1MRS 752228-ECC

Template Configuration Chart (example) IEC_103/SPA Gateway

SPA-ZC 20_

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We reserve the right to change data without prior notice.

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Introduction

The information asked in this document will be used when making templates that are downloaded to the IEC_103/SPA Gateway (ISG). Please, consult also the provider of the IEC 60870-5-103 master system in order to get information concerning e.g. the use of private ranges (Function Types and Information Numbers) and class 2 data frames.

This form should be filled in for each different configuration needed. In case you need only a modification of an existing template, please indicate the changes requested. The chart can be filled in electronically or in paper format and returned by email or fax.

Note that columns marked *(optional)* are not obligatory to fill in but it is recommended.

System description

In order to get an overview of the system a description is useful. It will help in understanding the needs and finding the solutions.

Contact person for more information:	...
Telephone number:	...
Fax number:	...
Email address:	...
Company:	ISG Template Development Company
Project name:	Greenbay 2, stations 1...8

Project time table:	ISGs and communication part ready xx.xx.200x
Name of the IEC_103 master system:	IEC_103 Example System (MicroSCADA)
Communication gateways if used:	No

If available, attach a system overview drawing, where the interconnection of the system parts is shown. Make also an overview of the system describing the relay types and the amount of them.

Relay module table

Give relay name, relay modules and possible E-version number. Also, give C number, e.g. SPAA 341 C1, SPAC 535 C5 etc.

Relay name:

Unit Index	Relay module	SPA Slave Address
0	SPTO 1D2	1
1	SPCJ 4D29	2
2		
3		
4		

Class 2 data frame definition

The IEC 60870-5-103 standard includes the following data frames.

Information Number	Description
144	Measurand I
145	Measurands I,V
146	Measurands I,V,P,Q
147	Measurands In,Ven
148	Measurands IL1,IL2,IL3,VL1,VL2,VL3,P,Q,f

Note! In the standard frames the measurands have the position as given in the table above. Regarding the information number 148, the IEC/SPA Gateway does not support sending of the ninth measurand. Private frames can be defined if supported by the IEC_103 master. The position for a measurand is defined in the next section.

**Template Configuration
Chart (example)**

Class 2 data definitions

Give the analogue type of data to be polled from the SPA device. Up to 8 data can be defined.

No	Relay module	Measurement	SPA data	Func. type (optional)	Inf. num. (optional)	POS in frame (optional)
1	SPCJ 4D29	I_{L1}	0I1	135	140	1
2	SPCJ 4D29	I_{L2}	0I2	"	"	2
3	SPCJ 4D29	I_{L3}	0I3	"	"	3
4	SPCJ 4D29	I_0	0I4	"	"	4
5	SPCJ 4D29	-	-	"	"	5
6						
7						
8						

Explanations to the columns in the table above:

Relay module	Relay module from which data is derived.
Measurement	SPA data in relay module to be polled by the ISG.
SPA data	Parameter for polling, listed in the relay manuals.
Function type	To be given if known or specified by the IEC_103 master. When the function type field is empty it will be given by the template provider either as a standard function type if available or a new FT from the private range. Note! Only one FT per class 2 data frame.
Information number	To be given if known or specified by the IEC_103 master. When the information number field is empty it will be given by the template provider either as a standard Info Num if available or a new Info Num from the private range. Note! Only one IN per class 2 data frame.
POS in frame	Is given for the defining position in the frame, if other than position used in standard frames. There are standard frames and private frames. This position is important for the receiver of the data frames, i.e. the IEC_103 master.

Class1 data

In this table you give two type of definitions:

A) events to be reported to the IEC_103 master

B) digital inputs, e.g. status of input channels, status of disconnectors, circuit breakers etc.

Up to 16 data can be defined.

No	Relay module	Signal name	SPA data	SPA event	Func. type (optional)	Inf. num. (optional)	GI Yes = 1
1	SPCJ 4D29	I>Start	0O1	0E1/2	160	84	1
2	SPCJ 4D29	I>Trip	-	0E3/4	160	90	0
3	SPCJ 4D29	I>>Start	0O3	0E5/6	162	94	1
4	SPCJ 4D29	I>>Trip	-	0E7/8	160	91	0
5	SPCJ 4D29	I_0>Start	0O5	0E9/10	160	67	1
6	SPCJ 4D29	I_0>Trip	-	0E11/12	160	92	0
7	SPCJ 4D29	I_0>>Start	0O7	0E13/14	162	95	1
8	SPCJ 4D29	I_0>>Trip	-	0E15/16	160	93	0
9	SPTO 1D2	Q0, CB1Pos	2I1	-	240	160	1
10	SPTO 1D2	Q1, DCPos	1I1	-	240	161	1
11	SPTO 1D2	Q8, EarthPos	3I1	-	240	164	1
12	SPTO 1D2	LocalState	0V6	-	250	220	1
13	SPCJ 4D29	Main settings	0V150	-	160	23	1
14	SPCJ 4D29	Second settings	0V150	-	160	24	1
15							
16							

Explanations to the columns in the table above:

Relay module	Relay module from which data is derived.
Signal name	Description of signal
SPA data	Parameter for polling, listed in the relay manuals.
SPA event	Event number for data, listed in the relay manuals. Give also the channel number.
Function type	To be given if known or specified by the IEC_103 master. When the function type field is empty, it will be given by the template provider either as a standard function type if available or a new FT from the private range. See note.

Template Configuration
Chart (example)

Information number	To be given if known or specified by the IEC_103 master. When the information number field is empty, it is will be given by the template provider either as a standard Info Num if available or a new Info Num from the private range. See note. **Note!** The function type and information number pairs for each SPA Data definition has to be unique.
General Interrogation (GI)	Is the data to be polled by general interrogation? Used for digital input data.

Control data

Up to 6 control data can be defined.

No	Relay module	Signal	Func. type (optional)	Inf. num. (optional)	SPA data	IEC_103 command and SPA value (optional)			
						ON	SPA value	OFF	SPA value
1	SPCJ AD29	LED reset	160	19	0V101	X	1		
2	SPCJ AD29	Main settings	160	23	0V150	X	0		
3	SPCJ AD29	Second settings	160	24	0V150	X	1		
4	SPTO 1D2	Q0, CB1 control	240	160	2O1	X	1	X	0
5									
6									

Explanations to the columns in the table above:

Relay module	Relay module from which data is derived.
Signal name	Description of signal
Function type	To be given if known or specified by the IEC_103 master. When the information number field is empty it is will be given by the template provider either as a standard Info Num if available or a new Info Num from the private range.
Information number	To be given if known or specified by the IEC_103 master. When the function type field is empty it will be given by the template provider either as a standard function type if available or a new FT from the private range.
SPA data	Parameter for polling, listed in the relay manuals. Also give channel number.
IEC_103 command and SPA value	Control commands are on the IEC_103 side sent either as an ON or an OFF value. In this column you can by marking "x" indicate if the control operation is carried out by an ON or an OFF only or upon both commands. In case both ON and OFF are to be sent, you need to specify what action ON and OFF respectively stands for. The value to be send to the SPA side device can be given if known.

Chart signing

Place and date: ...

Made by: ...

Additional information