IEC 60870-5-104 Controlled Station Interoperability com.tom CODESYS 7.6.0

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Version
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Autor
jtz/dip/jhe

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1 Interoperability

The interoperability list is defined as in IEC 60870-5-101 and extended with parameters used in this standard. The text descriptions of parameters which are not applicable to this companion standard are strike-through (corresponding check box is marked black).

This interoperability checklist presents the currently supported functionalities of the BECK IPC IEC60870-5-104 implementation.

Symbol definition in this document:

- ☑ function is supported
- ☐ function isn't supported
- ■ function isn't supported and isn't defined in the specification

2 History

Ver.	Date	Author	Change
0.1	29.06.2012	dip	First version
0.2	04.02.14	jtz/dip	ADSUs: <15>, <20>, <50>, <58>… <60>
0.3	18.05.2015	jhe	Remove <103> Clock synchronization command
0.4	26.05.2015	jhe	Add <58> - <61>
0.5	14.07.2015	jhe	Change supported version from 7.8.0 to 7.6.0

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3 IEC 60870-5-104 Interoperability

3.1 System or Device

- ☐ System definition
- ☐ Controlling station definition (master/client)
- ☑ Controlled station definition (slave/server)

3.2 Network Configuration

- ■ ~~Point-to-point~~
- ■ ~~Multiple point-to-point~~
- ■ ~~Multipoint~~
- ☐ ~~Multipoint-star~~

3.3 Physical Layer

3.3.1Transmission speed

Unbalanced interchange Circuit V.24/V.28 Standard	Unbalanced interchange Circuit V.24/V.28 Recommended if >1200 bit/s	Balanced interchange Circuit X.24/X.27
■ 100 bit/s ■ 200 bit/s ■ 300 bit/s ■ 600 bit/s ■ 1200 bit/s	■ 2400 bit/s ■ 4800 bit/s ■ 9600 bit/s	■ 2400 bit/s ■ 4800 bit/s ■ 9600 bit/s ■ 19200 bit/s ■ 38400 bit/s ■ 56000 bit/s ■ 64000 bit/s

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3.4 Link Layer

3.4.1 Link Transmission Procedure

- ■ ~~Unbalanced Transmission~~
- ■ ~~Balanced Transmission~~

3.4.2 Address Field of the Link

- ■ ~~One Octet~~
- ■ ~~Structured~~
- ■ ~~Two Octet~~
- ■ ~~Unstructured~~

3.4.3 Telegram Length

- ■ ~~Maximum characters (Number of Octets)~~

3.5 Application Layer

3.5.1Transmission mode for application data

Mode 1 (least significant octet first) as defined in 4.10 of IEC 60870-5-4, is used exclusively in this companion standard.

3.5.2 Common Address of ASDU

- ☐ One octet
- ☑ Two octets

3.5.3 Information Object Address

- ☐ One octet
- ☐ Two octets
- ☑ Three octets
- ☑ Structured
- ☑ Unstructured

3.5.4 Cause of Transmission

- ☐ One octet
- ☑ Two octets (with originator address) Originator address is set to zero if not used

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3.5.5 Length of APDU

(system-specific parameter, specify the maximum length of the APDU per system)

The maximum length of the APDU is 253 (default). The maximum length may be reduced by the system.

253	Maximum length of APDU per system

3.5.6 Selection of standard ADSUs

3.5.6.1 Process information in monitor direction

☑	<1>	:= Single-point information	M_SP_NA_1
■	<2>	~~:= Single-point information with time tag~~	~~M_SP_TA_1~~
☑	<3>	:= Double-point information	M_DP_NA_1
■	<4>	~~:= Double-point information with time tag~~	~~M_DP_TA_1~~
☑	<5>	:= Step position information	M_ST_NA_1
■	<6>	~~:= Step position information with time tag~~	~~M_ST_TA_1~~
☑	<7>	:= Bitstring of 32 bit	M_BO_NA_1
■	<8>	~~:= Bitstring of 32 bit with time tag~~	~~M_BO_TA_1~~
☑	<9>	:= Measured value, normalized value	M_ME_NA_1
■	<10>	~~:= Measured value, normalized value with time tag~~	~~M_ME_TA_1~~
☐	<11>	:= Measured value, scaled value	M_ME_NB_1
■	<12>	~~:= Measured value, scaled value with time tag~~	~~M_ME_TB_1~~
☐	<13>	:= Measured value, short floating point value	M_ME_NC_1
■	<14>	:= Measured value, short floating point value with time tag	M_ME_TC_1
☐	<15>	:= Integrated totals	M_IT_NA_1
■	<16>	~~:= Integrated totals with time tag~~	~~M_IT_TA_1~~
■	<17>	~~:= Event of protection equipment with time tag~~	~~M_EP_TA_1~~
■	<18>	~~:= Packed start events of protection equipment with time tag~~	~~M_EP_TB_1~~
■	<19>	:= Packed output circuit information of protection equipment with time tag	M_EP_TC_1
☐	<20>	:= Packed single-point information with status change detection – von lib n. supportet	M_PS_NA_1
☐	<21>	:= Measured value, normalized value without quality descriptor	M_ME_ND_1
☑	<30>	:= Single-point information with time tag CP56Time2a	M_SP_TB_1
☑	<31>	:= Double-point information with time tag CP56Time2a	M_DP_TB_1
☐	<32>	:= Step position information with time tag CP56Time2a	M_ST_TB_1
☑	<33>	:= Bitstring of 32 bit with time tag CP56Time2a	M_BO_TB_1

