

SIPROTEC

Multifunctional
machine protection
7UM61

Communication module

PROFIBUS-DP
Bus mapping

Preface

Table of contents

Data of the PROFIBUS-DP messages

1

Standard mappings 3-1 to 3-3

2

Standard mapping 3-4

3

Index

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The information in this manual is checked periodically, and necessary corrections will be included in future editions.

We appreciate any suggested improvements.

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Preface

Purpose of this manual

This manual describes the data in the PROFIBUS-DP messages of the SIPROTEC device 7UM61 and is divided into the following topics:

- Data of the PROFIBUS-DP messages → Chapter 1,
- Standard mappings 3-1 to 3-3 → Chapter 2,
- Standard mapping 3-4 → Chapter 3.

General details about the function, operation, assembly and commissioning of the SIPROTEC devices you find in the

- SIPROTEC4 System Manual, order no. E50417–H1176–C151.

PROFIBUS-DP communication profile documentation

The following additional manual informs you about the data types, bus specific parameters and hardware interface of the PROFIBUS-DP slave module of the SIPROTEC devices:

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

PROFIBUS-DP specification

The PROFIBUS-DP specification and the structure of the PROFIBUS-DP messages are defined in the European Standard EN 50170:

- PROFIBUS Specification
Normative Parts of PROFIBUS-FMS, -DP, -PA
According to the European Standard
EN 50170, Volume 2
PROFIBUS Nutzerorganisation e.V.

Validity	<p>This manual is valid for the SIPROTEC device:</p> <ul style="list-style-type: none">• 7UM61 (firmware version 4.10 or higher) <p>with</p> <ul style="list-style-type: none">• PROFIBUS-DP communication module version 02.00.05 or higher. <p>For device parameterization have to be used:</p> <ul style="list-style-type: none">• DIGSI 4.30 or higher,• PROFIBUS-DP standard mappings 3-1 to 3-n (n = device type dependent number of standard mappings).
Additional Support	<p>For questions regarding SIPROTEC4 devices, please contact your Siemens representative.</p>
Training courses	<p>Individual course offerings may be found in our Training Catalog and questions can be directed to our Training Centre. Please contact your Siemens representative.</p>
Target audience	<p>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.</p>



Warning!

Hazardous voltages are present in this electrical equipment during operation. Non-observance of the safety rules can result in severe personal injury or property damage.

Only qualified personnel shall work on and around this equipment after becoming thoroughly familiar with all warnings and safety notices of this and the associated manuals as well as with the applicable safety regulations.

The successful and safe operation of this device is dependent on proper transport and storage, proper handling, installation, operation, and maintenance by qualified personnel under observance of all warnings and hints contained in this and the associated manuals.

In particular the general erection and safety regulations (e.g. IEC, EN, DIN, VDE, or other national and international standards) regarding the correct use of high-voltage installations must be observed. Non-observance can result in death, personal injury or substantial property damage.

QUALIFIED PERSONNEL

For the purpose of this manual and product labels, a qualified person is one who is familiar with the installation, construction and operation of the equipment and the hazards involved. In addition, he has the following qualifications:

- Is trained and authorized to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety practices.
- Is trained in the proper care and use of protective equipment in accordance with established safety practices.
- Is trained in rendering first aid.

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
	1.0	First edition, Doc.-No.: C53000-L1840-B005-03 Sept. 18 th , 2002
Chap. 1.4	1.1	corrected: Standard mappings 3-1 and 3-2 contain 11 measured values Nov. 18 th , 2002
general Chap. 1.4, 3	2.0	<ul style="list-style-type: none">• Page numbering in the manual now continuous, not chapter-related any more• New: description of Standard mapping 3-4 with event list Feb. 10 th , 2004

Table of contents

	Preface	3
	Revision index	7
1	Data of the PROFIBUS-DP messages	13
1.1	Explanations	14
1.2	Messages in output direction: PROFIBUS-DP master to the SIPROTEC device	15
1.2.1	Commands	15
1.2.2	Measured values	15
1.3	Messages in input direction: SIPROTEC device to the PROFIBUS-DP master	16
1.3.1	Annunciations	16
1.3.2	Measured values	16
1.3.3	Metered measurands.....	17
1.4	Configuration data of the standard mappings.....	18
1.5	Notes to SIPROTEC objects	21
1.5.1	Changing the setting group	21
1.5.2	Cooling medium temperature	22
2	Standard mappings 3-1 to 3-3	23
2.1	Message in output direction.....	24
2.1.1	Single commands and taggings	24
2.1.2	Internal Commands	25
2.1.3	Double commands.....	25
2.1.4	Measured values	26
2.2	Message in input direction.....	27
2.2.1	Annunciations.....	27
2.2.1.1	User-defined annunciations.....	27
2.2.1.2	Diagnosis.....	27
2.2.1.3	Overcurrent time protection I>.....	28
2.2.1.4	Overcurrent time protection I>>.....	28
2.2.1.5	Inverse time overcurrent protection.....	28
2.2.1.6	Thermal overload protection.....	28
2.2.1.7	Unbalanced load protection.....	29

