

# Model Implementation Conformance Statement for the IEC 61850 Edition 2 server interface in MRZS-U

Version 1  
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## 1. Introduction

This model implementation conformance statement is applicable for MRZS-U, with firmware : 25.13.0.0

## 2. Logical Nodes List

The following table contains the list of logical nodes implemented in the device:

<b>L: System Logical Nodes</b>
<b>LPHD</b> (Physical device information)
<b>LLNO</b> (Logical node zero)
<b>G: Logical Nodes for generic references</b>
<b>GGIO</b> (Generic process I/O)
<b>GAPC</b> (Generic automatic process control)
<b>M: Logical Nodes for metering and measurement</b>
<b>MMXU</b> (Measurement)
<b>MSQI</b> (Sequence and imbalance)
<b>P: Logical Nodes for protection functions</b>
<b>PTOC</b> (Time overcurrent)
<b>PSDE</b> (Sensitive directional earthfault)
<b>PTOV</b> (Overvoltage)
<b>PTUV</b> (Undervoltage)
<b>PTUF</b> (Underfrequency)
<b>PTOF</b> (Overfrequency)
<b>R: Logical nodes for protection related functions</b>
<b>RADR</b> (Disturbance recorder channel analogue)
<b>RBDR</b> (Disturbance recorder channel binary)
<b>S: Logical Nodes for</b>
<b>SARC</b> (Monitoring and diagnostics for arcs)

### 3. New Logical Nodes

The following table use

- M: Data object is mandatory in the IEC 61850-7-4 ED.2.
- O: Data object is optional in the IEC 61850-7-4 ED.2 and is used in the device.
- E: Data object is an extension to the IEC 61850-7-4 ED.2.

#### LLNO

LLNO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
LLNO		Logical node zero		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_1	Name plate	M	

#### VTMMXU1 (VT1 measurements)

MMXU class				
Data object name	Common data class	Explanation	M/O/E	Remarks
MMXU		Measurement		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Measured values				
Hz	MV_1	Frequency	O	
PhV	WYE_0	Phase to ground voltages (VL1ER, ...)	O	
PPV	DEL_2	Phase to phase voltages(VL1, VL2, VL3)	O	

#### VTMMXU2 (VT2 measurements)

MMXU class				
Data object name	Common data class	Explanation	M/O/E	Remarks
MMXU		Measurement		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	

Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Measured values</b>				
PPV	DEL_1	Phase to phase voltages(VL1, VL2, VL3)	O	

#### SSTMMXU1 (SST measurements)

<b>MMXU class</b>				
<b>Data object name</b>	<b>Common data class</b>	<b>Explanation</b>	<b>M/O/E</b>	<b>Remarks</b>
MMXU		Measurement		
<b>Data objects</b>				
<b>Common Logical Node Information</b>				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Measured values</b>				
PPV	DEL_0	Phase to phase voltages(VL1, VL2, VL3)	O	

#### VTMSQI1 (Sequence and imbalance VT1)

<b>MSQI class</b>				
<b>Data object name</b>	<b>Common data class</b>	<b>Explanation</b>	<b>M/O/E</b>	<b>Remarks</b>
MSQI		Sequence and imbalance		
<b>Data objects</b>				
<b>Common Logical Node Information</b>				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Measured values</b>				
Seq_V	SEQ_0	voltage sequence	C	

#### CFGGIO1 (Communication function)

<b>GGIO class</b>				
<b>Data object name</b>	<b>Common data class</b>	<b>Explanation</b>	<b>M/O/E</b>	<b>Remarks</b>
GGIO		Communication function		

Data objects				
<b>Common Logical Node Information</b>				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Ind1 to Ind16	SPS_1	CF output	O	

**MMSRECGGIO1, MMSRECGGIO2 (MMS blocks single point)**

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		MMS blocks		
<b>Data objects</b>				
<b>Common Logical Node Information</b>				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Blk	SPS_1	Blocking signal	O	
<b>Controls</b>				
SPCSO1 to SPCSO8	SPC_3	Information inputs for receiving incoming MMS messages	O	

**MMSRECGGIO3, MMSRECGGIO4 (MMS blocks double point)**

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		MMS blocks		
<b>Data objects</b>				
<b>Common Logical Node Information</b>				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				

Blk	SPS_1	Blocking signal	O	
<b>Controls</b>				
DPCSO1, DPCSO3, DPCSO5, DPCSO7	DPC_1	Information inputs for receiving incoming MMS messages	O	

#### GSBIGGIO1 ... GSBIGGIO16 (GOOSE blocks)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		GOOSE blocks		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Blk	SPS_1	Blocking signal	O	
Ind1 to Ind8	SPS_2	data inputs for GOOSE messages	O	

