err.



Table 5: LimitsGGIO1: Limit violations

<b>prefix</b>	Limits	
<b>InClass</b>	GGIO	
<b>inst</b>	1	
<b>desc</b>	Limits	
<b>InName</b>	IED_nameMEAS/LimitsGGIO1	
<b>Data object name</b>	<b>Common data class</b>	<b>Status information</b>
Alm1 ~ 16	SPS	Limit violation 1 to 16

Table 6: MSubGGIO1: Modbus subdevice 1

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	1	
<b>desc</b>	Modbus subd. 1	
<b>InName</b>	IED_nameMEAS/MSubGGIO1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 1
Ind1~6	SPS	Indications from Modbus slave device 1

Table 7: MSubGGIO2: Modbus subdevice 2

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	2	
<b>desc</b>	Modbus subd. 2	
<b>InName</b>	IED_nameMEAS/MSubGGIO2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 2
Ind1~6	SPS	Indications from Modbus slave device 2

Table 8: MSubGGIO3: Modbus subdevice 3

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	3	
<b>desc</b>	Modbus subd. 3	
<b>InName</b>	IED_nameMEAS/MSubGGIO3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 3
Ind1~6	SPS	Indications from Modbus slave device 3

Table 9: MSubGGIO4: Modbus subdevice 4

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	4	
<b>desc</b>	Modbus subd. 4	
<b>InName</b>	IED_nameMEAS/MSubGGIO4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 4
Ind1~6	SPS	Indications from Modbus slave device 4

2.1 Logical node GGIO (generic function references)

Table 10: MSubGGIO5: Modbus subdevice 5

<b>prefix</b>		MSub
<b>InClass</b>		GGIO
<b>inst</b>		5
<b>desc</b>		Modbus subd. 5
<b>InName</b>		IED_nameMEAS/MSubGGIO5
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 5
Ind1~6	SPS	Indications from Modbus slave device 5

Table 11: MSubGGIO6: Modbus subdevice 6

<b>prefix</b>		MSub
<b>InClass</b>		GGIO
<b>inst</b>		6
<b>desc</b>		Modbus subd. 6
<b>InName</b>		IED_nameMEAS/MSubGGIO6
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 6
Ind1~6	SPS	Indications from Modbus slave device 6

Table 12: MSubGGIO7: Modbus subdevice 7

<b>prefix</b>		MSub
<b>InClass</b>		GGIO
<b>inst</b>		7
<b>desc</b>		Modbus subd. 7
<b>InName</b>		IED_nameMEAS/MSubGGIO7
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 7
Ind1~6	SPS	Indications from Modbus slave device 7

Table 13: MSubGGIO8: Modbus subdevice 8

<b>prefix</b>		MSub
<b>InClass</b>		GGIO
<b>inst</b>		8
<b>desc</b>		Modbus subd. 8
<b>InName</b>		IED_nameMEAS/MSubGGIO8
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 8
Ind1~6	SPS	Indications from Modbus slave device 8

Table 14: MSubGGIO9: Modbus subdevice 9

<b>prefix</b>		MSub
<b>InClass</b>		GGIO
<b>inst</b>		9
<b>desc</b>		Modbus subd. 9
<b>InName</b>		IED_nameMEAS/MSubGGIO9
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 9
Ind1~6	SPS	Indications from Modbus slave device 9

Table 15: MSubGGIO10: Modbus subdevice 10

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	10	
<b>desc</b>	Modbus subd. 10	
<b>InName</b>	IED_nameMEAS/MSubGGIO10	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 10
Ind1~6	SPS	Indications from Modbus slave device 10

Table 16: MSubGGIO11: Modbus subdevice 11

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	11	
<b>desc</b>	Modbus subd. 11	
<b>InName</b>	IED_nameMEAS/MSubGGIO11	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 11
Ind1~6	SPS	Indications from Modbus slave device 11

Table 17: MSubGGIO12: Modbus subdevice 12

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	12	
<b>desc</b>	Modbus subd. 12	
<b>InName</b>	IED_nameMEAS/MSubGGIO12	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 12
Ind1~6	SPS	Indications from Modbus slave device 12

Table 18: MSubGGIO13: Modbus subdevice 13

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	13	
<b>desc</b>	Modbus subd. 13	
<b>InName</b>	IED_nameMEAS/MSubGGIO13	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 13
Ind1~6	SPS	Indications from Modbus slave device 13

Table 19: MSubGGIO14: Modbus subdevice 14

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	14	
<b>desc</b>	Modbus subd. 14	
<b>InName</b>	IED_nameMEAS/MSubGGIO14	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 14
Ind1~6	SPS	Indications from Modbus slave device 14

Table 20: MSubGGIO15: Modbus subdevice 15

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	15	
<b>desc</b>	Modbus subd. 15	
<b>InName</b>	IED_nameMEAS/MSubGGIO15	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 15
Ind1~6	SPS	Indications from Modbus slave device 15

Table 21: MSubGGIO16: Modbus subdevice 16

<b>prefix</b>	MSub	
<b>InClass</b>	GGIO	
<b>inst</b>	16	
<b>desc</b>	Modbus subd. 16	
<b>InName</b>	IED_nameMEAS/MSubGGIO16	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
AnIn1~15	SPS	Measured values from Modbus slave device 16
Ind1~6	SPS	Indications from Modbus slave device 16

## 2.2 Protection related functions

Table 22: PQA\_RDRE1: Disturbance recorder function

<b>prefix</b>	PQA_	
<b>InClass</b>	RDRE	
<b>inst</b>	1	
<b>desc</b>	Fault rec.	
<b>InName</b>	IED_nameMEAS/PQA_RDRE1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
RcdMade	SPS	Recording made
FltNum	INS	Fault number

## 2.3 Further equipment

Table 23: ZBAT1: Battery status

<b>prefix</b>	ZBAT	
<b>InClass</b>	ZBAT	
<b>inst</b>	1	
<b>desc</b>	Battery st.	
<b>InName</b>	IED_nameMEAS/ZBAT1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
Vol	MV	Battery voltage (not available, invalid)
BatLo	SPS	Battery low (undervoltage or battery is missing)

## 3 Logical nodes 1P2W: 1-phase system

### 3.1 Metering and measurement

Table 24: PQA0MMXN1: 10/12 cycle measurements

<b>prefix</b>		PQA0
<b>InClass</b>		MMXN
<b>inst</b>		1
<b>desc</b>		Meas. 1-ph
<b>InName</b>		IED_nameMEAS/PQA0MMXN1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Amp	MV	Ia
Vol	MV	Va
Watt	MV	Pa
VolAmpr	MV	Qa
VolAmp	MV	Sa
PwrFact	MV	PFa
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 25: PQA1MMXN1: 150/180 cycle measurements

<b>prefix</b>		PQA1
<b>InClass</b>		MMXN
<b>inst</b>		1
<b>desc</b>		Meas. 1-ph
<b>InName</b>		IED_nameMEAS/PQA1MMXN1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Amp	MV	Ia
Vol	MV	Va
Watt	MV	Pa
VolAmpr	MV	Qa
VolAmp	MV	Sa
PwrFact	MV	PFa
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 26: PQA2MMXN1: 10 minutes measurements