2.2.1.8	Sensitive ground fault protection	29
2.2.1.9	Stator ground fault protection	29
2.2.1.10	Stator ground fault protection with 3 rd harmonic.....	29
2.2.1.11	Overtoltage protection.....	30
2.2.1.12	Undervoltage protection.....	30
2.2.1.13	Frequency protection	30
2.2.1.14	Overexcitation protection	30
2.2.1.15	Reverse power protection.....	31
2.2.1.16	Forward power supervision.....	31
2.2.1.17	Fuse Failure Monitor.....	31
2.2.1.18	Underexcitation protection	31
2.2.1.19	Circuit breaker failure protection.....	31
2.2.1.20	Impedance protection	32
2.2.1.21	Binary inputs	32
2.2.1.22	Inadvertent energisation protection	32
2.2.1.23	Trip coil monitor	32
2.2.1.24	User-defined annunciations	33
2.2.1.25	Double-point indications	33
2.2.2	Measured values	34
2.2.3	Metered measurands.....	34
3	Standard mapping 3-4	35
3.1	Message in output direction.....	36
3.1.1	Event list	36
3.1.2	Single commands and taggings.....	36
3.1.3	Internal Commands	37
3.1.4	Double commands.....	38
3.1.5	Measured values	38
3.2	Message in input direction.....	39
3.2.1	Annunciations	39
3.2.1.1	User-defined annunciations	39
3.2.1.2	Diagnosis	39
3.2.1.3	Overcurrent time protection I>	40
3.2.1.4	Overcurrent time protection I>>	40
3.2.1.5	Inverse time overcurrent protection	40
3.2.1.6	Thermal overload protection.....	40
3.2.1.7	Unbalanced load protection.....	41
3.2.1.8	Sensitive ground fault protection	41
3.2.1.9	Stator ground fault protection	41
3.2.1.10	Stator ground fault protection with 3 rd harmonic.....	41
3.2.1.11	Overtoltage protection.....	42
3.2.1.12	Undervoltage protection.....	42
3.2.1.13	Frequency protection	42
3.2.1.14	Overexcitation protection	42
3.2.1.15	Reverse power protection.....	43
3.2.1.16	Forward power supervision.....	43
3.2.1.17	Fuse Failure Monitor.....	43
3.2.1.18	Underexcitation protection	43
3.2.1.19	Circuit breaker failure protection.....	43
3.2.1.20	Impedance protection	44
3.2.1.21	Binary inputs	44

3.2.1.22	Inadvertent energisation protection	44
3.2.1.23	Trip coil monitor	44
3.2.1.24	User-defined annunciations	45
3.2.1.25	Double-point indications	45
3.2.2	Measured values	46
3.2.3	Metered measurands.....	46
3.2.4	Event list.....	47
Glossary		49
Index		51

Data of the PROFIBUS-DP messages

This chapter delivers explanations to the data descriptions of the standard mappings as well as notes for evaluation of selected SIPROTEC objects and for the configuration of the standard mapping in the PROFIBUS-DP master.

1.1	Explanations	14
1.2	Messages in output direction: PROFIBUS-DP master to the SIPROTEC device	15
1.3	Messages in input direction: SIPROTEC device to the PROFIBUS-DP master	16
1.4	Configuration data of the standard mappings	18
1.5	Notes to SIPROTEC objects	21

1.1 Explanations



Note:

The examples shown in this chapter 1.1 do not necessarily correspond to the real allocation of the objects in the bus mapping.

Chapters 2 and 3 define the data area of the PROFIBUS-DP messages for data transfer between the PROFIBUS-DP slave of the SIPROTEC device 7UM61 and the PROFIBUS-DP master.

The columns "Designation of the SIPROTEC objects" contain the names of the SIPROTEC objects for "US English" device language.

The listed SIPROTEC objects in the PROFIBUS-DP messages' data area are sorted after 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	Comments	Scaling (32767 corresponds to...)	Internal object no.
14	Ia =	Current in phase A	327.67 %	601

The measured value "Ia" is assigned to data byte 14 (most significant byte of the measured value) and data byte 15 (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	Comments	Internal object no.
2 / 0	50/51-1 Ph A PU	1 = 50/51-1 Phase A picked up	1811

The single-point indication "50/51 - 1 Ph A PU" is located in byte 2, bit position 2⁰.



Note:

The definition of the data types (single-point indication, measured value etc.) 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 the SIPROTEC device

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

- command outputs through the output relays of the SIPROTEC devices (external commands),
- manipulation of taggings (internal commands),
- transmission of measured values to the SIPROTEC device.

1.2.1 Commands



Note:

- The allocation of the output relays to the switching devices and to the output channels is defined during parameterization of the SIPROTEC devices.
 - Depending on the device composition there may be less than indicated output relays (and corresponding PROFIBUS-DP message positions) available in the SIPROTEC device.
-

1.2.2 Measured values



Note:

- Unlike measured values in input direction, the identification "Overflow" or "Invalid" is not indicated with the value -32768 (ref. to manual "SIPROTEC Communication module, PROFIBUS-DP - Communication profile").
 - If an evaluation of the measurement status of the cooling medium temperature is required then the indication ">Fail.Temp.inp" (>49 Failure temperature input, internal object no. = 1508), routed to "Destination system interface" in the **DIGSI Configuration matrix**, has to be used for this separately.
-

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

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

- polling of switching devices' status and binary inputs,
- transmission of annunciations, measurands and meter values to the PROFIBUS-DP master.

1.3.1 Annunciations



Note:

- The allocation of the input channels to the binary inputs is defined during parameterization of the devices.
 - Depending on the 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 transferred percentage values are with reference to the nominal values of the primary equipment.
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

Skalierung

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

60000 impulses per hour for $S = S_{nom}$

S_{nom} = Rated Apparent Power of the Generator (parameter address = 0252)

Example

In the parameter set is configured:

$S_{nom} = 5.27 \text{ MVA}$

60000 impulses correspond so that:

$1 \text{ h} * 5.27 \text{ MVA} = 5.27 \text{ MVAh}$



Note:

- The type of the update (cyclic, with or without deletion) and the update interval must be programmed for the metered measurands with 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 four standard mappings (standard mapping 3-1 to standard mapping 3-4) available for the SIPROTEC device 7UM61 which differ in the available data size of the PROFIBUS-DP messages.

