SIPROTEC

Overcurrent Time Protection 7SJ80

Motor Protection 7SK80

Voltage and Frequency Protection

7RW80

Communication Modules

PROFIBUS DP
Bus mapping

Edition: September 2014

C53000-L2140-A320-4

Preface

Purpose of this manual

This manual describes the data in the messages of the PROFIBUS DP slave for the SIPROTEC devices 7SJ80, 7SK80 and 7RW80.

It is divided into the following topics:

- Data in the PROFIBUS DP messages $\rightarrow$ Chapter 1,
- Standard mapping 3-1 $\rightarrow$ Chapter 2,
- Standard mapping 3-2 $\rightarrow$ Chapter 3,
- Standard mapping 3-3 -> Chapter 4.

General information on the operation, assembly, commissioning and configuration of the SIPROTEC devices you find in the following manuals:

Manual	Order number
SIPROTEC 4 System Description	E50417-H1176-C151
7SJ80 Device Manual	E50417-G1140-C343
7SK80 Device Manual	E50417-G1140-C344
7RW80 Device Manual	C53000-G1140-C233

PROFIBUS DP communication profile

The following manual informs you about bus-specific parameters, data type definitions, settings and hardware description of the PROFIBUS DP communication modules for SIPROTEC devices:

Manual	Order number
SIPROTEC Communication module, PROFIBUS DP - Communication profile	C53000-L1840-B001-03

You can order the manuals

via the internet under **http://www.siprotec.com**

or contact your local Siemens representative.

PROFIBUS DP specification

The PROFIBUS DP specification and the structure of the PROFIBUS DP messages are defined in the international standards:

❑ IEC 61158
"Digital data communications for measurement and control -
Fieldbus for use in industrial control systems"
Communication profile type 3

❑ IEC 61784
"Digital data communications for measurement and control"
Communication profile family CPF3/1

Validity of this manual

This manual is valid for the SIPROTEC devices:

- 7SJ80 (Firmware version V4.60 or higher),
- 7SK80 (Firmware version V4.60 or higher)
- 7RW80 /Firmware version V4.60 or higher)

with

- PROFIBUS DP communication module firmware version 04.03.01 or higher.

Note:

With the 7SJ80, 7SK80 and 7RW80 SIPROTEC devices, only PROFIBUS DP communication modules of hardware version 4 or higher are used (for a description of the hardware versions of the PROFIBUS DP communication modules, ref. to manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile").

The following have to be used for device parameterization:

- DIGSI version 4.82 or higher,
- PROFIBUS DP Standard mappings 3-1, 3-2 and 3-3 for 7SJ80, 7SK80 and 7RW80.

Additional support

For questions regarding the SIPROTEC system, please contact your Siemens representative.

Training courses

Individual course offerings may be found in our Training Catalog, or questions may be directed to our Training Center in Nuremberg.

Target audience

Protection engineers, commissioning engineers, personnel concerned with adjustment, checking, and service of selective protective equipment, automatic and control facilities, and personnel of electrical facilities and power plants.

Warning!

During operation of electrical equipment, certain parts of these devices are under high voltage. Severe personal injury or property damage can result if the device is not handled properly.

Only qualified personnel should work on this equipment or in the vicinity of this equipment. These personnel must be familiar with all warnings and service procedures described in this manual, as well as with safety regulations.

Prerequisites to proper and safe operation of this device are proper transport, proper storage, setup, installation, operation, and maintenance of the device, as well as careful operation and servicing of the device within the scope of the warnings and instructions of this manual.

In particular, the general facility and safety regulations for work with high-voltage equipment (e.g. ANSI, IEC, EN, or other national or international regulations) must be observed. Noncompliance may result in death, injury or significant equipment damage.

QUALIFIED PERSONNEL

Within the meaning of safety precautions of this manual and the instructions, qualified personnel are those persons who are qualified to set up, install, place into service, and operate this device, and who possess the following qualifications:

- Training and instruction (or other qualification) for switching, grounding, and designating devices and systems.

- Training or instruction in accordance with safety standards for care and use of certain safety equipment.

- First aid training.

Typographic and graphical conventions

The following text formats are used to identify concepts giving device information described by the text flow:

Parameter names, or identifiers for configuration or function parameters that appear in the device display or on the screen of a PC (with DIGSI$^®$) are shown in mono-script (same point size) bold text. This also applies to header bars for selection menus.

Parameter conditions, or possible settings of parameters that appear in the device display or on the screen of a PC (with DIGSI), are additionally shown in italic style. This also applies to selection items for selection menus.

"Annunciations", or identifiers for information produced by the device or required by other devices or from the switchgear is shown in mono-script (same point size) and placed into quotation marks.

For diagrams in which the identifier type results from the representation itself, text conventions may differ from the above-mentioned.

■

Revision index

Listing of the changes between the editions of this manual:

Modified chapters / pages	Edition	Reasons of modification
	1	First edition, doc. no.: C53000-L2140-A320-1 15.09.2008
4, 26, 36	2	Correction, doc. no.: C53000-L2140-A320-2 10.10.2008
7RW80 added	3	Correction, doc. no.: C53000-L2140-A320-3 29.09.2010
Chapter 4	4	Correction, doc. no.: C53000-L2140-A320-4 03.09.2014

∎

Table of contents

Data in the PROFIBUS DP messages

1

This chapter gives explanations to the descriptions of the Profibus DP messages' data of the standard mapping and notes on the evaluation of selected SIPROTEC objects and on the configuration of the standard mapping in the PROFIBUS DP master.

1.1   Explanations

Chapters 2 to 3 define the data area of the PROFIBUS DP messages for data transfer between the PROFIBUS DP slave of the SIPROTEC devices 7SJ80, 7SK80, 7RW80 and the PROFIBUS DP master.

Chapter 4 defines the data area of the PROFIBUS DP messages for data transfer between the PROFIBUS DP slave of the SIPROTEC devices 7SJ80, 7SK80, 7RW80 and the PROFIBUS DP master.

The SIPROTEC objects listed in the PROFIBUS DP messages' data area are sorted by byte offset, beginning with 0.

Variables with data type greater than or equal to 1 byte

The offset defines the start of the most significant byte in the message, e.g.:

Offset	Designation of the SIPROTEC objects	Comment	Scaling (32767 corresponds to ...)	Internal object no.
10	Ia =	Current in phase A	3276.7 A	601

The measured value "I_a" is assigned to data byte 10 (most significant byte of the measured value) and data byte 11 (least significant byte of the measured value) in the PROFIBUS DP message.