<b>prefix</b>	PQA2	
<b>InClass</b>	MMXN	
<b>inst</b>	1	
<b>desc</b>	Meas. 1-ph	
<b>InName</b>	IED_nameMEAS/PQA2MMXN1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Amp	MV	Ia
Vol	MV	Va
Watt	MV	Pa
VolAmpr	MV	Qa
VolAmp	MV	Sa
PwrFact	MV	PFa
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 27: PQA4MMXN1: 10 seconds measurements

<b>prefix</b>	PQA4	
<b>InClass</b>	MMXN	
<b>inst</b>	1	
<b>desc</b>	Meas. 1-ph	
<b>InName</b>	IED_nameMEAS/PQA4MMXN1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS

Table 28: LpCurPerMMXN10: Maximum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXN	
<b>inst</b>	10	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXN10	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 29: LpCurPerMMXN9: Minimum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXN	
<b>inst</b>	9	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXN9	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 30: LpCurPerMMXN8: Average load profile values for export (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXN	
<b>inst</b>	8	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXN8	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 31: LpCurPerMMXN7: Average load profile values for import (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXN	
<b>inst</b>	7	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXN7	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 32: LpPrevPerMMXN6: Maximum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXN	
<b>inst</b>	6	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXN6	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
VolAmp	MV	S
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 33: LpPrevPerMMXN5: Minimum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXN	
<b>inst</b>	5	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXN5	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
VolAmp	MV	S
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 34: LpPrevPerMMXN4: Average load profile values apparent power (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXN	
<b>inst</b>	4	
<b>desc</b>	LP avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXN4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmp	MV	S
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 35: LpPrevPerMMXN3: Average load profile values for export (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXN	
<b>inst</b>	3	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXN3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Watt	MV	P
VolAmpr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1

Table 36: LpPrevPerMMXN2: Average load profile values for import (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXN	
<b>inst</b>	2	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXN2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Watt	MV	P
VolAmpr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXN1



Table 37: MMTN1: Metered values

<b>prefix</b>		
<b>InClass</b>	MMTN	
<b>inst</b>	1	
<b>desc</b>	Meter	
<b>InName</b>	IED_nameMEAS/MMTN1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WSa
SupWh	BCR	Counter ticks WPa_sup
SupVArh	BCR	Counter ticks WQa_ind
DmdWh	BCR	Counter ticks WPa_dmd
DmdVArh	BCR	Counter ticks WQa_cap

Table 38: TOUTariffMMTN1: Metering system energy time of use tariff 1

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTN	
<b>inst</b>	1	
<b>desc</b>	TOU tariff 1	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTN1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_1
SupWh	BCR	Counter ticks WP_SUP_TARIFF_1
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_1
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_1
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_1

Table 39: TOUTariffMMTN2: Metering system energy time of use tariff 2

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTN	
<b>inst</b>	2	
<b>desc</b>	TOU tariff 2	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTN2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_2
SupWh	BCR	Counter ticks WP_SUP_TARIFF_2
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_2
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_2
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_2

Table 40: TOUTariffMMTN3: Metering system energy time of use tariff 3

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTN	
<b>inst</b>	3	
<b>desc</b>	TOU tariff 3	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTN3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_3
SupWh	BCR	Counter ticks WP_SUP_TARIFF_3
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_3
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_3
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_3

Table 41: TOUTariffMMTN4: Metering system energy time of use tariff 4

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTN
<b>inst</b>		4
<b>desc</b>		TOU tariff 4
<b>InName</b>		IED_nameMEAS/TOUTariffMMTN4
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_4
SupWh	BCR	Counter ticks WP_SUP_TARIFF_4
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_4
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_4
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_4

Table 42: PQA0MHAN1: 10/12 cycle harmonics

<b>prefix</b>		PQA0
<b>InClass</b>		MHAN
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA0MHAN1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	Basic frequency
HaAmp	HMV	Sequence of harmonics/interharmonics current Ia
HaVol	HMV	Sequence of harmonics/interharmonics voltages Va
ThdAmp	MV	THDR Ia
ThdVol	MV	THDR Va
<b>Settings</b>		
ClcMth	ENG	RMS_FUNDAMENTAL
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 43: PQA1MHAN1: 150/180 cycle harmonics

<b>prefix</b>		PQA1
<b>InClass</b>		MHAN
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA1MHAN1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	Basic frequency
HaAmp	HMV	Sequence of harmonics/interharmonics current Ia
HaVol	HMV	Sequence of harmonics/interharmonics voltages Va
ThdAmp	MV	THDR Ia
ThdVol	MV	THDR Va
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MHAN1

Table 44: PQA2MHAN1: 10 minutes harmonics

<b>prefix</b>	PQA2	
<b>InClass</b>	MHAN	
<b>inst</b>	1	
<b>desc</b>	Harmonics	
<b>InName</b>	IED_nameMEAS/PQA2MHAN1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	Basic frequency
HaAmp	HMV	Sequence of harmonics/interharmonics current Ia
HaVol	HMV	Sequence of harmonics/interharmonics voltages Va
ThdAmp	MV	THDS Ia
ThdVol	MV	THDS Va
TddAmp	MV	TDD Ia
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MHAN1

Table 45: PQA2MFLK1: 10 minute short-term flicker

<b>prefix</b>	PQA2	
<b>InClass</b>	MFLK	
<b>inst</b>	1	
<b>desc</b>	Flicker 10m	
<b>InName</b>	IED_nameMEAS/PQA2MFLK1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PhPst	WYE	Pst (a-n)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 46: PQA3MFLK1: 2 hour long-term flicker

<b>prefix</b>	PQA3	
<b>InClass</b>	MFLK	
<b>inst</b>	1	
<b>desc</b>	Flicker 2h	
<b>InName</b>	IED_nameMEAS/PQA3MFLK1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PhPlt	WYE	Plt (a-n)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA2MFLK1

### 3.2 Power quality events detection related

Table 47: PQA\_QVVR1: Voltage variation

<b>prefix</b>		PQA_
<b>InClass</b>		QVVR
<b>inst</b>		1
<b>desc</b>		Volt. var.
<b>InName</b>		IED_nameMEAS/PQA_QVVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage variation
DipStr	SPS	Start: Voltage dip
SwlStr	SPS	Start: Voltage swell
IntrStr	SPS	Start: Voltage interruption
VVa 1)	MV	Highest or lowest voltage magnitude of the last completed event
VVaTm 1)	MV	Voltage variation duration of the last completed event
AffPhs 1)	ENS	Affected phase(s) of the last completed event

1) acc. to Tissue 952

Table 48: PQA\_QFVR1: Frequency variation

<b>prefix</b>		PQA_
<b>InClass</b>		QFVR
<b>inst</b>		1
<b>desc</b>		Freq. var.
<b>InName</b>		IED_nameMEAS/PQA_QFVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Frequency variation
UnHzStr	SPS	Start: Underfrequency
OvHzStr	SPS	Start: Overfrequency
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