Standard mapping 3-1

The standard mapping 3-1 contains:

Output direction:

- 2 Double commands
- 22 Single commands
- 1 Measured value (Cooling medium temperature)

Input direction:

- 2 Double-point indications
- 108 Single-point indications
- 11 Measured values (integer)
- 4 Metered measurands (counter, unsigned long)

Standard mapping 3-2

The standard mapping 3-2 contains:

Output direction:

- 2 Double commands
- 22 Single commands

Input direction:

- 2 Double-point indications
- 108 Single-point indications
- 11 Measured values (integer)

Unlike the standard mapping 3-1 there are no measured values in output direction and no metered measurands in input direction contained in the standard mapping 3-2.

Standard mapping 3-3

The standard mapping 3-3 contains:

Output direction:

- 2 Double commands
- 22 Single commands

Input direction:

- 2 Double-point indications
- 108 Single-point indications

Unlike the standard mapping 3-1 there are no measured values in output direction as well as no measured values and metered measurands in input direction contained in the standard mapping 3-3.

**Standard mapping
3-4**

The standard mapping 3-4 contains:

Output direction:

- Handshake byte for event list via PROFIBUS-DP
- 2 Double commands
- 22 Single commands
- 1 Measured value (Cooling medium temperature)

Input direction:

- 2 Double-point indications
- 108 Single-point indications
- 11 Measured values (integer)
- 4 Metered measurands (counter, unsigned long)
- Handshake byte and three message blocks for event list via PROFIBUS-DP

Configuration data

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

(52 bytes input-, 8 bytes output direction)

Standard mapping 3-2: **1FH 1FH 13H 25H**

(36 bytes input-, 6 bytes output direction)

Standard mapping 3-3: **1DH 25H**

(14 bytes input-, 6 bytes output direction)

Standard mapping 3-4: **1FH 1FH 1FH 13H DFH 29H**

(84 bytes input-, 10 bytes output direction)

**PROFIBUS-DP
master**

At the configuration of a PROFIBUS-DP slave of the SIPROTEC devices in the parameterization system of the PROFIBUS-DP masters are to select the following modules for the 7UM61 standard mappings and to allocate associated addresses in the I/O addressing range of the PROFIBUS-DP master:

Standard mapping 3-1:

Module	Order number	Input address	Output address
0	Input - 16 Bytes	Adr_lx	
1	Input - 16 Bytes	Adr_lx + 16	
2	Input - 16 Bytes	Adr_lx + 32	
3	Input - 4 Bytes	Adr_lx + 48	
4	Output - 8 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 - 4 Bytes	Adr_Ix + 32	
3	Output - 6 Bytes		Adr_Ox

Standard mapping 3-3:

Module	Order number	Input address	Output address
0	Input - 14 Bytes	Adr_Ix	
1	Output - 6 Bytes		Adr_Ox

Standard mapping 3-4:

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 - 4 Bytes	Adr_Ix + 48	
4	Input - 16 Words, consistent	Adr_Ix + 52	
5	Output - 8 Bytes		Adr_Ox

Adr_Ix and Adr_Ox indicate arbitrary (as a rule even) addresses in the I/O addressing 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_Ox (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:

There is dependently on the PROFIBUS-DP master in addition possibly the demand to put the base address of the inputs on a value divisible by four so that accesses on the metered measurands (unsigned long values, ref. to chap. 2.2.3 and 3.2.3) can be correctly carried out in the PROFIBUS-DP master.

1.5 Notes to SIPROTEC objects

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



Note:

- The descriptions of the standard mappings (ref. to chap. 2 and 3) contain 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.

1.5.1 Changing the setting group

In order to change the setting group, the value "10" = ON must be transmitted to 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 current active setting group.
- Transmission of the value "01" = OFF is insignificant for the change of the setting group and is refused by the device.
- A change of the setting group is only possible via PROFIBUS-DP if the parameter **Change to Another Setting Group** (parameter address = 302) has the value **Protocol**.

References

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

Standard mapping 3-4: ref. to chap. 3.1.3

1.5.2 Cooling medium temperature

- The cooling medium temperature is transferred in per cent (%) to the 7UM61. The protection device must be informed about the 100 % corresponding temperature using parameter **49 Temperature for Scaling** (function **49 Thermal Overload**, parameter address = 1608).
- The temperature value via PROFIBUS-DP is only taken into account and shown at the SIPROTEC device if the parameter **49 Temperature Input** (function **49 Thermal Overload**, parameter address = 1607) has the value **Fieldbus**.

Reference

Standard mapping 3-1: ref. to chap. 2.1.4

Standard mapping 3-2 to 3-3: not available

Standard mapping 3-4: ref. to chap. 3.1.5

Standard mappings 3-1 to 3-3

This chapter describes the data in the PROFIBUS-DP messages between the PROFIBUS-DP master and the SIPROTEC device 7UM61 if one of the standard mappings 3-1 to 3-3 is used.

2.1	Message in output direction	24
2.2	Message in input direction	27

2.1 Message in output direction

2.1.1 Single commands and taggings

- Single commands and taggings can be routed on these positions as “Source system interface” using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
0 / 0	<user-defined> OFF	not pre-allocated	-
0 / 1	<user-defined> 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 / 0	<user-defined> OFF	not pre-allocated	-
2 / 1	<user-defined> 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		
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		

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
3 / 6	<user-defined> OFF	not pre-allocated	-
3 / 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	Comments	Internal object no.
4 / 0	Setting Group A	Activation of setting group A	-
4 / 1	Setting Group A		
4 / 2	Setting Group B	Activation of setting group B	-
4 / 3	Setting Group B		
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		
5 / 2	<user-defined> OFF	not pre-allocated	-
5 / 3	<user-defined> ON		

2.1.3 Double commands

- Double commands with double-point indications as checkback indication can be routed on these positions as “Source system interface” using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
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		

2.1.4 Measured values

- Measured values in output direction are only available at use of standard mapping 3-1 (ref. to chap. 1.4).
- Ref. to chap. 1.5.2 for additional notes regarding the measured value “Cooling medium temperature”.