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☑	<34>	:= Measured value, normalized value with time tag CP56Time2a	M_ME_TD_1
☐	<35>	:= Measured value, scaled value with time tag CP56Time2a	M_ME_TE_1
☑	<36>	:= Measured value, short floating point value with time tag CP56Time2a	M_ME_TF_1
☑	<37>	:= Integrated totals with time tag CP56Time2a	M_IT_TB_1
☐	<38>	:= Event of protection equipment with time tag CP56Time2a	M_EP_TD_1
☐	<39>	:= Packed start events of protection equipment with time tag CP56Time2a	M_EP_TE_1
☐	<40>	:= Packed output circuit information of protection equipment with time tag CP56Time2a	M_EP_TF_1

Either ASDUs of the set <2>, <4>, <6>, <8>, <10>, <12>, <14>, <16>, <17>, <18>, <19> or of the set <30> – <40> are used.

3.5.6.2 Process information in control direction

☑	<45>	:= Single command	C_SC_NA_1
☑	<46>	:= Double command	C_DC_NA_1
☑	<47>	:= Regulating step command	C_RC_NA_1
☑	<48>	:= Set point command, normalized value	C_SE_NA_1
☐	<49>	:= Set point command, scaled value	C_SE_NB_1
☑	<50>	:= Set point command, short floating point value	C_SE_NC_1
☐	<51>	:= Bitstring of 32 bit	C_BO_NA_1

Either the ASDUs of the set <45> – <51> or of the set <58> – <64> are used.

☑	<58>	:= Single command with time tag CP56Time2a vorhanden zu impl.	C_SC_TA_1
☑	<59>	:= Double command with time tag CP56Time2a vorhanden zu impl.	C_DC_TA_1
☑	<60>	:= Regulating step command with time tag CP56Time2a vorhanden zu impl.	C_RC_TA_1
☑	<61>	:= Set point command, normalized value with time tag CP56Time2a	C_SE_TA_1
☐	<62>	:= Set point command, scaled value with time tag CP56Time2a	C_SE_TB_1
☐	<63>	:= Set point command, short floating point value with time tag CP56Time2a	C_SE_TC_1
☐	<64>	:= Bitstring of 32 bit with time tag CP56Time2a	C_BO_TA_1

3.5.6.3 System information in the monitor direction

☑	<70>	:= End of initialization	M_EI_NA_1

3.5.6.4 System information in the control direction

☑	<100>	:= Interrogation command	C_IC_NA_1

☑	<101>	:= Counter interrogation command	C_CI_NA_1
☐	<102>	:= Read command	C_RD_NA_1
☐	<103>	:= Clock synchronization command	C CS NA 1
■	<104>	~~:= Test command~~	~~C_TS_NA_1~~
☑	<105>	:= Reset process command	C_RP_NA_1
■	<106>	~~:= Delay acquisition command~~	~~C_CD_NA_1~~
☐	<107>	Test command with time tag CP56Time2a	C_TS_TA_1

3.5.6.5 Parameter in control direction

☐	<110>	:= Parameter of measured value, normalized value	P_ME_NA_1
☐	<111>	:= Parameter of measured value, scaled value	P_ME_NB_1
☐	<112>	:= Parameter of measured value, short floating point value	P_ME_NC_1
☐	<113>	:= Parameter activation	P_AC_NA_1

3.5.6.6 File Transfer

☐	<120>	:= File ready	F_FR_NA_1
☐	<121>	:= Section ready	F_SR_NA_1
☐	<122>	:= Call directory, select file, call file, call section	F_SC_NA_1
☐	<123>	:= Last section, last segment	F_LS_NA_1
☐	<124>	:= Ack file, ack section	F_AF_NA_1
☐	<125>	:= Segment	F_SG_NA_1
☐	<126>	:= Directory ☐ or ☑ only available in monitor (standard) direction	F_DR_TA_1

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