## 4 Logical nodes 3P3WB: 3-wire network – balanced

### 4.1 Metering and measurement

Table 49: PQA0MMXU1: 10/12 cycle measurements

<b>prefix</b>		PQA0
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3WB
<b>InName</b>		IED_nameMEAS/PQA0MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia
W	WYE	Pa
VAr	WYE	Qa
VA	WYE	Sa
PF	WYE	PFa
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE

4.1 Metering and measurement

Table 50: PQA1MMXU1: 150/180 cycle measurements

<b>prefix</b>		PQA1
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3WB
<b>InName</b>		IED_nameMEAS/PQA1MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia
W	WYE	Pa
VAr	WYE	Qa
VA	WYE	Sa
PF	WYE	PFa
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 51: PQA2MMXU1: 10 minutes measurements

<b>prefix</b>		PQA2
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3WB
<b>InName</b>		IED_nameMEAS/PQA2MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 52: PQA4MMXU1: 10 seconds measurements

<b>prefix</b>	PQA4	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 3WB	
<b>InName</b>	IED_nameMEAS/PQA4MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS

Table 53: LpCurPerMMXU10: Maximum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	10	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU10	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 54: LpCurPerMMXU9: Minimum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	9	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU9	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 55: LpCurPerMMXU8: Average load profile values for export (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	8	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU8	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

4.1 Metering and measurement

Table 56: LpCurPerMMXU7: Average load profile values for import (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	7	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU7	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 57: LpPrevPerMMXU6: Maximum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	6	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU6	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 58: LpPrevPerMMXU5: Minimum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	5	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU5	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 59: LpPrevPerMMXU4: Average load profile values apparent power (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	4	
<b>desc</b>	LP avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1



Table 60: LpPrevPerMMXU3: Average load profile values for export (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	3	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 61: LpPrevPerMMXU2: Average load profile values for import (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	2	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 62: MMTR1: Metered values

<b>prefix</b>		
<b>InClass</b>	MMTR	
<b>inst</b>	1	
<b>desc</b>	Meter	
<b>InName</b>	IED_nameMEAS/MMTR1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS
SupWh	BCR	Counter ticks WP_sup
SupVArh	BCR	Counter ticks WQ_ind
DmdWh	BCR	Counter ticks WP_dmd
DmdVArh	BCR	Counter ticks WQ_cap

Table 63: TOUTariffMMTR1: Metering system energy time of use tariff 1

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	1	
<b>desc</b>	TOU tariff 1	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_1
SupWh	BCR	Counter ticks WP_SUP_TARIFF_1
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_1
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_1
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_1

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Table 64: TOUTariffMMTR2: Metering system energy time of use tariff 2

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		2
<b>desc</b>		TOU tariff 2
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR2
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_2
SupWh	BCR	Counter ticks WP_SUP_TARIFF_2
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_2
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_2
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_2

Table 65: TOUTariffMMTR3: Metering system energy time of use tariff 3

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		3
<b>desc</b>		TOU tariff 3
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR3
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_3
SupWh	BCR	Counter ticks WP_SUP_TARIFF_3
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_3
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_3
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_3

Table 66: TOUTariffMMTR4: Metering system energy time of use tariff 4

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		4
<b>desc</b>		TOU tariff 4
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR4
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_4
SupWh	BCR	Counter ticks WP_SUP_TARIFF_4
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_4
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_4
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_4

Table 67: PQA0MHAI1: 10/12 cycle harmonics

<b>prefix</b>	PQA0	
<b>InClass</b>	MHAI	
<b>inst</b>	1	
<b>desc</b>	Harmonics	
<b>InName</b>	IED_nameMEAS/PQA0MHAI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia
ThdPPV	WYE	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	RMS_FUNDAMENTAL
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 68: PQA1MHAI1: 150/180 cycle harmonics

<b>prefix</b>	PQA1	
<b>InClass</b>	MHAI	
<b>inst</b>	1	
<b>desc</b>	Harmonics	
<b>InName</b>	IED_nameMEAS/PQA1MHAI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia
ThdPPV	WYE	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 69: PQA2MHAI1: 10 minutes harmonics

<b>prefix</b>		PQA2
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA2MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDS Ia
TddA	WYE	TDD Ia
ThdPPV	WYE	THDS Vab THDS Vbc THDS Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 70: PQA2MFLK1: 10 minute short-term flicker

<b>prefix</b>		PQA2
<b>InClass</b>		MFLK
<b>inst</b>		1
<b>desc</b>		Flicker 10m
<b>InName</b>		IED_nameMEAS/PQA2MFLK1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PPPst	DEL	Pst (a-b) Pst (b-c) Pst (c-a)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 71: PQA3MFLK1: 2 hour long-term flicker

<b>prefix</b>		PQA3
<b>InClass</b>		MFLK
<b>inst</b>		1
<b>desc</b>		Flicker 2h
<b>InName</b>		IED_nameMEAS/PQA3MFLK1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PPPlt	DEL	Plt (a-b) Plt (b-c) Plt (c-a)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA2MFLK1

Table 72: PQA0MSQI1: 10/12 cycle voltage/current unbalance

<b>prefix</b>	PQA0	
<b>InClass</b>	MSQI	
<b>inst</b>	1	
<b>desc</b>	Volt./cur. unbal.	
<b>InName</b>	IED_nameMEAS/PQA0MSQI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 73: PQA1MSQI1: 150/180 cycle voltage/current unbalance

<b>prefix</b>	PQA1	
<b>InClass</b>	MSQI	
<b>inst</b>	1	
<b>desc</b>	Volt./cur. unbal.	
<b>InName</b>	IED_nameMEAS/PQA1MSQI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

Table 74: PQA2MSQI1: 10 minutes voltage/current unbalance

<b>prefix</b>	PQA2	
<b>InClass</b>	MSQI	
<b>inst</b>	1	
<b>desc</b>	Volt./cur. unbal.	
<b>InName</b>	IED_nameMEAS/PQA2MSQI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

## 4.2 Power quality events detection related

Table 75: PQA\_QVVR1: Voltage variation

<b>prefix</b>		PQA_
<b>InClass</b>		QVVR
<b>inst</b>		1
<b>desc</b>		Volt. var.
<b>InName</b>		IED_nameMEAS/PQA_QVVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage variation
DipStr	SPS	Start: Voltage dip
SwlStr	SPS	Start: Voltage swell
IntrStr	SPS	Start: Voltage interruption
VVa 1)	MV	Highest or lowest voltage magnitude of the last completed event
VVaTm 1)	MV	Voltage variation duration of the last completed event
AffPhs 1)	ENS	Affected phase(s) of the last completed event