Bit variables (SP/SC, DP/DC)

The offset indicates the byte which contains the bit value and the position of bit 0 of the bit variable, e.g. (input message):

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
0 / 0	Breaker ON/OFF OFF	Circuit breaker	-
0 / 1	Breaker ON/OFF ON		

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	50(N)/51(N)TRIP	1 = 50(N)/51(N) TRIP	1791

The checkback signal from the circuit breaker (as double-point indication) is located in data byte 0, bit position 2^0 (bit 0) and 2^1 (bit 1).

The single-point indication "50(N)/51(N)TRIP" is located in byte 2, bit position 2^0.

Note:

The definition of the data types (double-point indication, single-point indication, measured value, metered measurands etc.) and information on setting parameters in DIGSI are contained in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile" (ref. to page 3).

1.2 Messages in output direction: PROFIBUS DP master to SIPROTEC device

The messages in PROFIBUS DP output direction (ref. to chap. 2.1, 3.1 and 4.1) allow:

- command outputs through the output relays of the SIPROTEC devices (external commands),

- manipulation of taggings that can be changed with PROFIBUS DP (internal commands).

Note:

- The allocation of the output relays to the switching devices and to the output channels is defined during the parameterization of the SIPROTEC devices.

- Depending on the device type and device composition, there may be less than indicated output relays (and corresponding PROFIBUS DP message positions) available in the SIPROTEC device.

1.3 Messages in input direction: SIPROTEC device to PROFIBUS DP master

The messages in PROFIBUS DP input direction (ref. to chap. 2.2, 3.2 and 4.2) allow:

- polling of switching devices' status and binary inputs,

- transmission of annunciations, measured values and metered measurands to the PROFIBUS DP master.

1.3.1 Annunciations

Note:

- The allocation of the input channels to the binary inputs is defined during the parameterization of the devices.

- Depending on the device type and device composition and the existing protection packages, not all of the indicated binary inputs or protection annunciations (and corresponding PROFIBUS DP message positions) may be available in the SIPROTEC device.

1.3.2 Measured values

Note:

- Depending on the device composition, not all of the indicated analog inputs (and corresponding PROFIBUS DP message positions) may be available in the SIPROTEC device.

The given default scaling values for the measured values in the standard mapping apply to installations with the following nominal operating values:

Full Scale Voltage (parameter address 1101):

→ 1.01 ... 100.00 kV

Full Scale Current (parameter address 1102):

→ 10.01 ... 1000.00 A

Product of

- Rated Primary Voltage (parameter address 0202) and

- Matching ratio Phase-VT to Open-Delta-VT (parameter address 0206):

→ 1.01 ... 100.00 kV

Ignd-CT rated primary current (parameter address 0217)

→ 10.01 ... 1000.00 A

Power values

- Product of Full Scale Voltage and Full Scale Current multiplies by $\sqrt{3}$

  → 10.01 ... 1000.00 MW (MVAR)

Note:

Changes of the scaling of the measured values are possible in adaptation to the concrete installation environment.
You find information about this in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile" (ref. to page 3).

1.3.3   Metered measurands

Scaling   The scaling of the metered measurands, which are derived from measured values, refers to:

60000 impulses per hour for V = V_{nom} and I = I_{nom}

V_{nom} = Full Scale Voltage (parameter address 1101)

I_{nom} = Full Scale Current (parameter address 1102)

Example   In the parameter set is configured:

I_{nom} = 100 A and V_{nom} = 12 kV,

60000 impulses correspond so that:

1 h * 100 A * 12 kV * $\sqrt{3}$ = 2078.46 kWh

Note:

- The type of update (cyclic, with or without deletion) and the update interval must be programmed for the metered measurands using the parameterization software DIGSI.

- The scaling of the metered measurands at binary inputs (pulse counters) depends on the externally connected pulse generator.

1.4 Configuration data of the standard mappings

There are two standard mappings (standard mapping 3-1 to standard mapping 3-2) available for the parameterization of the SIPROTEC devices 7SJ80, 7SK80 and 7RW80, and one standard mapping (standard mapping 3-3) available for SIPROTEC devices 7SJ80, 7SK80 and 7RW80, which differ in the data size of the PROFIBUS DP messages.

Standard mapping 3-1

Standard mapping 3-1 contains:

Output direction:

- 8 double commands
- 16 single commands

Input direction:

- 8 double-point indications
- 64 single-point indications
- 19 measured values (integer)
- 1 counter of operating hours (unsigned long)
- 4 metered measurands (unsigned long)

Standard mapping 3-2

Standard mapping 3-2 contains:

Output direction:

- Handshake byte for event list via PROFIBUS DP
- 8 double commands
- 16 single commands

Input direction:

- 8 double-point indications
- 64 single-point indications
- 19 measured values (integer)
- 1 counter of operating hours (unsigned long)
- 4 metered measurands (unsigned long)
- Handshake byte and three message blocks for event list via PROFIBUS DP

Standard mapping 3-3

Standard mapping 3-3 contains:

Output direction:

- Handshake byte for event list via PROFIBUS DP
- 8 double commands
- 16 single commands

Input direction:

- 8 double-point indications
- 64 single-point indications

- 19 measured values (integer)

- 1 counter of operating hours (unsigned long)

- 4 metered measurands (unsigned long)

- Handshake byte and three message blocks for event list via PROFIBUS DP

PROFIBUS DP Configuration data

Standard mapping 3-1: **1FH 1FH 1FH 1FH 13H 25H**

(68 bytes input, 6 bytes output direction)

Standard mapping 3-2: **1FH 1FH 1FH 1FH 13H DFH 27H**

(100 bytes input, 8 bytes output direction)

Standard mapping 3-3: **1FH 1FH 1FH 1FH 13H DFH 27H**

(100 bytes input, 8 bytes output direction)

PROFIBUS DP master

When configuring a PROFIBUS DP slave of the SIPROTEC devices in the parameterization system of the PROFIBUS DP master, the following modules for the 7SJ80, 7SK80 and 7RW80 standard mappings 3-1, 3-2 and 3-3 must be selected and associated addresses in the I/O address range of the PROFIBUS DP master must be allocated:

Standard mapping 3-1:

