Regulations Concerning the Setting up of Installations

Apart from the basic "Regulations for the Setting up of Power Installations" DIN VDE 0100 and for "The Rating of Creepage Distances and Clearances" DIN VDE 0110 Part 1 and Part 2 the regulations "The Equipment of Power Installations with Electrical Components" DIN VDE 0160 in conjunction with DIN VDE 0580 Part 500 have to be taken into due consideration.

Further attention has to be paid to DIN VDE 0113 Part 1 and Part 200 in case of the control of working and processing machines. If operating elements are to be mounted near parts with dangerous contact voltage DIN VDE 0106 Part 100 is additionally relevant.

If the protection against direct contact according to DIN VDE 0160 is required, this has to be ensured by the user (e.g., by incorporating the elements in a switchgear cabinet). The devices are designed for pollution severity 2 in accordance with DIN VDE 0110 Part 1. If higher pollution is expected, the devices must be installed in appropriate housings.

The user has to guarantee that the devices and the components belonging to them are mounted following these regulations. For operating the machines and installations, other national and international relevant regulations, concerning prevention of accidents and using technical working means, also have to be met.

The ABB Proconic devices are designed according to IEC 1131 Part 2. Meeting this regulation, they are classified in overvoltage category II which is in conformance with DIN VDE 0110 Part 2.

For the direct connection of ABB Proconic devices, which are powered with or coupled to AC line voltages of overvoltage category III, appropriate protection measures corresponding to overvoltage category II according to IEC–Report 664/1980 and DIN VDE 0110 Part 1 are to install.

Equivalent standards:

DIN VDE 0110 Part 1 = IEC 664
DIN VDE 0113 Part 1 = EN 60204 Part 1
DIN VDE 0580 Part 500 = EN 60439-1 = IEC 439-1

All rights reserved to change design, size, weight, etc.

* VDE stands for "Association of German Electrical Engineers".

ABB Schalt- und Steuerungstechnik GmbH Heidelberg
Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General system description</td>
<td>1– 1</td>
</tr>
<tr>
<td>Technical system data</td>
<td>2– 1</td>
</tr>
<tr>
<td>Assortment overview</td>
<td>3– 1</td>
</tr>
<tr>
<td>Assortment overview</td>
<td>3– 2</td>
</tr>
<tr>
<td>Configuration table</td>
<td>3– 3</td>
</tr>
<tr>
<td>Information on ordering</td>
<td>4– 1</td>
</tr>
<tr>
<td>Customer training</td>
<td>5– 1</td>
</tr>
<tr>
<td>Maintenance service and support</td>
<td>6– 1</td>
</tr>
<tr>
<td>Applications department</td>
<td>7– 1</td>
</tr>
<tr>
<td>Customer support and addresses</td>
<td>8– 1</td>
</tr>
<tr>
<td>Definitions</td>
<td>D– 1</td>
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1 General System Description

As a member of the ABB Procontic family, ABB Procontic T200 is a modular programmable control system which has been developed and manufactured using advanced design principles and production methods. ABB Procontic T200 masters a wide range of automation tasks at the lower and medium performance levels from 16 to 1856 inputs/outputs and is used for a great variety of applications such as

- Open-loop control
- Computing
- Closed-loop control
- Communication
- Operating and monitoring
- Event indication, measuring and logging
- Positioning

Because of its sturdy modular design ABB Procontic T200 can readily be used even under onerous industrial conditions.

ABB Procontic T200 is characterized by a compact design. Terminal blocks and electronic components are protected by enclosures.

By the adoption of modern gate-array technology and the provision of optimized configuration capabilities the user gets a powerful automation system with the following features:

- Ease of handling
- Simple construction and wiring
- Fast processing
- Adaptable to several input and output voltages
- Appropriate modularity (I/O modules with 4, 8, 16 and 32 channels)
- Provision for clear labeling
- Ease of servicing due to comprehensive diagnostics and error monitoring
- Simple communication also with alien systems by using a standard protocol
- Powerful preprocessors relieve the central unit of tasks such as positioning, communication, logging and visualization.
- Efficient programming by powerful commands, user-friendly structuring with standardized functions (function program blocks)
- Reliable and field-tested programming software allows programming in the form of function block diagram (FBD), ladder diagram (LD), instruction list (IL) and sequential function chart (SFC).
ABB Procontic T200, Configuration of the Entire System

Process display and control
- 35 BS 95
- 935 PM 71
- IBM AT comp.

Configuration ZB 10
(field bus)
- 07 PH 32
- 930 PC 30
- IBM AT comp.
- Handheld-PC

Long-distance communication
- 07 PH 32
- 907 PC 32
- IBM AT comp.
- Handheld-PC

Programming
- 07 DR 12
- Printer
- 07 PP31
- EPROM-programmer station
- 07 KP 64: RCOM protocol

Remote process display and control
- 35 BS 95
- 935 PM 73
- IBM AT comp.
- 07 PD 12 +
- 35 BS 94

Local process display and control
- 35 BS 95
- 935 PM 73
- IBM AT comp.