1) acc. to Tissue 952

Table 76: PQA\_QFVR1: Frequency variation

<b>prefix</b>		PQA_
<b>InClass</b>		QFVR
<b>inst</b>		1
<b>desc</b>		Freq. var.
<b>InName</b>		IED_nameMEAS/PQA_QFVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Frequency variation
UnHzStr	SPS	Start: Underfrequency
OvHzStr	SPS	Start: Overfrequency
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 77: PQA\_QVUB1: Voltage unbalance

<b>prefix</b>		PQA_
<b>InClass</b>		QVUB
<b>inst</b>		1
<b>desc</b>		Volt. unbal.
<b>InName</b>		IED_nameMEAS/PQA_QVUB1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage unbalance variation
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

## 5 Logical nodes 3P3W3I: 3-wire network – unbalanced

### 5.1 Metering and measurement

Table 78: PQA0MMXU1: 10/12 cycle measurements

<b>prefix</b>		PQA0
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3W 3I
<b>InName</b>		IED_nameMEAS/PQA0MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia Ib Ic Iavg
W	WYE	Pa Pb Pc
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 79: PQA1MMXU1: 150/180 cycle measurements

<b>prefix</b>		PQA1
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3W 3I
<b>InName</b>		IED_nameMEAS/PQA1MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia Ib Ic Iavg
W	WYE	Pa Pb Pc
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1



Table 80: PQA2MMXU1: 10 minutes measurements

<b>prefix</b>	PQA2	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 3W 3I	
<b>InName</b>	IED_nameMEAS/PQA2MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	la lb lc lavg
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 81: PQA4MMXU1: 10 seconds measurements

<b>prefix</b>	PQA4	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 3W 3I	
<b>InName</b>	IED_nameMEAS/PQA4MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS

Table 82: LpCurPerMMXU10: Maximum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	10	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU10	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 83: LpCurPerMMXU9: Minimum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	9	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU9	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 84: LpCurPerMMXU8: Average load profile values for export (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	8	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU8	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 85: LpCurPerMMXU7: Average load profile values for import (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	7	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU7	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 86: LpPrevPerMMXU6: Maximum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	6	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU6	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 87: LpPrevPerMMXU5: Minimum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	5	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU5	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 88: LpPrevPerMMXU4: Average load profile values apparent power (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	4	
<b>desc</b>	LP avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 89: LpPrevPerMMXU3: Average load profile values for export (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	3	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 90: LpPrevPerMMXU2: Average load profile values for import (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	2	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

5.1 Metering and measurement

Table 91: MMTR1: Metered values

<b>prefix</b>		
<b>InClass</b>		MMTR
<b>inst</b>		1
<b>desc</b>		Meter
<b>InName</b>		IED_nameMEAS/MMTR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS
SupWh	BCR	Counter ticks WP_sup
SupVArh	BCR	Counter ticks WQ_ind
DmdWh	BCR	Counter ticks WP_dmd
DmdVArh	BCR	Counter ticks WQ_cap

Table 92: TOUTariffMMTR1: Metering system energy time of use tariff 1

<b>prefix</b>		
<b>InClass</b>		MMTR
<b>inst</b>		1
<b>desc</b>		TOU tariff 1
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_1
SupWh	BCR	Counter ticks WP_SUP_TARIFF_1
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_1
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_1
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_1

Table 93: TOUTariffMMTR2: Metering system energy time of use tariff 2

<b>prefix</b>		
<b>InClass</b>		MMTR
<b>inst</b>		2
<b>desc</b>		TOU tariff 2
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR2
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_2
SupWh	BCR	Counter ticks WP_SUP_TARIFF_2
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_2
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_2
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_2

Table 94: TOUTariffMMTR3: Metering system energy time of use tariff 3

<b>prefix</b>		
<b>InClass</b>		MMTR
<b>inst</b>		3
<b>desc</b>		TOU tariff 3
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR3
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_3
SupWh	BCR	Counter ticks WP_SUP_TARIFF_3
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_3
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_3
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_3

Table 95: TOUTariffMMTR4: Metering system energy time of use tariff 4

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	4	
<b>desc</b>	TOU tariff 4	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_4
SupWh	BCR	Counter ticks WP_SUP_TARIFF_4
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_4
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_4
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_4

Table 96: PQA0MHAI1: 10/12 cycle harmonics

<b>prefix</b>	PQA0	
<b>InClass</b>	MHAI	
<b>inst</b>	1	
<b>desc</b>	Harmonics	
<b>InName</b>	IED_nameMEAS/PQA0MHAI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia THDR Ib THDR Ic
ThdPPV	WYE	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	RMS_FUNDAMENTAL
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 97: PQA1MHAI1: 150/180 cycle harmonics

<b>prefix</b>		PQA1
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA1MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia THDR Ib THDR Ic
ThdPPV	WYE	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 98: PQA2MHAI1: 10 minutes harmonics

<b>prefix</b>		PQA2
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA2MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDS Ia THDS Ib THDS Ic
TddA	WYE	TDD Ia TDD Ib TDD Ic
ThdPPV	WYE	THDS Vab THDS Vbc THDS Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 99: PQA2MFLK1: 10 minute short-term flicker

<b>prefix</b>	PQA2	
<b>InClass</b>	MFLK	
<b>inst</b>	1	
<b>desc</b>	Flicker 10m	
<b>InName</b>	IED_nameMEAS/PQA2MFLK1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PPPst	DEL	Pst (a-b) Pst (b-c) Pst (c-a)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 100: PQA3MFLK1: 2 hour long-term flicker

<b>prefix</b>	PQA3	
<b>InClass</b>	MFLK	
<b>inst</b>	1	
<b>desc</b>	Flicker 2h	
<b>InName</b>	IED_nameMEAS/PQA3MFLK1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PPPIt	DEL	Plt (a-b) Plt (b-c) Plt (c-a)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA2MFLK1

Table 101: PQA0MSQI1: 10/12 cycle voltage/current unbalance

<b>prefix</b>	PQA0	
<b>InClass</b>	MSQI	
<b>inst</b>	1	
<b>desc</b>	Volt./cur. unbal.	
<b>InName</b>	IED_nameMEAS/PQA0MSQI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 102: PQA1MSQI1: 150/180 cycle voltage/current unbalance

<b>prefix</b>		PQA1
<b>InClass</b>		MSQI
<b>inst</b>		1
<b>desc</b>		Volt./cur. unbal.
<b>InName</b>		IED_nameMEAS/PQA1MSQI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

Table 103: PQA2MSQI1: 10 minutes voltage/current unbalance

<b>prefix</b>		PQA2
<b>InClass</b>		MSQI
<b>inst</b>		1
<b>desc</b>		Volt./cur. unbal.
<b>InName</b>		IED_nameMEAS/PQA2MSQI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1



## 5.2 Power quality events detection related

Table 104: PQA\_QVVR1: Voltage variation

<b>prefix</b>	PQA_	
<b>InClass</b>	QVVR	
<b>inst</b>	1	
<b>desc</b>	Volt. var.	
<b>InName</b>	IED_nameMEAS/PQA_QVVR1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage variation
DipStr	SPS	Start: Voltage dip
SwlStr	SPS	Start: Voltage swell
IntrStr	SPS	Start: Voltage interruption
VVa 1)	MV	Highest or lowest voltage magnitude of the last completed event
VVaTm 1)	MV	Voltage variation duration of the last completed event
AffPhs 1)	ENS	Affected phase(s) of the last completed event