Module	Order number	Input address	Output address
0	Input - 16 bytes	Adr_Ix	
1	Input - 16 bytes	Adr_Ix + 16	
2	Input - 16 bytes	Adr_Ix + 32	
3	Input - 16 bytes	Adr_Ix + 48	
4	Input - 4 bytes	Adr_Ix + 64	
7	Output - 6 bytes		Adr_Ox

Standard mapping 3-2:

Module	Order number	Input address	Output address
0	Input - 16 bytes	Adr_Ix	
1	Input - 16 bytes	Adr_Ix + 16	
2	Input - 16 bytes	Adr_Ix + 32	
3	Input - 16 bytes	Adr_Ix + 48	
4	Input - 4 bytes	Adr_Ix + 64	
5	Input - 16 words, consistent	Adr_Ix + 68	
6	Output - 8 bytes		Adr_Ox

Standard mapping 3-3:

Module	Order number	Input address	Output address
0	Input - 16 bytes	Adr_Ix	
1	Input - 16 bytes	Adr_Ix + 16	
2	Input - 16 bytes	Adr_Ix + 32	
3	Input - 16 bytes	Adr_Ix + 48	
4	Input - 4 bytes	Adr_Ix + 64	
5	Input - 16 words, consistent	Adr_Ix + 68	
6	Output - 8 bytes		Adr_Ox

Adr_Ix and Adr_Ox indicate arbitrary (usually even) addresses in the I/O address range of the PROFIBUS DP master.

Adr_Ix (base address of the inputs) is identical with offset 0 of the PROFIBUS DP message data of the SIPROTEC device in input direction (ref. to chap. 2.2 and 3.2).

Adr_Ix (base address of the outputs) is identical with offset 0 of the PROFIBUS DP message data of the SIPROTEC device in output direction (ref. to chap. 2.1 and 3.1).

Note:

Depending on the PROFIBUS DP master, there may also be the demand to put the base address of the inputs (Adr_Ix) on a value divisible by four so that accesses to the metered measurands (unsigned long values) of the SIPROTEC device (ref. to chap. 2.2.4 and 3.2.4) can be carried out correctly in the PROFIBUS DP master.

1.5 Notes on SIPROTEC objects

This chapter contains notes concerning the use and evaluation of certain SIPROTEC objects.

Note:

- The description of the standard mappings (ref. to chap. 2 and 3) contains the pre-allocation of the mapping files at delivery or at first assignment of a mapping in DIGSI to the SIPROTEC device.

- Changes of the allocation and the scaling of the measured values are possible in adaptation to the concrete installation environment.
  You find information about this in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile" (ref. to page 3).

- If a mapping file is assigned to a SIPROTEC device and if the data size of the PROFIBUS DP message of this SIPROTEC device is changed by choice of a new mapping file, then assignments which are not available in the existing mapping file remain unassigned furthermore.
  These must afterwards be routed again on "Source system interface" or "Destination system interface" using the **DIGSI Configuration matrix**.

1.5.1 Changing the setting group

In order to change the setting group, the value "10" = ON must be transmitted for the corresponding pair of bits and afterwards be reset to "00" = "Quiescent status" (controlled by an impulse from the PROFIBUS DP master).

- Switching ON one setting group automatically switches OFF the currently active setting group.

- Transmission of the value "01" = OFF is insignificant for the change of the setting group and is refused by the SIPROTEC device.

- A change of the setting group via PROFIBUS DP is only possible if the parameter **Change to Another Setting Group** (parameter address = 0302) has the value *Protocol*.

References   *Standard mapping 3-1:* ref. to chap. 2.1.2

                    Standard mapping 3-2: ref. to chap. 3.1.3

                    Standard mapping 3-3: ref. to chap. 4.1.3

■

Standard mapping 3-1

<div style="text-align:right; font-size:3em; font-weight:bold">2</div>

This chapter describes the PROFIBUS DP messages' data between the PROFIBUS DP master and the SIPROTEC devices 7SJ80, 7SK80 and 7RW80 if standard mapping 3-1 is selected.

2.1 Message in output direction

2.1.1 Double commands

- User-defined double commands with double-point indications as checkback indication can be routed on these positions as a "Source system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
0 / 0	52 Breaker OFF	52 Breaker	-
0 / 1	52 Breaker ON		
0 / 2	<user-defined> OFF	not pre-allocated	-
0 / 3	<user-defined> ON		
0 / 4	<user-defined> OFF	not pre-allocated	-
0 / 5	<user-defined> ON		
0 / 6	<user-defined> OFF	not pre-allocated	-
0 / 7	<user-defined> ON		
1 / 0	<user-defined> OFF	not pre-allocated	-
1 / 1	<user-defined> ON		
1 / 2	<user-defined> OFF	not pre-allocated	-
1 / 3	<user-defined> ON		
1 / 4	<user-defined> OFF	not pre-allocated	-
1 / 5	<user-defined> ON		
1 / 6	<user-defined> OFF	not pre-allocated	-
1 / 7	<user-defined> ON		

2.1.2 Internal commands

- Ref. to chap. 1.5.1 for additional notes regarding "Changing the setting group".

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	Group A		-
2 / 1	Group A	Activation of setting group A	
2 / 2	Group B		-
2 / 3	Group B	Activation of setting group B	
2 / 4	Group C		-
2 / 5	Group C	Activation of setting group C	
2 / 6	Group D		-
2 / 7	Group D	Activation of setting group D	

2.1.3 User-defined single commands or taggings

- User-defined single commands or taggings can be routed on these positions as a "Source system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
3 / 0	<user-defined> OFF	not pre-allocated	-
3 / 1	<user-defined> ON		
3 / 2	<user-defined> OFF	not pre-allocated	-
3 / 3	<user-defined> ON		
3 / 4	<user-defined> OFF	not pre-allocated	-
3 / 5	<user-defined> ON		
3 / 6	<user-defined> OFF	not pre-allocated	-
3 / 7	<user-defined> ON		
4 / 0	<user-defined> OFF	not pre-allocated	-
4 / 1	<user-defined> ON		
4 / 2	<user-defined> OFF	not pre-allocated	-
4 / 3	<user-defined> ON		
4 / 4	<user-defined> OFF	not pre-allocated	-
4 / 5	<user-defined> ON		
4 / 6	<user-defined> OFF	not pre-allocated	-
4 / 7	<user-defined> ON		
5 / 0	<user-defined> OFF	not pre-allocated	-
5 / 1	<user-defined> ON		