Offset	Designation of the SIPROTEC objects	Comments	Scaling (32767 corresponds to ...)	Internal object no.
6	AMB.TEMP =	Cooling medium temperature	327.67 %	-

2.2 Message in input direction

2.2.1 Annunciations

2.2.1.1 User-defined annunciations

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

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

2.2.1.2 Diagnosis

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
1 / 0	Device OK	1 = Update of the device replica in the SIPROTEC device completed after initial start or restart	51
1 / 1	ProtActive	1 = At least one protection function is active	52
1 / 2	Error Sum Alarm	1 = Error with a summary alarm ON	140
1 / 3	Alarm Sum Event	1 = Alarm summary event ON	160
1 / 4	Relay PICKUP	1 = Relay PICKUP (group signal)	501
1 / 5	Relay TRIP	1 = Relay GENERAL TRIP command	511
1 / 6	Operat. Cond.	1 = Suitable measured quantities are present at the device inputs ($V > 0,1 * V_{nom}$, $I > 0,1 * I_{nom}$ and $10 \text{ Hz} < \text{Freq.} < 70 \text{ Hz}$)	5002
1 / 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.)	-

2.2.1.3 Overcurrent time protection I>

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
2 / 0	50/51-1 Ph A PU	1 = 50/51-1 Phase A picked up	1811
2 / 1	50/51-1 Ph B PU	1 = 50/51-1 Phase B picked up	1812
2 / 2	50/51-1 Ph C PU	1 = 50/51-1 Phase C picked up	1813
2 / 3	V< seal in	1 = 50/51-1 undervoltage seal-in	1970
2 / 4	50/51 TRIP	1 = 50/51 I> TRIP	1815

2.2.1.4 Overcurrent time protection I>>

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
2 / 5	67 forward	1 = 67 I>> direction forward	1806
2 / 6	67 backward	1 = 67 I>> direction backward	1807
2 / 7	50/51-2 Ph A PU	1 = 50/51-2 Phase A picked up	1801
3 / 0	50/51-2 Ph B PU	1 = 50/51-2 Phase B picked up	1802
3 / 1	50/51-2 Ph C PU	1 = 50/51-2 Phase C picked up	1803
3 / 2	51/67 TRIP	1 = 50/51/67 I>> TRIP	1809

2.2.1.5 Inverse time overcurrent protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
3 / 3	51V Ph A PU	1 = 51V Phase A picked up	1896
3 / 4	51V Ph B PU	1 = 51V Phase B picked up	1897
3 / 5	51V Ph C PU	1 = 51V Phase C picked up	1898
3 / 6	51V TRIP	1 = 51V TRIP	1900
3 / 7	<user-defined>	not pre-allocated	-

2.2.1.6 Thermal overload protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
4 / 0	49 O/L I Alarm	1 = 49 Overload Current Alarm (I alarm)	1515
4 / 1	49 O/L Θ Alarm	1 = 49 Thermal Overload Alarm	1516
4 / 2	49 Th O/L TRIP	1 = 49 Thermal Overload TRIP	1521

2.2.1.7 Unbalanced load protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
4 / 3	46-1 Warn	1 = 46-1 Current warning stage	5156
4 / 4	46-1 picked up	1 = 46-1 picked up	5165
4 / 5	46-2 picked up	1 = 46-2 picked up	5159
4 / 6	46-2 TRIP	1 = 46-2 TRIP of current stage	5160
4 / 7	46-Θ TRIP	1 = 46 TRIP of thermal stage	5161

2.2.1.8 Sensitive ground fault protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
5 / 0	Failure 64R In<	1 = Failure 64R In<: measuring circuit	5396
5 / 1	50Ns-1 Pickup	1 = 50Ns-1 Pickup	1224
5 / 2	50Ns-1 TRIP	1 = 50Ns-1 TRIP	1226
5 / 3	50Ns-2 Pickup	1 = 50Ns-2 Pickup	1221
5 / 4	50Ns-2 TRIP	1 = 50Ns-2 TRIP	1223

2.2.1.9 Stator ground fault protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
5 / 5	59/67 V0 PU	1 = 59N/67GN V0 picked up	5186
5 / 6	59/67 I0 PU	1 = 59N/67GN I0 picked up	5188
5 / 7	59/67 V0 TRIP	1 = 59N/67GN V0 stage TRIP	5187
6 / 0	59N/67GN TRIP	1 = 59N/67GN TRIP	5193

2.2.1.10 Stator ground fault protection with 3rd harmonic

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
6 / 1	27TN/59TN PU	1 = 27TN/59TN with 3 rd harmonic picked up	5567
6 / 2	27TN/59TN TRP	1 = 27TN/59TN with 3 rd harmonic TRIP	5568

2.2.1.11 Overvoltage protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
6 / 3	59-1 picked up	1 = 59-1 Overvoltage V> picked up	6568
6 / 4	59-2 picked up	1 = 59-2 Overvoltage V>> picked up	6571
6 / 5	59-1 TRIP	1 = 59-1 Overvoltage V> TRIP	6570
6 / 6	59-2 TRIP	1 = 59-2 Overvoltage V>> TRIP	6573

2.2.1.12 Undervoltage protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
6 / 7	27-1 picked up	1 = 27-1 Undervoltage V< picked up	6533
7 / 0	27-2 picked up	1 = 27-2 Undervoltage V<< picked up	6537
7 / 1	27-1 TRIP	1 = 27-1 Undervoltage V< TRIP	6539
7 / 2	27-2 TRIP	1 = 27-2 Undervoltage V<< TRIP	6540

