



## Interoperability List IEC 60870-5-103

### REG-P

### History of document

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**Document changes/updates**

(The overview contains only the changes concerning the released/distributed document)

Changed chapters /pages	Responsibility	Version	Reason of change / change request
All chapters	Borchers	1.0	Review
All chapters	Borchers	1.1	Baud rate corrected, increased set-point types, measurand type 11 and 12, new company profile

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## 1. Interoperability list

### 1.1 Physical layer

#### 1.1.1 Electrical Interface

- EIA RS-485
- EIA RS-232
- 10-20mA

#### 1.1.2 Optical interface

- Glass fibre
- Plastic fibre ,please order separately
- F-SMA type connector
- ST type connector

#### 1.1.3 Transmission speed

- 100 bit/s
- 200 bit/s
- 300 bit/s
- 600 bit/s
- 1200 bit/s
- 2400 bit/s
- 4800 bit/s
- 9600 bit/s
- 19200 bit/s

## 1.2 Application layer

### 1.2.1 Transmission 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.

### 1.2.2 COMMON ADDRESS of ASDU

One COMMON ADDRESS OF ASDU (identical with station address)

### 1.2.3 Selection of standard information numbers in monitor direction

#### System functions in monitor direction

INF	Semantics
<input checked="" type="checkbox"/>	<0>:= End of general interrogation
<input checked="" type="checkbox"/>	<1>:= Time synchronization
<input checked="" type="checkbox"/>	<2>:= Reset FCB
<input checked="" type="checkbox"/>	<3>:= Reset CU
<input checked="" type="checkbox"/>	<4>:= Start/restart
<input checked="" type="checkbox"/>	<5>:= Power on

#### Status indications in monitor direction

INF	Semantics
<input checked="" type="checkbox"/>	<16:= Auto/Man, Rückmeldung Hand/Auto
<input type="checkbox"/>	<17:= Teleprotection active
<input type="checkbox"/>	<18:= Protection active
<input type="checkbox"/>	<19:= LED reset
<input type="checkbox"/>	<20:= Monitor direction blocked
<input type="checkbox"/>	<21:= Test mode
<input type="checkbox"/>	<22:= Local parameter setting
<input type="checkbox"/>	<23:= Characteristic 1
<input type="checkbox"/>	<24:= Characteristic 2
<input type="checkbox"/>	<25:= Characteristic 3
<input type="checkbox"/>	<26:= Characteristic 4
<input type="checkbox"/>	<27:= Auxiliary input 1
<input type="checkbox"/>	<28:= Auxiliary input 2
<input type="checkbox"/>	<29:= Auxiliary input 3
<input type="checkbox"/>	<30:= Auxiliary input 4
<input checked="" type="checkbox"/>	<31:= running tap, Laufflampe

### Supervision indications in monitor direction

INF	Semantics
<input checked="" type="checkbox"/>	<32:= 24V Automat
<input checked="" type="checkbox"/>	<34:= Lauflampe MaxZeit
<input checked="" type="checkbox"/>	<35:= Parallelprogramm läuft j/n
<input checked="" type="checkbox"/>	<36:= >U j/n
<input checked="" type="checkbox"/>	<37:= <U j/n
<input checked="" type="checkbox"/>	<38:= Schnellschaltung j/
<input checked="" type="checkbox"/>	<39:= Auslösung j/n
<input checked="" type="checkbox"/>	<40:= Stillsetzung j/n
<input type="checkbox"/>	<47:= Group alarm

### Fault indications in monitor direction

INF	Semantics
<input type="checkbox"/>	<44>:= U >
<input type="checkbox"/>	<45>:= U <
<input type="checkbox"/>	<46>:= I >
<input type="checkbox"/>	<49>:= Error regulator
<input type="checkbox"/>	<50>:= Verzögerungsart linear/integral
<input type="checkbox"/>	<51>:= Regelverzögerung2 ein/aus
<input type="checkbox"/>	<52>:= Anzeige V/kV
<input type="checkbox"/>	<53>:= Meßschaltung A/C
<input checked="" type="checkbox"/>	<54>:= Stufenstellung / Tap position (wird im Meßwertblock übertragen)

### REG-P specifics in control direction

INF	Semantics
<input checked="" type="checkbox"/>	<55:= Rated value 1, Sollwert 1
<input checked="" type="checkbox"/>	<56:= Rated value 2, Sollwert 2
<input type="checkbox"/>	<57:= Rated value 3
<input type="checkbox"/>	<59:=
<input type="checkbox"/>	<60:= Delay 1
<input type="checkbox"/>	<61:= Delay 2
<input type="checkbox"/>	<62:= U <

### Fault indications in monitor direction

#### INF Semantics

- <64>:= U>
- <65>:= Überspannung max.
- <66>:= Unterspannung max.
- <67>:= Schnellregelung rück
- <68>:= Schnellregelung vor
- <69>:= Kreisblindstrom max.
- <70>:=
- <71>:=
- <72>:= K-factor
- <73>:= Factor adjust-kv
- <74>:= UX
- <75>:= UR
- <76>:= Loadshedding 1
- <77>:= Loadshedding 2
- <78>:= Loadshedding 3
- <79>:=
- <80>:= Zone 3
- <81>:= Zone 4
- <82>:= Zone 5
- <83>:= Zone 6
- <84>:= General start/pick-up
- <85>:= Breaker failure
- <86>:= Trip measuring system L<sub>1</sub>
- <87>:= Trip measuring system L<sub>2</sub>
- <88>:= Trip measuring system L<sub>3</sub>
- <89>:= Trip measuring system E
- <90>:= Trip I>
- <91>:= Trip I>>
- <92>:= rip IN>
- <93>:= Trip IN>>



### Auto-reclosure indications in monitor direction

**INF    Semantics**

- <128>:= CB 'on' by AR
- <129>:= CB 'on' by long-time AR
- <130>:= AR blocked

### Measurands in monitor direction

**INF    Semantics**

- <144>:= Measurand
- <145>:= Measurands I, V
- <146>:= Measurands I, V, P, 0
- <147>:= Measurands  $I_N, V_{EN}$
- <148>:= Measurands  $I_{L1,2,3}, V_{L1,2,3}, P, Q, f$

### Generic functions in monitor direction

**INF    Semantics**

- <240>:= Read headings of all defined groups
- <241>:= Read values or attributes of all entries of one group
- <243>:= Read directory of a single entry
- <244>:= Read value or attribute of a single entry
- <245>:= End of general interrogation of generic data
- <249>:= Write entry with confirmation
- <250>:= Write entry with execution
- <251>:= Write entry aborted

### 1.2.4 Selection of standard information numbers in control direction

#### System functions in control direction

**INF Semantics**

- <0>:= Initiation of general interrogation
- <0>:= Time synchronization

#### General commands in control direction

**INF Semantics**

- <16>:= Auto/Man, Umschaltung Hand / Auto
- <17>:= higher tap, Trafo höher
- <18>:= lower tap, Trafo tiefer
- <55>:= Rated value 1 select, Sollwert1 aktivieren
- <56>:= Rated value 2 select, Sollwert2 aktivieren
- <57>:= Rated value X select, X= 1..4, Sollwertanwahl als Messwert
- <65>:= Grenzwert Überspannung

### 1.2.5 Basic application functions

- Test mode
- Blocking of monitor direction
- Disturbance data
- Generic services
- Private data

### 1.2.6 Miscellaneous

Measurands are transmitted only in case of a modification of any measurand of described block.



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