1) acc. to Tissue 952

Table 105: PQA\_QFVR1: Frequency variation

<b>prefix</b>	PQA_	
<b>InClass</b>	QFVR	
<b>inst</b>	1	
<b>desc</b>	Freq. var.	
<b>InName</b>	IED_nameMEAS/PQA_QFVR1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Frequency variation
UnHzStr	SPS	Start: Underfrequency
OvHzStr	SPS	Start: Overfrequency
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 106: PQA\_QVUB1: Voltage unbalance

<b>prefix</b>	PQA_	
<b>InClass</b>	QVUB	
<b>inst</b>	1	
<b>desc</b>	Volt. unbal.	
<b>InName</b>	IED_nameMEAS/PQA_QVUB1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage unbalance variation
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

## 6 Logical nodes 3P3W2I: 3-wire network – unbalanced

### 6.1 Metering and measurement

Table 107: PQA0MMXU1: 10/12 cycle measurements

<b>prefix</b>		PQA0
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3W 2I
<b>InName</b>		IED_nameMEAS/PQA0MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia Ib Ic Iavg
W	WYE	Pa Pb Pc
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 108: PQA1MMXU1: 150/180 cycle measurements

<b>prefix</b>		PQA1
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3W 2I
<b>InName</b>		IED_nameMEAS/PQA1MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia Ib Ic Iavg
W	WYE	Pa Pb Pc
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 109: PQA2MMXU1: 10 minutes measurements

<b>prefix</b>		PQA2
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3W 2I
<b>InName</b>		IED_nameMEAS/PQA2MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
A	WYE	Ia Ib Ic Iavg
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 110: PQA4MMXU1: 10 seconds measurements

<b>prefix</b>		PQA4
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 3W 2I
<b>InName</b>		IED_nameMEAS/PQA4MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS

Table 111: LpCurPerMMXU10: Maximum load profile values (current period)

<b>prefix</b>		LpCurPer
<b>InClass</b>		MMXU
<b>inst</b>		10
<b>desc</b>		LP max
<b>InName</b>		IED_nameMEAS/LpCurPerMMXU10
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 112: LpCurPerMMXU9: Minimum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	9	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU9	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 113: LpCurPerMMXU8: Average load profile values for export (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	8	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU8	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 114: LpCurPerMMXU7: Average load profile values for import (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	7	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU7	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 115: LpPrevPerMMXU6: Maximum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	6	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU6	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 116: LpPrevPerMMXU5: Minimum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	5	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU5	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 117: LpPrevPerMMXU4: Average load profile values apparent power (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	4	
<b>desc</b>	LP avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 118: LpPrevPerMMXU3: Average load profile values for export (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	3	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 119: LpPrevPerMMXU2: Average load profile values for import (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	2	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 120: MMTR1: Metered values

<b>prefix</b>			
<b>InClass</b>			MMTR
<b>inst</b>			1
<b>desc</b>			Meter
<b>InName</b>			IED_nameMEAS/MMTR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>	
<b>Measured and metered values</b>			
TotVAh	BCR	Counter ticks WS	
SupWh	BCR	Counter ticks WP_sup	
SupVArh	BCR	Counter ticks WQ_ind	
DmdWh	BCR	Counter ticks WP_dmd	
DmdVArh	BCR	Counter ticks WQ_cap	

Table 121: TOUTariffMMTR1: Metering system energy time of use tariff 1

<b>prefix</b>			TOUTariff
<b>InClass</b>			MMTR
<b>inst</b>			1
<b>desc</b>			TOU tariff 1
<b>InName</b>			IED_nameMEAS/TOUTariffMMTR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>	
<b>Measured and metered values</b>			
TotVAh	BCR	Counter ticks WS_TARIFF_1	
SupWh	BCR	Counter ticks WP_SUP_TARIFF_1	
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_1	
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_1	
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_1	

Table 122: TOUTariffMMTR2: Metering system energy time of use tariff 2

<b>prefix</b>			TOUTariff
<b>InClass</b>			MMTR
<b>inst</b>			2
<b>desc</b>			TOU tariff 2
<b>InName</b>			IED_nameMEAS/TOUTariffMMTR2
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>	
<b>Measured and metered values</b>			
TotVAh	BCR	Counter ticks WS_TARIFF_2	
SupWh	BCR	Counter ticks WP_SUP_TARIFF_2	
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_2	
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_2	
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_2	

Table 123: TOUTariffMMTR3: Metering system energy time of use tariff 3

<b>prefix</b>			TOUTariff
<b>InClass</b>			MMTR
<b>inst</b>			3
<b>desc</b>			TOU tariff 3
<b>InName</b>			IED_nameMEAS/TOUTariffMMTR3
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>	
<b>Measured and metered values</b>			
TotVAh	BCR	Counter ticks WS_TARIFF_3	
SupWh	BCR	Counter ticks WP_SUP_TARIFF_3	
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_3	
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_3	
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_3	

Table 124: TOUTariffMMTR4: Metering system energy time of use tariff 4

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	4	
<b>desc</b>	TOU tariff 4	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_4
SupWh	BCR	Counter ticks WP_SUP_TARIFF_4
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_4
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_4
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_4

Table 125: PQA0MHAI1: 10/12 cycle harmonics

<b>prefix</b>	PQA0	
<b>InClass</b>	MHAI	
<b>inst</b>	1	
<b>desc</b>	Harmonics	
<b>InName</b>	IED_nameMEAS/PQA0MHAI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia THDR Ib THDR Ic
ThdPPV	WYE	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	RMS_FUNDAMENTAL
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE



Table 126: PQA1MHAI1: 150/180 cycle harmonics

<b>prefix</b>		PQA1
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA1MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia THDR Ib THDR Ic
ThdPPV	WYE	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 127: PQA2MHAI1: 10 minutes harmonics

<b>prefix</b>		PQA2
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA2MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDS Ia THDS Ib THDS Ic
TddA	WYE	TDD Ia TDD Ib TDD Ic
ThdPPV	WYE	THDS Vab THDS Vbc THDS Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 128: PQA2MFLK1: 10 minute short-term flicker

<b>prefix</b>		PQA2
<b>InClass</b>		MFLK
<b>inst</b>		1
<b>desc</b>		Flicker 10m
<b>InName</b>		IED_nameMEAS/PQA2MFLK1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PPPst	DEL	Pst (a-b) Pst (b-c) Pst (c-a)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 129: PQA3MFLK1: 2 hour long-term flicker

<b>prefix</b>		PQA3
<b>InClass</b>		MFLK
<b>inst</b>		1
<b>desc</b>		Flicker 2h
<b>InName</b>		IED_nameMEAS/PQA3MFLK1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PPPIt	DEL	Plt (a-b) Plt (b-c) Plt (c-a)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA2MFLK1