#### BIGGIO1 (Digital inputs)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		Digital inputs		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Ind1 to Ind16	SPS_1	General indication: Digital inputs DI1-DI16	O	

#### BOGGIO1 (Relay outputs)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		Relay outputs		
Data objects				
Common Logical Node Information				

Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Ind1 to Ind16	SPS_1	General indication: Digital outputs DO1-DO16	O	

#### LEDGGIO1 (LED status)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		LED status		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Ind1 to Ind17	SPS_1	General indication: LEDs status from 1 to 15 and "Trip", "Start"	O	

#### FKGGIO1 (Functional key status)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		Functional key status		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Ind1 to Ind6	SPS_1	Functional key from 1 to 6 status	O	

#### DFGGIO1 (User defined function)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		User defined function		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Ind1 to Ind8	SPS_1	General indication: UD-Functions outputs status from 1 to 8	O	

#### DTGGIO1 (User defined trigger)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		User defined trigger		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
SPCSO1 to SPCSO4	SPC_0	General indication: UD-triggers inputs status from 1 to 4	O	

#### MFPGAPC1 ... MFPGAPC8 (Multi-function protection)

GAPC class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GAPC		Multi-function protection		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	

Status Information				
Str	ACD_0	MFP starting element operation signal	O	
Op	ACT_0	MFP operation signal	O	
Blk	SPS_1	Dynamic blocking of function	O	

**NSUPTOC1, NSUPTOC2 (Negative sequence overcurrent protection)**

PTOC class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PTOC		Negative sequence overcurrent protection		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Start	M	
Op	ACT_0	Operate	M	
Blk	SPS_1	Blocking for the signal presence time	O	

**GNRPTOV1, GNRPTOV2, GNRPTOV3 (Overvoltage protection)**

PTOV class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PTOV		Overvoltage		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Start	M	
Op	ACT_0	Operate	O	
Blk	SPS_1	Blocking for the signal presence time	O	

**GNRPTUV1, GNRPTUV2, GNRPTUV3 (Undervoltage protection)**

PTUV class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PTUV		Undervoltage		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Start	M	
Op	ACT_0	Operate	M	
Blk	SPS_1	Blocking for the signal presence time	O	

#### ADPTOV1 (OVP-aux)

PTOV class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PTOV		OVP-aux		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Start	M	
Op	ACT_0	Operate	O	
Blk	SPS_1	Blocking for the signal presence time	O	

#### GNRRADR1 (Disturbance recorder channel analogue)

RADR class				
Data object name	Common data class	Explanation	M/O/E	Remarks
RADR		Disturbance recorder channel analogue		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	

NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
ChTrg	SPS_1	Channel triggered	M	

#### GNRRBDR1 (Disturbance recorder channel binary)

RBDR class				
Data object name	Common data class	Explanation	M/O/E	Remarks
RBDR		Disturbance recorder channel binary		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
ChTrg	SPS_1	Channel triggered	M	

## 4. Extended Logical Nodes

#### LPHD1 (Physical devise information)

LPHD class				
Data object name	Common data class	Explanation	M/O/E	Remarks
LPHD		Physical devise information		
Data objects				
PhyNam	DPL_0	Physical device name plate	M	
Status Information				
PhyHealth	ENS_0	Physical device health	M	
Proxy	SPS_1	Indicates if this LN is a proxy	M	Defaulted to FALSE
FIt	SPS_0	General fault	E	
FItAlm	SPS_0	Emergence Fault	E	
ChgCfg	SPS_0	Settings change	E	
WrnSig	SPS_0	Warning signal	E	
EmgSig	SPS_0	Emergency signal	E	
Call	SPS_0	Call	E	
Emg	SPS_0	Alarm	E	
ExtAccBI	SPS_0	BI access	E	
ExtAccFK	SPS_0	Access button	E	

ExtAccLAN	SPS_0	LAN access	E	
ExtAccGOOSE	SPS_0	GOOSE access	E	
ExtAccUSB	SPS_0	USB access	E	
ExtAccRS485	SPS_0	RS-485	E	
<b>Controls</b>				
ClrInd	SPC_2	LED Reset	E	
ClrRele	SPC_2	Relay reset	E	

#### DLGGIO1 (User defined logic)

GGIO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GGIO		User defined logic		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
And1 to And8	SPS_0	General indication: Logic element "AND" status	E	
Or1 to Or8	SPS_0	General indication: Logic element "OR" status	E	
Not1 to Not16	SPS_0	General indication: Logic element "NOT" status	E	
Xor1 to Xor8	SPS_0	General indication: Logic element "XOR" status	E	