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 2	<user-defined> OFF	not pre-allocated	-
5 / 3	<user-defined> ON		
5 / 4	<user-defined> OFF	not pre-allocated	-
5 / 5	<user-defined> ON		
5 / 6	<user-defined> OFF	not pre-allocated	-
5 / 7	<user-defined> ON		

2.2 Message in input direction

2.2.1 Annunciations

2.2.1.1 Double-point indications

- User-defined double-point indications (e.g., checkback indications of double commands) can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
0 / 0	52 Breaker OFF	Checkback indication 52 Breaker	-
0 / 1	52 Breaker ON		
0 / 2	<user-defined> OFF	not pre-allocated	-
0 / 3	<user-defined> ON		
0 / 4	<user-defined> OFF	not pre-allocated	-
0 / 5	<user-defined> ON		
0 / 6	<user-defined> OFF	not pre-allocated	-
0 / 7	<user-defined> ON		
1 / 0	<user-defined> OFF	not pre-allocated	-
1 / 1	<user-defined> ON		
1 / 2	<user-defined> OFF	not pre-allocated	-
1 / 3	<user-defined> ON		
1 / 4	<user-defined> OFF	not pre-allocated	-
1 / 5	<user-defined> ON		
1 / 6	<user-defined> OFF	not pre-allocated	-
1 / 7	<user-defined> ON		

2.2.1.2 Trips

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	50(N)/51(N)TRIP	1 = 50(N)/51(N) TRIP	1791
2 / 1	<user-defined>	not pre-allocated	-
2 / 2	<user-defined>	not pre-allocated	-
2 / 3	<user-defined>	not pre-allocated	-
2 / 4	<user-defined>	not pre-allocated	-
2 / 5	<user-defined>	not pre-allocated	-
2 / 6	<user-defined>	not pre-allocated	-
2 / 7	<user-defined>	not pre-allocated	-
3 / 0	<user-defined>	not pre-allocated	-
3 / 1	<user-defined>	not pre-allocated	-
3 / 2	<user-defined>	not pre-allocated	-
3 / 3	<user-defined>	not pre-allocated	-
3 / 4	<user-defined>	not pre-allocated	-
3 / 5	<user-defined>	not pre-allocated	-

2.2.1.3 Alarms

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
3 / 6	50(N)/51(N) PU	1 = 50(N)/51(N) O/C PICKUP	1761
3 / 7	<user-defined>	not pre-allocated	-
4 / 0	<user-defined>	not pre-allocated	-
4 / 1	<user-defined>	not pre-allocated	-
4 / 2	<user-defined>	not pre-allocated	-
4 / 3	<user-defined>	not pre-allocated	-
4 / 4	<user-defined>	not pre-allocated	-
4 / 5	<user-defined>	not pre-allocated	-
4 / 6	<user-defined>	not pre-allocated	-
4 / 7	<user-defined>	not pre-allocated	-
5 / 0	<user-defined>	not pre-allocated	-

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 1	<user-defined>	not pre-allocated	-
5 / 2	<user-defined>	not pre-allocated	-
5 / 3	<user-defined>	not pre-allocated	-

2.2.1.4 Changing the setting group

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 4	P-GrpA act	1 = Setting Group A is active	-
5 / 5	P-GrpB act	1 = Setting Group B is active	-
5 / 6	P-GrpC act	1 = Setting Group C is active	-
5 / 7	P-GrpD act	1 = Setting Group D is active	-

2.2.1.5 Diagnosis

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
6 / 0	Device OK	1 = Update of the device replica in the SIPROTEC device completed after initial start or restart	51
6 / 1	ProtActive	1 = At least one protection function is active	52
6 / 2	Settings Calc.	1 = Settings calculation is running	70
6 / 3	Error Sum Alarm	1 = Error with a summary alarm ON	140
6 / 4	Alarm Sum Event	1 = Alarm summary event ON	160
6 / 5	Relay PICKUP	1 = Relay PICKUP (group signal)	501
6 / 6	Relay TRIP	1 = Relay GENERAL TRIP command	511
6 / 7	Data valid	1 = Data in the PROFIBUS DP message are valid. (This indication is created by the PROFIBUS DP slave; not available in DIGSI and not relocatable.)	-

2.2.1.6 User-defined single-point indications or taggings

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
7 / 0	<user-defined>	not pre-allocated	-
7 / 1	<user-defined>	not pre-allocated	-
7 / 2	<user-defined>	not pre-allocated	-
7 / 3	<user-defined>	not pre-allocated	-
7 / 4	<user-defined>	not pre-allocated	-
7 / 5	<user-defined>	not pre-allocated	-
7 / 6	<user-defined>	not pre-allocated	-
7 / 7	<user-defined>	not pre-allocated	-
8 / 0	<user-defined>	not pre-allocated	-
8 / 1	<user-defined>	not pre-allocated	-
8 / 2	<user-defined>	not pre-allocated	-
8 / 3	<user-defined>	not pre-allocated	-
8 / 4	<user-defined>	not pre-allocated	-
8 / 5	<user-defined>	not pre-allocated	-
8 / 6	<user-defined>	not pre-allocated	-
8 / 7	<user-defined>	not pre-allocated	-
9 / 0	<user-defined>	not pre-allocated	-
9 / 1	<user-defined>	not pre-allocated	-
9 / 2	<user-defined>	not pre-allocated	-
9 / 3	<user-defined>	not pre-allocated	-
9 / 4	<user-defined>	not pre-allocated	-
9 / 5	<user-defined>	not pre-allocated	-
9 / 6	<user-defined>	not pre-allocated	-
9 / 7	<user-defined>	not pre-allocated	-

2.2.2 Measured values

- Ref. to chap. 1.3.2 for additional notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comment	Scaling (32767 corresponds to ...)	Internal object no.
10	Ia =	Ia	3276.7 A	601
12	Ib =	Ib	3276.7 A	602
14	Ic =	Ic	3276.7 A	603
16	In =	In	3276.7 A	604
18	Va-b =	Va-b	327.67 kV	624
20	Vb-c =	Vb-c	327.67 kV	625
22	Vc-a =	Vc-a	327.67 kV	626
24	VN =	VN	327.67 kV	627
26	P =	P (active power)	327.67 MW	641
28	Q =	Q (reactive power)	327.67 MVAR	642
30	S =	S (apparent power)	327.67 MVA	645
32	Freq =	Frequency	327.67 Hz	644
34	PF =	Power Factor	3.2767	901
36	<user-defined>	not pre-allocated	-	-
38	<user-defined>	not pre-allocated	-	-
40	<user-defined>	not pre-allocated	-	-
42	<user-defined>	not pre-allocated	-	-
44	<user-defined>	not pre-allocated	-	-
46	<user-defined>	not pre-allocated	-	-