2.2.1.13 Frequency protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
7 / 3	81-1 picked up	1 = 81-1 picked up	5232
7 / 4	81-2 picked up	1 = 81-2 picked up	5233
7 / 5	81-3 picked up	1 = 81-3 picked up	5234
7 / 6	81-4 picked up	1 = 81-4 picked up	5235
7 / 7	81-1 TRIP	1 = 81-1 TRIP	5236
8 / 0	81-2 TRIP	1 = 81-2 TRIP	5237
8 / 1	81-3 TRIP	1 = 81-3 TRIP	5238
8 / 2	81-4 TRIP	1 = 81-4 TRIP	5239

2.2.1.14 Overexcitation protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
8 / 3	24 warn	1 = 24 V/f warning stage	5367
8 / 4	24-1 picked up	1 = 24-1 V/f> picked up	5370
8 / 5	24-2 picked up	1 = 24-2 V/f>> picked up	5373
8 / 6	24 th. TRIP	1 = 24 TRIP of thermal stage	5372
8 / 7	24-2 TRIP	1 = 24-2 TRIP of V/f>> stage	5371

2.2.1.15 Reverse power protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
9 / 0	32R picked up	1 = 32R picked up	5096
9 / 1	32R TRIP	1 = 32R TRIP	5097
9 / 2	32R+SV TRIP	1 = 32R TRIP with stop valve	5098

2.2.1.16 Forward power supervision

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
9 / 3	32F< picked up	1 = 32F P< stage picked up	5126
9 / 4	32F> picked up	1 = 32F P> stage picked up	5127
9 / 5	32F P< TRIP	1 = 32F P< stage TRIP	5128
9 / 6	32F P> TRIP	1 = 32F P> stage TRIP	5129

2.2.1.17 Fuse Failure Monitor

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
9 / 7	VT Fuse Failure	1 = Voltage Transformer Fuse Failure	6575

2.2.1.18 Underexcitation protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
10 / 0	40 Vexc failure	1 = 40 Exc. voltage failure recognized	5336
10 / 1	40 picked up	1 = 40 picked up	5337
10 / 2	40-1 TRIP	1 = 40 characteristic 1 TRIP	5344
10 / 3	40-2 TRIP	1 = 40 characteristic 2 TRIP	5345
10 / 4	40&V<TRIP	1 = 40 characteristic&Vexc< TRIP	5346
10 / 5	40-3 TRIP	1 = 40 characteristic 3 TRIP	5343

2.2.1.19 Circuit breaker failure protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
10 / 6	50BF pickup	1 = 50BF picked up	1455
10 / 7	50BF TRIP	1 = 50BF TRIP	1471

2.2.1.20 Impedance protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
11 / 0	21 Fault Ph A	1 = 21 Fault detection , Phase A	3967
11 / 1	21 Fault Ph B	1 = 21 Fault detection , Phase B	3968
11 / 2	21 Fault Ph C	1 = 21 Fault detection , Phase C	3969
11 / 3	21 I> & U<	1 = 21 O/C with undervoltage seal in	3970
11 / 4	21 Z1< TRIP	1 = 21 Z1< TRIP	3977
11 / 5	21 Z1B< TRIP	1 = 21 Z1B< TRIP	3978
11 / 6	21 Z2< TRIP	1 = 21 Z2< TRIP	3979
11 / 7	21 T3> TRIP	1 = 21 T3> TRIP	3980

2.2.1.21 Binary inputs

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 0	Ext 1 Gen.TRIP	1 = External trip 1: General TRIP	4537
12 / 1	Ext 2 Gen.TRIP	1 = External trip 2: General TRIP	4557
12 / 2	Ext 3 Gen.TRIP	1 = External trip 3: General TRIP	4577
12 / 3	Ext 4 Gen.TRIP	1 = External trip 4: General TRIP	4597

2.2.1.22 Inadvertent energisation protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 4	50/27 picked up	1 = 50/27 picked up	5547
12 / 5	50/27 TRIP	1 = 50/27 TRIP	5548

2.2.1.23 Trip coil monitor

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 6	FAIL: Trip cir.	1 = 74TC Failure Trip Circuit	6865

2.2.1.24 User-defined annunciations

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

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 7	<user-defined>	not pre-allocated	-
13 / 0	<user-defined>	not pre-allocated	-
13 / 1	<user-defined>	not pre-allocated	-
13 / 2	<user-defined>	not pre-allocated	-
13 / 3	<user-defined>	not pre-allocated	-

2.2.1.25 Double-point indications

- Double-point indications (e.g. checkback indications of double commands) can be routed on these positions as “Destination system interface” using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
13 / 4	<user-defined> OFF	not pre-allocated	-
13 / 5	<user-defined> ON		
13 / 6	<user-defined> OFF	not pre-allocated	-
13 / 7	<user-defined> ON		

2.2.2 Measured values

- Measured values in input direction are only available at use of standard mapping 3-1 or standard mapping 3-2 (ref. to chap. 1.4).
- Ref. to chap. 1.3.2 for notes regarding scaling of measured values.

Offset	Designation of the SIPROTEC objects	Comments	Scaling (32767 corresponds to ...)	Internal object no.
14	Ia =	Current in phase A	327.67 %	601
16	Ib =	Current in phase B	327.67 %	602
18	Ic =	Current in phase C	327.67 %	603
20	Va-b =	Va-b	327.67 %	624
22	Vb-c =	Vb-c	327.67 %	625
24	Vc-a =	Vc-a	327.67 %	626
26	P =	P (active power)	327.67 %	641
28	Q =	Q (reactive power)	327.67 %	642
30	f =	Frequency	327.67 Hz	644
32	I2 =	I2 (negative sequence)	327.67 %	606
34	Θ/Θtrip =	Temperature rise for warning and trip	327.67 %	801

2.2.3 Metered measurands

- Metered measurands are only available at use of standard mapping 3-1 (ref. to chap. 1.4).
- Ref. to chap. 1.3.3 for notes regarding scaling of metered measurands.