Table 130: PQA0MSQI1: 10/12 cycle voltage/current unbalance

<b>prefix</b>		PQA0
<b>InClass</b>		MSQI
<b>inst</b>		1
<b>desc</b>		Volt./cur. unbal.
<b>InName</b>		IED_nameMEAS/PQA0MSQI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 131: PQA1MSQI1: 150/180 cycle voltage/current unbalance

<b>prefix</b>	PQA1	
<b>InClass</b>	MSQI	
<b>inst</b>	1	
<b>desc</b>	Volt./cur. unbal.	
<b>InName</b>	IED_nameMEAS/PQA1MSQI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

Table 132: PQA2MSQI1: 10 minutes voltage/current unbalance

<b>prefix</b>	PQA2	
<b>InClass</b>	MSQI	
<b>inst</b>	1	
<b>desc</b>	Volt./cur. unbal.	
<b>InName</b>	IED_nameMEAS/PQA2MSQI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

## 6.2 Power quality events detection related

Table 133: PQA\_QVVR1: Voltage variation

<b>prefix</b>		PQA_
<b>InClass</b>		QVVR
<b>inst</b>		1
<b>desc</b>		Volt. var.
<b>InName</b>		IED_nameMEAS/PQA_QVVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage variation
DipStr	SPS	Start: Voltage dip
SwlStr	SPS	Start: Voltage swell
IntrStr	SPS	Start: Voltage interruption
VVa 1)	MV	Highest or lowest voltage magnitude of the last completed event
VVaTm 1)	MV	Voltage variation duration of the last completed event
AffPhs 1)	ENS	Affected phase(s) of the last completed event

1) acc. to Tissue 952

Table 134: PQA\_QFVR1: Frequency variation

<b>prefix</b>		PQA_
<b>InClass</b>		QFVR
<b>inst</b>		1
<b>desc</b>		Freq. var.
<b>InName</b>		IED_nameMEAS/PQA_QFVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Frequency variation
UnHzStr	SPS	Start: Underfrequency
OvHzStr	SPS	Start: Overfrequency
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 135: PQA\_QVUB1: Voltage unbalance

<b>prefix</b>		PQA_
<b>InClass</b>		QVUB
<b>inst</b>		1
<b>desc</b>		Volt. unbal.
<b>InName</b>		IED_nameMEAS/PQA_QVUB1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage unbalance variation
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

## 7 Logical nodes 3P4WB: 4-wire network – balanced

### 7.1 Metering and measurement

Table 136: PQA0MMXU1: 10/12 cycle measurements

<b>prefix</b>	PQA0	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4WB 1I	
<b>InName</b>	IED_nameMEAS/PQA0MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PhV	WYE	V <sub>a</sub> V <sub>N</sub>
A	WYE	I <sub>a</sub>
W	WYE	P <sub>a</sub>
VAr	WYE	Q <sub>a</sub>
VA	WYE	S <sub>a</sub>
PF	WYE	P <sub>Fa</sub>
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 137: PQA1MMXU1: 150/180 cycle measurements

<b>prefix</b>	PQA1	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4WB 1I	
<b>InName</b>	IED_nameMEAS/PQA1MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PhV	WYE	V <sub>a</sub> V <sub>N</sub>
A	WYE	I <sub>a</sub>
W	WYE	P <sub>a</sub>
VAr	WYE	Q <sub>a</sub>
VA	WYE	S <sub>a</sub>
PF	WYE	P <sub>Fa</sub>
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 138: PQA2MMXU1: 10 minutes measurements

<b>prefix</b>	PQA2	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4WB 1I	
<b>InName</b>	IED_nameMEAS/PQA2MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PhV	WYE	Va
A	WYE	Ia
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 139: PQA4MMXU1: 10 seconds measurements

<b>prefix</b>	PQA4	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4WB 1I	
<b>InName</b>	IED_nameMEAS/PQA4MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS

Table 140: LpCurPerMMXU10: Maximum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	10	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU10	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 141: LpCurPerMMXU9: Minimum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	9	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU9	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 142: LpCurPerMMXU8: Average load profile values for export (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	8	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU8	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 143: LpCurPerMMXU7: Average load profile values for import (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	7	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU7	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 144: LpPrevPerMMXU6: Maximum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	6	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU6	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 145: LpPrevPerMMXU5: Minimum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	5	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU5	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 146: LpPrevPerMMXU4: Average load profile values apparent power (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	4	
<b>desc</b>	LP avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 147: LpPrevPerMMXU3: Average load profile values for export (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	3	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 148: LpPrevPerMMXU2: Average load profile values for import (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	2	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1



Table 149: MMTR1: Metered values

<b>prefix</b>		
<b>InClass</b>		MMTR
<b>inst</b>		1
<b>desc</b>		Meter
<b>InName</b>		IED_nameMEAS/MMTR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS
SupWh	BCR	Counter ticks WP_sup
SupVArh	BCR	Counter ticks WQ_ind
DmdWh	BCR	Counter ticks WP_dmd
DmdVArh	BCR	Counter ticks WQ_cap

Table 150: TOUTariffMMTR1: Metering system energy time of use tariff 1

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		1
<b>desc</b>		TOU tariff 1
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_1
SupWh	BCR	Counter ticks WP_SUP_TARIFF_1
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_1
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_1
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_1

Table 151: TOUTariffMMTR2: Metering system energy time of use tariff 2

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		2
<b>desc</b>		TOU tariff 2
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR2
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_2
SupWh	BCR	Counter ticks WP_SUP_TARIFF_2
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_2
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_2
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_2

Table 152: TOUTariffMMTR3: Metering system energy time of use tariff 3

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		3
<b>desc</b>		TOU tariff 3
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR3
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_3
SupWh	BCR	Counter ticks WP_SUP_TARIFF_3
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_3
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_3
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_3

Table 153: TOUTariffMMTR4: Metering system energy time of use tariff 4

<b>prefix</b>		TOUTariff
<b>InClass</b>		MMTR
<b>inst</b>		4
<b>desc</b>		TOU tariff 4
<b>InName</b>		IED_nameMEAS/TOUTariffMMTR4
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_4
SupWh	BCR	Counter ticks WP_SUP_TARIFF_4
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_4
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_4
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_4

Table 154: PQA0MHAI1: 10/12 cycle harmonics

<b>prefix</b>		PQA0
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA0MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia
HPhV	HWYE	Sequence of harmonic/interharmonic voltages Va
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia
ThdPhV	WYE	THDR Va
<b>Settings</b>		
ClcMth	ENG	RMS_FUNDAMENTAL
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 155: PQA1MHAI1: 150/180 cycle harmonics

<b>prefix</b>		PQA1
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA1MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia
HPhV	HWYE	Sequence of harmonic/interharmonic voltages Va
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia
ThdPhV	WYE	THDR Va
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 156: PQA2MHAI1: 10 minutes harmonics