2.2.3 Statistic values

Offset	Designation of the SIPROTEC objects	Comment	Scaling (2^{31}-1 corresponds to ...)	Internal object no.
48	Op.Hours =	Counter of operating hours of the primary equipment	2^{31}-1 hours	1020

2.2.4 Metered measurands

- Ref. to chap. 1.3.3 for additional notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comment	Scaling (2^{31}-1 corresponds to ...)	Internal object no.
52	WpForward =	Wp Forward (metered measurand derived from measured values)	2^{31}-1 impulses	924
56	WqForward =	Wq Forward (metered measurand derived from measured values)	2^{31}-1 impulses	925
60	WpReverse =	Wp Reverse (metered measurand derived from measured values)	2^{31}-1 impulses	928
64	WqReverse =	Wq Reverse (metered measurand derived from measured values)	2^{31}-1 impulses	929

■

Standard mapping 3-2

<div style="text-align: right; font-size: large;">**3**</div>

This chapter describes the PROFIBUS DP messages' data between the PROFIBUS DP master and the SIPROTEC devices 7SJ80, 7SK80 and 7RW80 if standard mapping 3-2 is selected.

3.1 Message in output direction

3.1.1 Event list

- Information regarding the handshake bytes as well as the retrieval methods of the event list via PROFIBUS DP can be found in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile".

Offset	Designation	Comment	Internal object no.
0	Control_O	Handshake byte for event list via PROFIBUS DP	-
1	SPARE	reserved for future use (the value in this position is ignored)	-

3.1.2 Double commands

- User-defined double-commands with double-point indications as checkback indication can be routed on these positions as a "Source system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	52 Breaker OFF	52 Breaker	-
2 / 1	52 Breaker ON		
2 / 2	<user-defined> OFF	not pre-allocated	-
2 / 3	<user-defined> ON		
2 / 4	<user-defined> OFF	not pre-allocated	-
2 / 5	<user-defined> ON		
2 / 6	<user-defined> OFF	not pre-allocated	-
2 / 7	<user-defined> ON		
3 / 0	<user-defined> OFF	not pre-allocated	-
3 / 1	<user-defined> ON		

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
3 / 2	<user-defined> OFF	not pre-allocated	-
3 / 3	<user-defined> ON		
3 / 4	<user-defined> OFF	not pre-allocated	-
3 / 5	<user-defined> ON		
3 / 6	<user-defined> OFF	not pre-allocated	-
3 / 7	<user-defined> ON		

3.1.3 Internal commands

- Ref. to chap. 1.5.1 for additional notes regarding "Changing the setting group".

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
4 / 0	Group A		-
4 / 1	Group A	Activation of setting group A	
4 / 2	Group B		-
4 / 3	Group B	Activation of setting group B	
4 / 4	Group C		-
4 / 5	Group C	Activation of setting group C	
4 / 6	Group D		-
4 / 7	Group D	Activation of setting group D	

3.1.4   User-defined single commands or taggings

- User-defined single commands or taggings can be routed on these positions as a "Source system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 0	<user-defined> OFF	not pre-allocated	-
5 / 1	<user-defined> ON		
5 / 2	<user-defined> OFF	not pre-allocated	-
5 / 3	<user-defined> ON		
5 / 4	<user-defined> OFF	not pre-allocated	-
5 / 5	<user-defined> ON		
5 / 6	<user-defined> OFF	not pre-allocated	-
5 / 7	<user-defined> ON		
6 / 0	<user-defined> OFF	not pre-allocated	-
6 / 1	<user-defined> ON		
6 / 2	<user-defined> OFF	not pre-allocated	-
6 / 3	<user-defined> ON		
6 / 4	<user-defined> OFF	not pre-allocated	-
6 / 5	<user-defined> ON		
6 / 6	<user-defined> OFF	not pre-allocated	-
6 / 7	<user-defined> ON		
7 / 0	<user-defined> OFF	not pre-allocated	-
7 / 1	<user-defined> ON		
7 / 2	<user-defined> OFF	not pre-allocated	-
7 / 3	<user-defined> ON		
7 / 4	<user-defined> OFF	not pre-allocated	-
7 / 5	<user-defined> ON		
7 / 6	<user-defined> OFF	not pre-allocated	-
7 / 7	<user-defined> ON		

3.2   Message in input direction

3.2.1   Annunciations

3.2.1.1   Double-point indications

- User-defined double-point indications (e.g., checkback indications of double commands) can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
0 / 0	52 Breaker OFF	Checkback indication 52 Breaker	-
0 / 1	52 Breaker ON		
0 / 2	<user-defined> OFF	not pre-allocated	-
0 / 3	<user-defined> ON		
0 / 4	<user-defined> OFF	not pre-allocated	-
0 / 5	<user-defined> ON		
0 / 6	<user-defined> OFF	not pre-allocated	-
0 / 7	<user-defined> ON		
1 / 0	<user-defined> OFF	not pre-allocated	-
1 / 1	<user-defined> ON		
1 / 2	<user-defined> OFF	not pre-allocated	-
1 / 3	<user-defined> ON		
1 / 4	<user-defined> OFF	not pre-allocated	-
1 / 5	<user-defined> ON		
1 / 6	<user-defined> OFF	not pre-allocated	-
1 / 7	<user-defined> ON		

3.2.1.2 Trips

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	50(N)/51(N)TRIP	1 = 50(N)/51(N) TRIP	1791
2 / 1	<user-defined>	not pre-allocated	-
2 / 2	<user-defined>	not pre-allocated	-
2 / 3	<user-defined>	not pre-allocated	-
2 / 4	<user-defined>	not pre-allocated	-
2 / 5	<user-defined>	not pre-allocated	-
2 / 6	<user-defined>	not pre-allocated	-
2 / 7	<user-defined>	not pre-allocated	-
3 / 0	<user-defined>	not pre-allocated	-
3 / 1	<user-defined>	not pre-allocated	-
3 / 2	<user-defined>	not pre-allocated	-
3 / 3	<user-defined>	not pre-allocated	-
3 / 4	<user-defined>	not pre-allocated	-
3 / 5	<user-defined>	not pre-allocated	-