Offset	Designation of the SIPROTEC objects	Comments	Scaling (2 ³¹ -1 corresponds to ...)	Internal object no.
36	Wp+	Wp Forward (Metered measurand derived from measured values)	2 ³¹ -1 impulses	924
40	Wq+	Wq Forward (Metered measurand derived from measured values)	2 ³¹ -1 impulses	925
44	Wp-	Wp Reverse (Metered measurand derived from measured values)	2 ³¹ -1 impulses	928
48	Wq-	Wq Reverse (Metered measurand derived from measured values)	2 ³¹ -1 impulses	929

Standard mapping 3-4

This chapter describes the data in the PROFIBUS-DP messages between the PROFIBUS-DP master and the SIPROTEC device 7UM61 if standard mapping 3-4 is selected.

3.1	Message in output direction	36
3.2	Message in input direction	39

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

3.1.2 Single commands and taggings

- Single commands and taggings can be routed on these positions as “Source system interface” using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
2 / 0	<user-defined> OFF	not pre-allocated	-
2 / 1	<user-defined> 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		
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		

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
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		
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		

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	Comments	Internal object no.
6 / 0	Setting Group A	Activation of setting group A	-
6 / 1	Setting Group A		
6 / 2	Setting Group B	Activation of setting group B	-
6 / 3	Setting Group B		
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		

3.1.4 Double commands

- Double commands with double-point indications as checkback indication can be routed on these positions as “Source system interface” using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
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		

3.1.5 Measured values

- Ref. to chap. 1.5.2 for additional notes regarding the measured value “Cooling medium temperature”.

Offset	Designation of the SIPROTEC objects	Comments	Scaling (32767 corresponds to ...)	Internal object no.
8	AMB.TEMP =	Cooling medium temperature	327.67 %	-

3.2 Message in input direction

3.2.1 Annunciations

3.2.1.1 User-defined annunciations

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

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

3.2.1.2 Diagnosis

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
1 / 0	Device OK	1 = Update of the device replica in the SIPROTEC device completed after initial start or restart	51
1 / 1	ProtActive	1 = At least one protection function is active	52
1 / 2	Error Sum Alarm	1 = Error with a summary alarm ON	140
1 / 3	Alarm Sum Event	1 = Alarm summary event ON	160
1 / 4	Relay PICKUP	1 = Relay PICKUP (group signal)	501
1 / 5	Relay TRIP	1 = Relay GENERAL TRIP command	511
1 / 6	Operat. Cond.	1 = Suitable measured quantities are present at the device inputs ($V > 0,1 * V_{nom}$, $I > 0,1 * I_{nom}$ and $10 \text{ Hz} < \text{Freq.} < 70 \text{ Hz}$)	5002
1 / 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.)	-

3.2.1.3 Overcurrent time protection I>

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
2 / 0	50/51-1 Ph A PU	1 = 50/51-1 Phase A picked up	1811
2 / 1	50/51-1 Ph B PU	1 = 50/51-1 Phase B picked up	1812
2 / 2	50/51-1 Ph C PU	1 = 50/51-1 Phase C picked up	1813
2 / 3	V< seal in	1 = 50/51-1 undervoltage seal-in	1970
2 / 4	50/51 TRIP	1 = 50/51 I> TRIP	1815

3.2.1.4 Overcurrent time protection I>>

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
2 / 5	67 forward	1 = 67 I>> direction forward	1806
2 / 6	67 backward	1 = 67 I>> direction backward	1807
2 / 7	50/51-2 Ph A PU	1 = 50/51-2 Phase A picked up	1801
3 / 0	50/51-2 Ph B PU	1 = 50/51-2 Phase B picked up	1802
3 / 1	50/51-2 Ph C PU	1 = 50/51-2 Phase C picked up	1803
3 / 2	51/67 TRIP	1 = 50/51/67 I>> TRIP	1809

3.2.1.5 Inverse time overcurrent protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
3 / 3	51V Ph A PU	1 = 51V Phase A picked up	1896
3 / 4	51V Ph B PU	1 = 51V Phase B picked up	1897
3 / 5	51V Ph C PU	1 = 51V Phase C picked up	1898
3 / 6	51V TRIP	1 = 51V TRIP	1900
3 / 7	<user-defined>	not pre-allocated	-

3.2.1.6 Thermal overload protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
4 / 0	49 O/L I Alarm	1 = 49 Overload Current Alarm (I alarm)	1515
4 / 1	49 O/L Θ Alarm	1 = 49 Thermal Overload Alarm	1516
4 / 2	49 Th O/L TRIP	1 = 49 Thermal Overload TRIP	1521

3.2.1.7 Unbalanced load protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
4 / 3	46-1 Warn	1 = 46-1 Current warning stage	5156
4 / 4	46-1 picked up	1 = 46-1 picked up	5165
4 / 5	46-2 picked up	1 = 46-2 picked up	5159
4 / 6	46-2 TRIP	1 = 46-2 TRIP of current stage	5160
4 / 7	46-Θ TRIP	1 = 46 TRIP of thermal stage	5161

3.2.1.8 Sensitive ground fault protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
5 / 0	Failure 64R In<	1 = Failure 64R In<: measuring circuit	5396
5 / 1	50Ns-1 Pickup	1 = 50Ns-1 Pickup	1224
5 / 2	50Ns-1 TRIP	1 = 50Ns-1 TRIP	1226
5 / 3	50Ns-2 Pickup	1 = 50Ns-2 Pickup	1221
5 / 4	50Ns-2 TRIP	1 = 50Ns-2 TRIP	1223