<b>prefix</b>	PQA2	
<b>InClass</b>	MHAI	
<b>inst</b>	1	
<b>desc</b>	Harmonics	
<b>InName</b>	IED_nameMEAS/PQA2MHAI1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia
HPhV	HWYE	Sequence of harmonic/interharmonic voltages Va
Hz	MV	Basic frequency
ThdA	WYE	THDS Ia
TddA	WYE	TDD Ia
ThdPhV	WYE	THDS Va
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 157: PQA2MFLK1: 10 minute short-term flicker

<b>prefix</b>	PQA2	
<b>InClass</b>	MFLK	
<b>inst</b>	1	
<b>desc</b>	Flicker 10m	
<b>InName</b>	IED_nameMEAS/PQA2MFLK1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PhPst	WYE	Pst (a-n)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 158: PQA3MFLK1: 2 hour long-term flicker

<b>prefix</b>	PQA3	
<b>InClass</b>	MFLK	
<b>inst</b>	1	
<b>desc</b>	Flicker 2h	
<b>InName</b>	IED_nameMEAS/PQA3MFLK1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PhPlt	WYE	Plt (a-n)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA2MFLK1

## 7.2 Power quality events detection related

Table 159: PQA\_QVVR1: Voltage variation

<b>prefix</b>		PQA_
<b>InClass</b>		QVVR
<b>inst</b>		1
<b>desc</b>		Volt. var.
<b>InName</b>		IED_nameMEAS/PQA_QVVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage variation
DipStr	SPS	Start: Voltage dip
SwlStr	SPS	Start: Voltage swell
IntrStr	SPS	Start: Voltage interruption
VVa 1)	MV	Highest or lowest voltage magnitude of the last completed event
VVaTm 1)	MV	Voltage variation duration of the last completed event
AffPhs 1)	ENS	Affected phase(s) of the last completed event

1) acc. to Tissue 952

Table 160: PQA\_QFVR1: Frequency variation

<b>prefix</b>		PQA_
<b>InClass</b>		QFVR
<b>inst</b>		1
<b>desc</b>		Freq. var.
<b>InName</b>		IED_nameMEAS/PQA_QFVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Frequency variation
UnHzStr	SPS	Start: Underfrequency
OvHzStr	SPS	Start: Overfrequency
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

## 8 Logical nodes 3P4W: 4-wire network – unbalanced

### 8.1 Metering and measurement

Table 161: PQA0MMXU1: 10/12 cycle measurements

<b>prefix</b>	PQA0	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4W 3I	
<b>InName</b>	IED_nameMEAS/PQA0MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
PhV	WYE	Va Vb Vc VN Vavg
W	WYE	Pa Pb Pc
A	WYE	Ia Ib Ic IN Iavg
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 162: PQA1MMXU1: 150/180 cycle measurements

<b>prefix</b>		PQA1
<b>InClass</b>		MMXU
<b>inst</b>		1
<b>desc</b>		Meas. 4W 3I
<b>InName</b>		IED_nameMEAS/PQA1MMXU1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
PhV	WYE	Va Vb Vc VN Vavg
W	WYE	Pa Pb Pc
A	WYE	Ia Ib Ic IN Iavg
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 163: PQA2MMXU1: 10 minutes measurements

<b>prefix</b>	PQA2	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4W 3I	
<b>InName</b>	IED_nameMEAS/PQA2MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
TotVA	MV	S
TotPF	MV	PF
PPV	DEL	Vab Vbc Vca
PhV	WYE	Va Vb Vc VN Vavg
W	WYE	Pa Pb Pc
A	WYE	Ia Ib Ic IN Iavg
VAr	WYE	Qa Qb Qc
VA	WYE	Sa Sb Sc
PF	WYE	PFa PFb PFc
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 164: PQA4MMXU1: 10 seconds measurements

<b>prefix</b>	PQA4	
<b>InClass</b>	MMXU	
<b>inst</b>	1	
<b>desc</b>	Meas. 4W 3I	
<b>InName</b>	IED_nameMEAS/PQA4MMXU1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
Hz	MV	f
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ORG	PERIOD
ClcIntvTyp	ENG	MS

Table 165: LpCurPerMMXU10: Maximum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	10	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU10	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 166: LpCurPerMMXU9: Minimum load profile values (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	9	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU9	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 167: LpCurPerMMXU8: Average load profile values for export (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	8	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU8	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1



Table 168: LpCurPerMMXU7: Average load profile values for import (current period)

<b>prefix</b>	LpCurPer	
<b>InClass</b>	MMXU	
<b>inst</b>	7	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpCurPerMMXU7	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 169: LpPrevPerMMXU6: Maximum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	6	
<b>desc</b>	LP max	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU6	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAr	MV	Q
TotW	MV	P
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	MAX
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 170: LpPrevPerMMXU5: Minimum load profile values (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	5	
<b>desc</b>	LP min	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU5	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
VolAmpr	MV	Q
Watt	MV	P
VolAmp	MV	S
<b>Settings</b>		
ClcMth	ENG	MIN
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 171: LpPrevPerMMXU4: Average load profile values apparent power (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	4	
<b>desc</b>	LP avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVA	MV	S
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 172: LpPrevPerMMXU3: Average load profile values for export (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	3	
<b>desc</b>	LP exp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 173: LpPrevPerMMXU2: Average load profile values for import (previous period)

<b>prefix</b>	LpPrevPer	
<b>InClass</b>	MMXU	
<b>inst</b>	2	
<b>desc</b>	LP imp. avg	
<b>InName</b>	IED_nameMEAS/LpPrevPerMMXU2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotW	MV	P
TotVAr	MV	Q
<b>Settings</b>		
ClcMth	ENG	AVG
ClcSrc	ORG	IED_nameMEAS/PQA0MMXU1

Table 174: MMTR1: Metered values

<b>prefix</b>		
<b>InClass</b>	MMTR	
<b>inst</b>	1	
<b>desc</b>	Meter	
<b>InName</b>	IED_nameMEAS/MMTR1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS
SupWh	BCR	Counter ticks WP_sup
SupVArh	BCR	Counter ticks WQ_ind
DmdWh	BCR	Counter ticks WP_dmd
DmdVArh	BCR	Counter ticks WQ_cap

Table 175: TOUTariffMMTR1: Metering system energy time of use tariff 1

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	1	
<b>desc</b>	TOU tariff 1	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR1	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_1
SupWh	BCR	Counter ticks WP_SUP_TARIFF_1
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_1
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_1
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_1

Table 176: TOUTariffMMTR2: Metering system energy time of use tariff 2

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	2	
<b>desc</b>	TOU tariff 2	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR2	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_2
SupWh	BCR	Counter ticks WP_SUP_TARIFF_2
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_2
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_2
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_2

Table 177: TOUTariffMMTR3: Metering system energy time of use tariff 3

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	3	
<b>desc</b>	TOU tariff 3	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR3	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_3
SupWh	BCR	Counter ticks WP_SUP_TARIFF_3
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_3
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_3
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_3