3.2.1.3 Alarms

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
3 / 6	50(N)/51(N) PU	1 = 50(N)/51(N) O/C PICKUP	1761
3 / 7	<user-defined>	not pre-allocated	-
4 / 0	<user-defined>	not pre-allocated	-
4 / 1	<user-defined>	not pre-allocated	-
4 / 2	<user-defined>	not pre-allocated	-
4 / 3	<user-defined>	not pre-allocated	-
4 / 4	<user-defined>	not pre-allocated	-
4 / 5	<user-defined>	not pre-allocated	-
4 / 6	<user-defined>	not pre-allocated	-
4 / 7	<user-defined>	not pre-allocated	-
5 / 0	<user-defined>	not pre-allocated	-

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 1	<user-defined>	not pre-allocated	-
5 / 2	<user-defined>	not pre-allocated	-
5 / 3	<user-defined>	not pre-allocated	-

3.2.1.4   Changing the setting group

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 4	Group A	1 = Group A is active	-
5 / 5	Group B	1 = Group B is active	-
5 / 6	Group C	1 = Group C is active	-
5 / 7	Group D	1 = Group D is active	-

3.2.1.5   Diagnosis

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
6 / 0	Device OK	1 = Update of the device replica in the SIPROTEC device completed after initial start or restart	51
6 / 1	ProtActive	1 = At least one protection function is active	52
6 / 2	Settings Calc.	1 = Settings calculation is running	70
6 / 3	Error Sum Alarm	1 = Error with a summary alarm ON	140
6 / 4	Alarm Sum Event	1 = Alarm summary event ON	160
6 / 5	Relay PICKUP	1 = Relay PICKUP (group signal)	501
6 / 6	Relay TRIP	1 = Relay GENERAL TRIP command	511
6 / 7	Data valid	1 = Data in the PROFIBUS DP message are valid. (This indication is created by the PROFIBUS DP slave; not available in DIGSI and not relocatable.)	-

3.2.1.6   User-defined single-point indications or taggings

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
7 / 0	<user-defined>	not pre-allocated	-
7 / 1	<user-defined>	not pre-allocated	-
7 / 2	<user-defined>	not pre-allocated	-
7 / 3	<user-defined>	not pre-allocated	-
7 / 4	<user-defined>	not pre-allocated	-
7 / 5	<user-defined>	not pre-allocated	-
7 / 6	<user-defined>	not pre-allocated	-
7 / 7	<user-defined>	not pre-allocated	-
8 / 0	<user-defined>	not pre-allocated	-
8 / 1	<user-defined>	not pre-allocated	-
8 / 2	<user-defined>	not pre-allocated	-
8 / 3	<user-defined>	not pre-allocated	-
8 / 4	<user-defined>	not pre-allocated	-
8 / 5	<user-defined>	not pre-allocated	-
8 / 6	<user-defined>	not pre-allocated	-
8 / 7	<user-defined>	not pre-allocated	-
9 / 0	<user-defined>	not pre-allocated	-
9 / 1	<user-defined>	not pre-allocated	-
9 / 2	<user-defined>	not pre-allocated	-
9 / 3	<user-defined>	not pre-allocated	-
9 / 4	<user-defined>	not pre-allocated	-
9 / 5	<user-defined>	not pre-allocated	-
9 / 6	<user-defined>	not pre-allocated	-
9 / 7	<user-defined>	not pre-allocated	-

3.2.2 Measured values

- Ref. to chap. 1.3.2 for additional notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comment	Scaling (32767 corresponds to ...)	Internal object no.
10	Ia =	Ia	3276.7 A	601
12	Ib =	Ib	3276.7 A	602
14	Ic =	Ic	3276.7 A	603
16	In =	In	3276.7 A	604
18	Va-b =	Va-b	327.67 kV	624
20	Vb-c =	Vb-c	327.67 kV	625
22	Vc-a =	Vc-a	327.67 kV	626
24	VN =	VN	327.67 kV	627
26	P =	P (active power)	327.67 MW	641
28	Q =	Q (reactive power)	327.67 MVAR	642
30	S =	S (apparent power)	327.67 MVA	645
32	Freq =	Frequency	327.67 Hz	644
34	PF =	Power Factor	3.767	901
36	<user-defined>	not pre-allocated	-	-
38	<user-defined>	not pre-allocated	-	-
40	<user-defined>	not pre-allocated	-	-
42	<user-defined>	not pre-allocated	-	-
44	<user-defined>	not pre-allocated	-	-
46	<user-defined>	not pre-allocated	-	-

3.2.3 Statistic values

Offset	Designation of the SIPROTEC objects	Comment	Scaling (2^{31}-1 corresponds to ...)	Internal object no.
48	Op.Hours =	Counter of operating hours of the primary equipment	2^{31}-1 hours	1020

3.2.4   Metered measurands

- Ref. to chap. 1.3.3 for additional notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comment	Scaling ($2^{31}-1$ corresponds to ...)	Internal object no.
52	WpForward =	Wp Forward (metered measurand derived from measured values)	$2^{31}-1$ impulses	924
56	WqForward =	Wq Forward (metered measurand derived from measured values)	$2^{31}-1$ impulses	925
60	WpReverse =	Wp Reverse (metered measurand derived from measured values)	$2^{31}-1$ impulses	928
64	WqReverse =	Wq Reverse (metered measurand derived from measured values)	$2^{31}-1$ impulses	929

3.2.5   Event list

- Information regarding the handshake bytes as well as the retrieval methods of the event list via PROFIBUS DP can be found in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile".

Offset	Designation	Comment	Internal object no.
68	Control_I	Handshake byte for event list via PROFIBUS DP	-
69	SPARE	reserved for future use (the value 0 is transmitted in this position)	-
70		Identification #1	
71	Message block #1	Value #1	-
72 - 79		Time stamp #1	
80		Identification #2	
81	Message block #2	Value #2	-
82 - 89		Time stamp #2	
90		Identification #3	
91	Message block #3	Value #3	-
92 - 99		Time stamp #3	

■

Standard mapping 3-3

<div align="right">

4

</div>

This chapter describes the PROFIBUS DP messages' data between the PROFIBUS DP master and the SIPROTEC devices 7SJ80, 7SK80 and 7RW80 if standard mapping 3-3 is selected. The main purpose for this mapping is the application of 7SK80 with up to 12 RTD inputs through an RTD box.