3.2.1.9 Stator ground fault protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
5 / 5	59/67 V0 PU	1 = 59N/67GN V0 picked up	5186
5 / 6	59/67 I0 PU	1 = 59N/67GN I0 picked up	5188
5 / 7	59/67 V0 TRIP	1 = 59N/67GN V0 stage TRIP	5187
6 / 0	59N/67GN TRIP	1 = 59N/67GN TRIP	5193

3.2.1.10 Stator ground fault protection with 3rd harmonic

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
6 / 1	27TN/59TN PU	1 = 27TN/59TN with 3 rd harmonic picked up	5567
6 / 2	27TN/59TN TRP	1 = 27TN/59TN with 3 rd harmonic TRIP	5568

3.2.1.11 Overvoltage protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
6 / 3	59-1 picked up	1 = 59-1 Overvoltage V> picked up	6568
6 / 4	59-2 picked up	1 = 59-2 Overvoltage V>> picked up	6571
6 / 5	59-1 TRIP	1 = 59-1 Overvoltage V> TRIP	6570
6 / 6	59-2 TRIP	1 = 59-2 Overvoltage V>> TRIP	6573

3.2.1.12 Undervoltage protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
6 / 7	27-1 picked up	1 = 27-1 Undervoltage V< picked up	6533
7 / 0	27-2 picked up	1 = 27-2 Undervoltage V<< picked up	6537
7 / 1	27-1 TRIP	1 = 27-1 Undervoltage V< TRIP	6539
7 / 2	27-2 TRIP	1 = 27-2 Undervoltage V<< TRIP	6540

3.2.1.13 Frequency protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
7 / 3	81-1 picked up	1 = 81-1 picked up	5232
7 / 4	81-2 picked up	1 = 81-2 picked up	5233
7 / 5	81-3 picked up	1 = 81-3 picked up	5234
7 / 6	81-4 picked up	1 = 81-4 picked up	5235
7 / 7	81-1 TRIP	1 = 81-1 TRIP	5236
8 / 0	81-2 TRIP	1 = 81-2 TRIP	5237
8 / 1	81-3 TRIP	1 = 81-3 TRIP	5238
8 / 2	81-4 TRIP	1 = 81-4 TRIP	5239

3.2.1.14 Overexcitation protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
8 / 3	24 warn	1 = 24 V/f warning stage	5367
8 / 4	24-1 picked up	1 = 24-1 V/f> picked up	5370
8 / 5	24-2 picked up	1 = 24-2 V/f>> picked up	5373
8 / 6	24 th. TRIP	1 = 24 TRIP of thermal stage	5372
8 / 7	24-2 TRIP	1 = 24-2 TRIP of V/f>> stage	5371

3.2.1.15 Reverse power protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
9 / 0	32R picked up	1 = 32R picked up	5096
9 / 1	32R TRIP	1 = 32R TRIP	5097
9 / 2	32R+SV TRIP	1 = 32R TRIP with stop valve	5098

3.2.1.16 Forward power supervision

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
9 / 3	32F< picked up	1 = 32F P< stage picked up	5126
9 / 4	32F> picked up	1 = 32F P> stage picked up	5127
9 / 5	32F P< TRIP	1 = 32F P< stage TRIP	5128
9 / 6	32F P> TRIP	1 = 32F P> stage TRIP	5129

3.2.1.17 Fuse Failure Monitor

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
9 / 7	VT Fuse Failure	1 = Voltage Transformer Fuse Failure	6575

3.2.1.18 Underexcitation protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
10 / 0	40 Vexc failure	1 = 40 Exc. voltage failure recognized	5336
10 / 1	40 picked up	1 = 40 picked up	5337
10 / 2	40-1 TRIP	1 = 40 characteristic 1 TRIP	5344
10 / 3	40-2 TRIP	1 = 40 characteristic 2 TRIP	5345
10 / 4	40&V<TRIP	1 = 40 characteristic&Vexc< TRIP	5346
10 / 5	40-3 TRIP	1 = 40 characteristic 3 TRIP	5343

3.2.1.19 Circuit breaker failure protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
10 / 6	50BF pickup	1 = 50BF picked up	1455
10 / 7	50BF TRIP	1 = 50BF TRIP	1471

3.2.1.20 Impedance protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
11 / 0	21 Fault Ph A	1 = 21 Fault detection , Phase A	3967
11 / 1	21 Fault Ph B	1 = 21 Fault detection , Phase B	3968
11 / 2	21 Fault Ph C	1 = 21 Fault detection , Phase C	3969
11 / 3	21 I> & U<	1 = 21 O/C with undervoltage seal in	3970
11 / 4	21 Z1< TRIP	1 = 21 Z1< TRIP	3977
11 / 5	21 Z1B< TRIP	1 = 21 Z1B< TRIP	3978
11 / 6	21 Z2< TRIP	1 = 21 Z2< TRIP	3979
11 / 7	21 T3> TRIP	1 = 21 T3> TRIP	3980

3.2.1.21 Binary inputs

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 0	Ext 1 Gen.TRIP	1 = External trip 1: General TRIP	4537
12 / 1	Ext 2 Gen.TRIP	1 = External trip 2: General TRIP	4557
12 / 2	Ext 3 Gen.TRIP	1 = External trip 3: General TRIP	4577
12 / 3	Ext 4 Gen.TRIP	1 = External trip 4: General TRIP	4597

3.2.1.22 Inadvertent energisation protection

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 4	50/27 picked up	1 = 50/27 picked up	5547
12 / 5	50/27 TRIP	1 = 50/27 TRIP	5548

3.2.1.23 Trip coil monitor

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 6	FAIL: Trip cir.	1 = 74TC Failure Trip Circuit	6865

3.2.1.24 User-defined annunciations

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

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
12 / 7	<user-defined>	not pre-allocated	-
13 / 0	<user-defined>	not pre-allocated	-
13 / 1	<user-defined>	not pre-allocated	-
13 / 2	<user-defined>	not pre-allocated	-
13 / 3	<user-defined>	not pre-allocated	-

3.2.1.25 Double-point indications

- Double-point indications (e.g. checkback indications of double commands) can be routed on these positions as “Destination system interface” using the **DIGSI Configuration matrix**.