#### AFSLMMXU1 (ROCOF measurements)

MMXU class				
Data object name	Common data class	Explanation	M/O/E	Remarks
MMXU		Measurement		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Measured values				
HzChr1 ... HzChr8	MV_0	ROCOF(df/dt)1...8	E	

#### OASDFGAPC1 (Open automatic switch detection function)

GAPC class				
Data object name	Common data class	Explanation	M/O/E	Remarks
GAPC		Open automatic switch detection function		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	Status-only
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Starting element operation signal	O	
Op	ACT_0	Operation signal	O	
Blk	SPS_1	Dynamic blocking of function	O	
VTAutoSw	SPS_0	VT Automatic Switch	E	

**SEFPSDE1, SEFPSDE2 (Sensitive directional earth fault protection)**

PSDE class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PSDE		Sensitive directional earth fault protection		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	Status-only
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Start	M	
Blk	SPS_1	Blocking for the signal presence time	O	
StrU	ACD_1	Signal of the triggering of the earth fault protection trigger	E	
OpU	ACT_1	Voltage earth fault protection trip signal	E	

**VCOCPTUV1 (VC operability control)**

PTUV class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PTUV		VC operability control		
Data objects				
Common Logical Node Information				

Mod	ENC_0	Mode	M	Status-only
ModMalfVCM	ENC_2	Mode Vm VC Malfunc	E	
ModMalfVCAd	ENC_2	Mode Vaux VC Malfunc	E	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Str	ACD_0	Start	M	
Op	ACT_0	Operate	M	
Blk	SPS_1	Blocking for the signal presence time	O	
DBlkMalfVCM	SPS_0	Vm VC Malfunc Dblk	E	
BlkMalfVCAd	SPS_0	Vad VC Malfunc Blk	E	
OpVCOOC	ACT_1	VC Operability Control	E	
OpMalfVCAd	ACT_1	Vaux VC Malfunc	E	
OpMalfVCM	ACT_1	Vm VC Malfunc	E	
StrMalfVCM	ACD_1	Vm VC Malfunc Start	E	
StrMalfVCAd	ACD_1	Vaux VC Malfunc Start	E	

**AFSLPTUF1, AFSLPTUF2, AFSLPTUF3, AFSLPTUF4 (Load-frequency control and frequency auto reclosing)**

<b>PTUF class</b>				
<b>Data object name</b>	<b>Common data class</b>	<b>Explanation</b>	<b>M/O/E</b>	<b>Remarks</b>
PTUF		Load-frequency control and frequency auto reclosing		
<b>Data objects</b>				
<b>Common Logical Node Information</b>				
Mod	ENC_0	Mode	M	Status-only
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
<b>Status Information</b>				
Str	ACD_0	Start	M	not defined
Op	ACT_0	Operate	M	not defined
BlkLFC	SPS_0	LFC static blocking signal	E	
BlkU	SPS_0	LFC Blk via V	E	
StrLFC	ACD_1	LFC starting element operation signal	E	
StrHzChr	ACD_1	LFC dfdt St	E	

**FARPTOF1, FARPTOF2, FARPTOF3, FARPTOF4 (Frequency-actuated automatic reclosing)**

PTOF class				
Data object name	Common data class	Explanation	M/O/E	Remarks
PTOF		Frequency-actuated automatic reclosing		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	Status-only
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
Str	ACD_0	Start	M	not defined
Op	ACT_0	Operate	M	not defined
Blk	SPS_1	FAR blocking signal	O	
BlkU	SPS_0	FAR Blk via V	E	
StrRel	ACD_1	Far Rel start	E	
StrHzChr	ACD_1	FAR dfdt St	E	
Rel	SPS_0	FAR Rel	E	
RelOp	ACT_1	FAR Rel/Op	E	

#### AFDSARC1 (Arc fault detector)

SARC class				
Data object name	Common data class	Explanation	M/O/E	Remarks
SARC		Arc fault detector		
Data objects				
Common Logical Node Information				
Mod	ENC_0	Mode	M	
Beh	ENS_1	Behaviour	M	
Health	ENS_0	Health	M	
NamPlt	LPL_0	Name plate	M	
Status Information				
FADet	SPS_1	Fault arc detected (signal: the presence of arc light is determined by a discrete signal from the BI)	M	
Blk	SPS_1	AFD stage static blocking signal	O	
FADetF1 ... FADetF3	SPS_0	Fault arc detected (fiber)	E	
FAStr	ACD_1	AFD stage starting element operation signal	E	
FAOp	ACT_1	AFD stage operation signal	E	
FAStrBI	ACD_1	AFD trigger signal from external arc protection sensor	E	

Controls				
FACntRs	INC_0	Fault arc counter	M	