4.1 Message in output direction

4.1.1 Event list

- Information regarding the handshake bytes as well as the retrieval methods of the event list via PROFIBUS DP can be found in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile".

Offset	Designation	Comment	Internal object no.
0	Control_O	Handshake byte for event list via PROFIBUS DP	-
1	SPARE	reserved for future use (the value in this position is ignored)	-

4.1.2 Double commands

- User-defined double-commands with double-point indications as checkback indication can be routed on these positions as a "Source system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	52 Breaker OFF	52 Breaker	-
2 / 1	52 Breaker ON		
2 / 2	\<user-defined> OFF	not pre-allocated	-
2 / 3	\<user-defined> ON		
2 / 4	\<user-defined> OFF	not pre-allocated	-
2 / 5	\<user-defined> ON		
2 / 6	\<user-defined> OFF	not pre-allocated	-
2 / 7	\<user-defined> ON		
3 / 0	\<user-defined> OFF	not pre-allocated	-
3 / 1	\<user-defined> ON		

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
3 / 2	<user-defined> OFF	not pre-allocated	-
3 / 3	<user-defined> ON		
3 / 4	<user-defined> OFF	not pre-allocated	-
3 / 5	<user-defined> ON		
3 / 6	<user-defined> OFF	not pre-allocated	-
3 / 7	<user-defined> ON		

4.1.3   Internal commands

- Ref. to chap. 1.5.1 for additional notes regarding "Changing the setting group".

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
4 / 0	Group A		-
4 / 1	Group A	Activation of setting group A	
4 / 2	Group B		-
4 / 3	Group B	Activation of setting group B	
4 / 4	Group C		-
4 / 5	Group C	Activation of setting group C	
4 / 6	Group D		-
4 / 7	Group D	Activation of setting group D	

4.1.4 User-defined single commands or taggings

- User-defined single commands or taggings can be routed on these positions as a "Source system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 0	<user-defined> OFF	not pre-allocated	-
5 / 1	<user-defined> ON		
5 / 2	<user-defined> OFF	not pre-allocated	-
5 / 3	<user-defined> ON		
5 / 4	<user-defined> OFF	not pre-allocated	-
5 / 5	<user-defined> ON		
5 / 6	<user-defined> OFF	not pre-allocated	-
5 / 7	<user-defined> ON		
6 / 0	<user-defined> OFF	not pre-allocated	-
6 / 1	<user-defined> ON		
6 / 2	<user-defined> OFF	not pre-allocated	-
6 / 3	<user-defined> ON		
6 / 4	<user-defined> OFF	not pre-allocated	-
6 / 5	<user-defined> ON		
6 / 6	<user-defined> OFF	not pre-allocated	-
6 / 7	<user-defined> ON		
7 / 0	<user-defined> OFF	not pre-allocated	-
7 / 1	<user-defined> ON		
7 / 2	<user-defined> OFF	not pre-allocated	-
7 / 3	<user-defined> ON		
7 / 4	<user-defined> OFF	not pre-allocated	-
7 / 5	<user-defined> ON		
7 / 6	<user-defined> OFF	not pre-allocated	-
7 / 7	<user-defined> ON		

4.2 Message in input direction

4.2.1 Annunciations

4.2.1.1 Double-point indications

- User-defined double-point indications (e.g., checkback indications of double commands) can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
0 / 0	52 Breaker OFF	Checkback indication 52 Breaker	-
0 / 1	52 Breaker ON		
0 / 2	<user-defined> OFF	not pre-allocated	-
0 / 3	<user-defined> ON		
0 / 4	<user-defined> OFF	not pre-allocated	-
0 / 5	<user-defined> ON		
0 / 6	<user-defined> OFF	not pre-allocated	-
0 / 7	<user-defined> ON		
1 / 0	<user-defined> OFF	not pre-allocated	-
1 / 1	<user-defined> ON		
1 / 2	<user-defined> OFF	not pre-allocated	-
1 / 3	<user-defined> ON		
1 / 4	<user-defined> OFF	not pre-allocated	-
1 / 5	<user-defined> ON		
1 / 6	<user-defined> OFF	not pre-allocated	-
1 / 7	<user-defined> ON		

4.2.1.2 Trips

- User-defined protection annuncations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
2 / 0	50(N)/51(N)TRIP	1 = 50(N)/51(N) TRIP	1791
2 / 1	<user-defined>	not pre-allocated	-
2 / 2	<user-defined>	not pre-allocated	-
2 / 3	<user-defined>	not pre-allocated	-
2 / 4	<user-defined>	not pre-allocated	-
2 / 5	<user-defined>	not pre-allocated	-
2 / 6	<user-defined>	not pre-allocated	-
2 / 7	<user-defined>	not pre-allocated	-
3 / 0	<user-defined>	not pre-allocated	-
3 / 1	<user-defined>	not pre-allocated	-
3 / 2	<user-defined>	not pre-allocated	-
3 / 3	<user-defined>	not pre-allocated	-
3 / 4	<user-defined>	not pre-allocated	-
3 / 5	<user-defined>	not pre-allocated	-

4.2.1.3 Alarms

- User-defined protection annuncations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
3 / 6	50(N)/51(N) PU	1 = 50(N)/51(N) O/C PICKUP	1761
3 / 7	<user-defined>	not pre-allocated	-
4 / 0	<user-defined>	not pre-allocated	-
4 / 1	<user-defined>	not pre-allocated	-
4 / 2	<user-defined>	not pre-allocated	-
4 / 3	<user-defined>	not pre-allocated	-
4 / 4	<user-defined>	not pre-allocated	-
4 / 5	<user-defined>	not pre-allocated	-
4 / 6	<user-defined>	not pre-allocated	-
4 / 7	<user-defined>	not pre-allocated	-
5 / 0	<user-defined>	not pre-allocated	-

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 1	<user-defined>	not pre-allocated	-
5 / 2	<user-defined>	not pre-allocated	-
5 / 3	<user-defined>	not pre-allocated	-

4.2.1.4 Changing the setting group

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
5 / 4	Group A	1 = Group A is active	-
5 / 5	Group B	1 = Group B is active	-
5 / 6	Group C	1 = Group C is active	-
5 / 7	Group D	1 = Group D is active	-