Offset	Designation of the SIPROTEC objects	Comments	Internal object no.
13 / 4	<user-defined> OFF	not pre-allocated	-
13 / 5	<user-defined> ON		
13 / 6	<user-defined> OFF	not pre-allocated	-
13 / 7	<user-defined> ON		

3.2.2 Measured values

- Ref. to chap. 1.3.2 for notes regarding scaling of measured values.

Offset	Designation of the SIPROTEC objects	Comments	Scaling (32767 corresponds to ...)	Internal object no.
14	Ia =	Current in phase A	327.67 %	601
16	Ib =	Current in phase B	327.67 %	602
18	Ic =	Current in phase C	327.67 %	603
20	Va-b =	Va-b	327.67 %	624
22	Vb-c =	Vb-c	327.67 %	625
24	Vc-a =	Vc-a	327.67 %	626
26	P =	P (active power)	327.67 %	641
28	Q =	Q (reactive power)	327.67 %	642
30	f =	Frequency	327.67 Hz	644
32	I2 =	I2 (negative sequence)	327.67 %	606
34	Θ/Θtrip =	Temperature rise for warning and trip	327.67 %	801

3.2.3 Metered measurands

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

Offset	Designation of the SIPROTEC objects	Comments	Scaling ($2^{31}-1$ corresponds to ...)	Internal object no.
36	Wp+	Wp Forward (Metered measurand derived from measured values)	$2^{31}-1$ impulses	924
40	Wq+	Wq Forward (Metered measurand derived from measured values)	$2^{31}-1$ impulses	925
44	Wp-	Wp Reverse (Metered measurand derived from measured values)	$2^{31}-1$ impulses	928
48	Wq-	Wq Reverse (Metered measurand derived from measured values)	$2^{31}-1$ impulses	929

3.2.4 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 of the SIPROTEC objects	Comments	Internal object no.
52	Control_I	Handshake byte for event list via PROFIBUS-DP	-
53	SPARE	reserved for future use (the value 0 is transmitted at this position)	-
54	Message block #1	Identification #1	-
55		Value #1	
56 -		Time stamp #1	
63			
64	Message block #2	Identification #2	-
65		Value #2	
66 -		Time stamp #2	
73			
74	Message block #3	Identification #3	-
75		Value #3	
76 -		Time stamp #3	
83			

Glossary

CFC	Continuous Function Chart
DC	Double command
DDB file / GSD file	<p>The DDB file contains the Device Data Base (technical characteristics) of the PROFIBUS-DP communication module (PROFIBUS-DP slave).</p> <p>This file is required for configuration of the PROFIBUS-DP master and is supplied together with DIGSI.</p>
DIGSI	Parameterization system / parameterization software for SIPROTEC devices
DP	Double-point indication
Input data / Input direction	Data from the PROFIBUS-DP slave to the PROFIBUS-DP master.
Octet	Term from EN 50170, one octet corresponds to 8 bits.
OLM	Optical Link Module
Output data / Output direction	Data from the PROFIBUS-DP master to the PROFIBUS-DP slave.
PNO	PROFIBUS Nutzerorganisation (PROFIBUS International Organization)
PROFIBUS-DP	PROFIBUS - Decentralized Peripherals
PSE	PROFIBUS interface module with (electrical) isolated RS485 interface for the SIPROTEC devices from Siemens.
PSO	PROFIBUS interface module with fibre-optical interface for the SIPROTEC devices from Siemens.
SC	Single command
SP	Single-point indication

Index

Numerics

21	32, 44
24	30, 42
27	30, 42
32F	31, 43
32R	31, 43
40	31, 43
46	29, 41
49	28, 40
50/27	32, 44
50/51	28, 40
50BF	31, 43
50Ns	29, 41
59	30, 42
59/67	29, 41
64R	29, 41
67	28, 40
74TC	32, 44
81	30, 42

A

Annunciations	16
---------------	----

C

Changing the setting group	21
Circuit breaker failure protection	31, 43
Commands	24, 36
Configuration data	18
Cooling medium temperature	22

D

Double commands	25, 38
Double-point indications	33, 45

E

Event list	
Handshake byte in input direction	47
Handshake byte in output direction	36
Message blocks	47

F

Forward power supervision	31, 43
Frequency protection	30, 42
Fuse Failure Monitor	31, 43

I

Impedance protection	32, 44
Inadvertent energisation protection	32, 44

M

Measured values	
Input direction	16, 34, 46
Output direction	15, 26, 38
Metered measurands	17, 34, 46

O

Overcurrent time protection	28, 40
Overexcitation protection	30, 42
Overvoltage protection	30, 42

P

PROFIBUS-DP	
Configuration data	18
Configuration in the master system	19
Event list	47
Message in input direction	27, 39
Message in output direction	24, 36

Q		T	
Qualified personnel (definition)	5	Taggings	24, 36
		Target audience	4
R		Thermal overload protection	28, 40
Reverse power protection	31, 43	Trip coil monitor	32, 44
		Typographic conventions	5
S		U	
Sensitive ground fault protection	29, 41	Unbalanced load protection	29, 41
Single commands	24, 36	Underexcitation protection	31, 43
Stator ground fault protection	29, 41	Undervoltage protection	30, 42
		V	
		Validity of the manual	4