Table 178: TOUTariffMMTR4: Metering system energy time of use tariff 4

<b>prefix</b>	TOUTariff	
<b>InClass</b>	MMTR	
<b>inst</b>	4	
<b>desc</b>	TOU tariff 4	
<b>InName</b>	IED_nameMEAS/TOUTariffMMTR4	
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
TotVAh	BCR	Counter ticks WS_TARIFF_4
SupWh	BCR	Counter ticks WP_SUP_TARIFF_4
SupVArh	BCR	Counter ticks WQ_IND_TARIFF_4
DmdWh	BCR	Counter ticks WP_DMD_TARIFF_4
DmdVArh	BCR	Counter ticks WQ_CAP_TARIFF_4

Table 179: PQA0MHAI1: 10/12 cycle harmonics

<b>prefix</b>		PQA0
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA0MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPhV	HWE	Sequence of harmonic/interharmonic voltages Va Sequence of harmonic/interharmonic voltages Vb Sequence of harmonic/interharmonic voltages Vc
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia THDR Ib THDR Ic
ThdPhV	WYE	THDR Va THDR Vb THDR Vc
ThdPPV	DEL	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	RMS_FUNDAMENTAL
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 180: PQA1MHAI1: 150/180 cycle harmonics

<b>prefix</b>		PQA1
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA1MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWYE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPhV	HWYE	Sequence of harmonic/interharmonic voltages Va Sequence of harmonic/interharmonic voltages Vb Sequence of harmonic/interharmonic voltages Vc
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDR Ia THDR Ib THDR Ic
ThdPhV	WYE	THDR Va THDR Vb THDR Vc
ThdPPV	DEL	THDR Vab THDR Vbc THDR Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 181: PQA2MHAI1: 10 minutes harmonics

<b>prefix</b>		PQA2
<b>InClass</b>		MHAI
<b>inst</b>		1
<b>desc</b>		Harmonics
<b>InName</b>		IED_nameMEAS/PQA2MHAI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
HA	HWE	Sequence of harmonic/interharmonic currents Ia Sequence of harmonic/interharmonic currents Ib Sequence of harmonic/interharmonic currents Ic
HPhV	HWE	Sequence of harmonic/interharmonic voltages Va Sequence of harmonic/interharmonic voltages Vb Sequence of harmonic/interharmonic voltages Vc
HPPV	HDEL	Sequence of harmonic/interharmonic voltages Vab Sequence of harmonic/interharmonic voltages Vbc Sequence of harmonic/interharmonic voltages Vca
Hz	MV	Basic frequency
ThdA	WYE	THDS Ia THDS Ib THDS Ic
TddA	WYE	TDD Ia TDD Ib TDD Ic
ThdPhV	WYE	THDS Va THDS Vb THDS Vc
ThdPPV	DEL	THDS Vab THDS Vbc THDS Vca
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MHAI1

Table 182: PQA2MFLK1: 10 minute short-term flicker

<b>prefix</b>		PQA2
<b>InClass</b>		MFLK
<b>inst</b>		1
<b>desc</b>		Flicker 10m
<b>InName</b>		IED_nameMEAS/PQA2MFLK1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PhPst	WYE	Pst (a-n) Pst (b-n) Pst (c-n)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 183: PQA3MFLK1: 2 hour long-term flicker

<b>prefix</b>		PQA3
<b>InClass</b>		MFLK
<b>inst</b>		1
<b>desc</b>		Flicker 2h
<b>InName</b>		IED_nameMEAS/PQA3MFLK1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
PhPlt	WYE	Plt (a-n) Plt (b-n) Plt (c-n)
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA2MFLK1

Table 184: PQA0MSQI1: 10/12 cycle voltage/current unbalance

<b>prefix</b>		PQA0
<b>InClass</b>		MSQI
<b>inst</b>		1
<b>desc</b>		Volt./cur. unbal.
<b>InName</b>		IED_nameMEAS/PQA0MSQI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
ImbNgA	MV	Neg. seq. comp. I
ImbNgV	MV	Neg. seq. comp. V
ImbZroA	MV	Zero seq. comp. I
ImbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	TRUE_RMS
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE

Table 185: PQA1MSQI1: 150/180 cycle voltage/current unbalance

<b>prefix</b>		PQA1
<b>InClass</b>		MSQI
<b>inst</b>		1
<b>desc</b>		Volt./cur. unbal.
<b>InName</b>		IED_nameMEAS/PQA1MSQI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
ImbNgA	MV	Neg. seq. comp. I
ImbNgV	MV	Neg. seq. comp. V
ImbZroA	MV	Zero seq. comp. I
ImbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	CYCLE
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1

Table 186: PQA2MSQI1: 10 minutes voltage/current unbalance

<b>prefix</b>		PQA2
<b>InClass</b>		MSQI
<b>inst</b>		1
<b>desc</b>		Volt./cur. unbal.
<b>InName</b>		IED_nameMEAS/PQA2MSQI1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Measured and metered values</b>		
lmbNgA	MV	Neg. seq. comp. I
lmbNgV	MV	Neg. seq. comp. V
lmbZroA	MV	Zero seq. comp. I
lmbZroV	MV	Zero seq. comp. V
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1



## 8.2 Power quality events detection related

Table 187: PQA\_QVVR1: Voltage variation

<b>prefix</b>		PQA_
<b>InClass</b>		QVVR
<b>inst</b>		1
<b>desc</b>		Volt. var.
<b>InName</b>		IED_nameMEAS/PQA_QVVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage variation
DipStr	SPS	Start: Voltage dip
SwlStr	SPS	Start: Voltage swell
IntrStr	SPS	Start: Voltage interruption
VVa 1)	MV	Highest or lowest voltage magnitude of the last completed event
VVaTm 1)	MV	Voltage variation duration of the last completed event
AffPhs 1)	ENS	Affected phase(s) of the last completed event

1) acc. to Tissue 952

Table 188: PQA\_QFVR1: Frequency variation

<b>prefix</b>		PQA_
<b>InClass</b>		QFVR
<b>inst</b>		1
<b>desc</b>		Freq. var.
<b>InName</b>		IED_nameMEAS/PQA_QFVR1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Frequency variation
UnHzStr	SPS	Start: Underfrequency
OvHzStr	SPS	Start: Overfrequency
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS

Table 189: PQA\_QVUB1: Voltage unbalance

<b>prefix</b>		PQA_
<b>InClass</b>		QVUB
<b>inst</b>		1
<b>desc</b>		Volt. unbal.
<b>InName</b>		IED_nameMEAS/PQA_QVUB1
<b>Data object name</b>	<b>Common data class</b>	<b>Description</b>
<b>Status information</b>		
VarStr	SPS	Start of event: Voltage unbalance variation
<b>Settings</b>		
ClcMth	ENG	AVG
ClcMod	ENG	PERIOD
ClcIntvTyp	ENG	MS
ClcSrc	ORG	IED_nameMEAS/PQA0MSQI1