4.2.1.5 Diagnosis

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
6 / 0	Device OK	1 = Update of the device replica in the SIPROTEC device completed after initial start or restart	51
6 / 1	ProtActive	1 = At least one protection function is active	52
6 / 2	Settings Calc.	1 = Settings calculation is running	70
6 / 3	Error Sum Alarm	1 = Error with a summary alarm ON	140
6 / 4	Alarm Sum Event	1 = Alarm summary event ON	160
6 / 5	Relay PICKUP	1 = Relay PICKUP (group signal)	501
6 / 6	Relay TRIP	1 = Relay GENERAL TRIP command	511
6 / 7	Data valid	1 = Data in the PROFIBUS DP message are valid. (This indication is created by the PROFIBUS DP slave; not available in DIGSI and not relocatable.)	-

4.2.1.6 User-defined single-point indications or taggings

- User-defined protection annunciations, single-point indications or taggings can be routed on these positions as a "Destination system interface" using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comment	Internal object no.
7 / 0	<user-defined>	not pre-allocated	-
7 / 1	<user-defined>	not pre-allocated	-
7 / 2	<user-defined>	not pre-allocated	-
7 / 3	<user-defined>	not pre-allocated	-
7 / 4	<user-defined>	not pre-allocated	-
7 / 5	<user-defined>	not pre-allocated	-
7 / 6	<user-defined>	not pre-allocated	-
7 / 7	<user-defined>	not pre-allocated	-
8 / 0	<user-defined>	not pre-allocated	-
8 / 1	<user-defined>	not pre-allocated	-
8 / 2	<user-defined>	not pre-allocated	-
8 / 3	<user-defined>	not pre-allocated	-
8 / 4	<user-defined>	not pre-allocated	-
8 / 5	<user-defined>	not pre-allocated	-
8 / 6	<user-defined>	not pre-allocated	-
8 / 7	<user-defined>	not pre-allocated	-
9 / 0	<user-defined>	not pre-allocated	-
9 / 1	<user-defined>	not pre-allocated	-
9 / 2	<user-defined>	not pre-allocated	-
9 / 3	<user-defined>	not pre-allocated	-
9 / 4	<user-defined>	not pre-allocated	-
9 / 5	<user-defined>	not pre-allocated	-
9 / 6	<user-defined>	not pre-allocated	-
9 / 7	<user-defined>	not pre-allocated	-

4.2.2 Measured values

- Ref. to chap. 1.3.2 for additional notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comment	Scaling (32767 corresponds to ...)	Internal object no.
10	Ia =	Ia	3276.7 A	601
12	Ib =	Ib	3276.7 A	602
14	Ic =	Ic	3276.7 A	603
16	In =	In	3276.7 A	604
18	<user-defined>	not pre-allocated	-	-
20	<user-defined>	not pre-allocated	-	-
22	<user-defined>	not pre-allocated	-	-
24	<user-defined>	not pre-allocated	-	-
26	<user-defined>	not pre-allocated	-	-
28	<user-defined>	not pre-allocated	-	-
30	<user-defined>	not pre-allocated	-	-
32	<user-defined>	not pre-allocated	-	-
34	<user-defined>	not pre-allocated	-	-
36	<user-defined>	not pre-allocated	-	-
38	<user-defined>	not pre-allocated	-	-
40	<user-defined>	not pre-allocated	-	-
42	<user-defined>	not pre-allocated	-	-
44	<user-defined>	not pre-allocated	-	-
46	<user-defined>	not pre-allocated	-	-

4.2.3 Statistic values

Offset	Designation of the SIPROTEC objects	Comment	Scaling (2^{31}-1 corresponds to ...)	Internal object no.
48	Op.Hours =	Counter of operating hours of the primary equipment	2^{31}-1 hours	1020

4.2.4 Metered measurands

- Ref. to chap. 1.3.3 for additional notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comment	Scaling (2^{31}-1 corresponds to ...)	Internal object no.
52	WpForward =	Wp Forward (metered measurand derived from measured values)	2^{31}-1 impulses	924
56	WqForward =	Wq Forward (metered measurand derived from measured values)	2^{31}-1 impulses	925
60	WpReverse =	Wp Reverse (metered measurand derived from measured values)	2^{31}-1 impulses	928
64	WqReverse =	Wq Reverse (metered measurand derived from measured values)	2^{31}-1 impulses	929

4.2.5 Event list

- Information regarding the handshake bytes as well as the retrieval methods of the event list via PROFIBUS DP can be found in the manual "SIPROTEC Communication module, PROFIBUS DP - Communication profile".

Offset	Designation	Comment	Internal object no.
68	Control_I	Handshake byte for event list via PROFIBUS DP	-
69	SPARE	reserved for future use (the value 0 is transmitted in this position)	-
70		Identification #1	
71	Message block #1	Value #1	-
72 - 79		Time stamp #1	
80		Identification #2	
81	Message block #2	Value #2	-
82 - 89		Time stamp #2	
90		Identification #3	
91	Message block #3	Value #3	-
92 - 99		Time stamp #3	

■

Glossary

CFC	Continuous Function Chart
DC	Double Command
DIGSI	Parameterization system for SIPROTEC devices
DP	Double-Point indication
SC	Single Command
SP	Single-Point indication
DDB file	The DDB file contains the Device Data Base (technical characteristics) of the PROFIBUS DP communication module.
	This file is required for configuration and is supplied together with the SIPROTEC device.
Input data/ input direction	Data from the PROFIBUS DP slave to the PROFIBUS DP master.
Octet	One octet corresponds to 8 bits.
OLM	Optical Link Module
	Modules that facilitate the conversion of electrical PROFIBUS interfaces (RS485 levels) into optical PROFIBUS interfaces and vice versa.
Output data/ output direction	Data from the PROFIBUS DP master to the PROFIBUS DP slave.
PNO	PROFIBUS user organization
PROFIBUS DP	PROFIBUS - Decentralized Peripherals
PSE	PROFIBUS interface module with (electrical) isolated RS485 interface for the Siemens SIPROTEC devices.
PSO	PROFIBUS interface module with optical interface for the Siemens SIPROTEC devices.

Programmable Logic Controller

Programmable logic controllers (PLC) are electronic control systems the function of which is stored as a program in the control unit.

The programmable logic controller has the structure of a computer. It consists of a central processing unit (CPU) with memory, input/output modules, power supply unit and a mounting rack (with bus system).

The periphery and the program language are designed to meet the requirements of the control system.

PLC

see Programmable Logic Controller

■

Index

SIPROTEC PROFIBUS DP - Bus mapping 7SJ80/7SK80/7RW80
C53000-L2140-A320-4