ZB10
Bus manager
- 07 ZV 88

ZB10 (Field bus)

ZB50
(PROFIBUS)

ZB20 (T200 bus)

07 NG 6X 62 07 ZE 63 07 ZB 60 07 KP 64 07 TG 67 07 ZB 69 07 KB 69 07 ZB 69 07 PO 60 07 ZB 60

07 NG 6X 07 ZE 60 07 KP 62 07 ZB 60 07 BF 60 07 ZB 60

5 expansion subracks maximum

max. 10 substations per line:
max. 4 lines per central unit

Programming of central units, process display and control and archiving can also be done via remote I/O.
The relevant product standard for the ABB Procontic T200 control system is EN 61131-2 & IEC 1131-2.

Operating and environmental conditions

Voltages

Process voltages UP

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
<th>± 10 %</th>
<th>± 15 %</th>
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</thead>
<tbody>
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<td>UP1 (incl. ripple)</td>
<td>24 V DC (+ 25 %, - 20 %)</td>
<td></td>
<td></td>
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<tr>
<td>UP3</td>
<td>48 V DC (+ 25 %, - 20 %)</td>
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<td></td>
</tr>
<tr>
<td>UP5</td>
<td>12 V DC (± 10 %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UP7</td>
<td>120 V AC (+ 10 %, - 15 %)</td>
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<tr>
<td>UP8</td>
<td>230 V AC (+ 10 %, - 15 %)</td>
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<tr>
<td>Ripple</td>
<td>UP1 = 24 V DC</td>
<td>&lt; 4 V</td>
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<tr>
<td></td>
<td>UP1 = 48 V DC</td>
<td>&lt; 8 V</td>
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Reference potential ZP

ZP: 0 V for process voltage UP

Line voltages UN

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<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>UN1</td>
<td>230 V AC (+ 10 %, - 15 %)</td>
</tr>
<tr>
<td>UN2</td>
<td>120 V AC (+ 10 %, - 15 %)</td>
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</table>

Internal voltages UB

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<th>Voltage</th>
<th>Description</th>
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<td>UB1</td>
<td>5 V DC</td>
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<tr>
<td>UB4</td>
<td>24 V DC</td>
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</table>

Reference potential ZB

ZB: 0 V for internal voltages UB

Temperature

<table>
<thead>
<tr>
<th>Description</th>
<th>Temperature</th>
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<tbody>
<tr>
<td>operation</td>
<td>0 °C ... + 55 °C</td>
</tr>
<tr>
<td>storage</td>
<td>-25 °C ... + 75 °C</td>
</tr>
<tr>
<td>transport</td>
<td>-25 °C ... + 75 °C</td>
</tr>
</tbody>
</table>

Humidity

5...95 %, without condensation

Air pressure

<table>
<thead>
<tr>
<th>Description</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>operation</td>
<td>≥ 800 hPa/&lt; 2000 m</td>
</tr>
<tr>
<td>storage</td>
<td>≥ 660 hPa/&lt; 3500 m</td>
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</table>

Creepage distances and clearances

The creepage distances and clearances meet Overvoltage category II, pollution degree 2

Insulation test voltages

<table>
<thead>
<tr>
<th>Test Voltage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>230 V</td>
<td>against other circuitry 2500 V</td>
</tr>
<tr>
<td>120 V</td>
<td>against other circuitry 1500 V</td>
</tr>
<tr>
<td>24 V</td>
<td>supply, 24 V inputs/outputs, bus against other circuitry 500 V</td>
</tr>
<tr>
<td></td>
<td>if electrically isolated against other circuitry 500 V</td>
</tr>
</tbody>
</table>
Electromagnetic compatibility

- Immunity according to EN 61000-4-2
  - electrostatic discharge (ESD) 8 kV
  - electrostatic voltage in case of air discharge 6 kV

- Immunity against the influence of radiated interference (CW radiated) according to ENV 50140
  - test field strength 10 V/m

- Immunity against transient interference voltages (burst) according to EN 61000-4-4
  - supply voltage units (AC/DC) 2 kV
  - binary inputs/outputs (24 V DC) 1 kV
  - binary inputs/outputs (120/230 V AC) 2 kV
  - analog inputs/outputs 1 kV
  - CS31 system bus 2 kV

- Immunity against the influence line—conducted interferences (CW conducted) according to ENV 50141
  - test voltage 10 V

- Radio disturbance according to EN 55011 radio interference level A *) and according to EN 55022 radio interference level A *) (only for communication modules)

*) If the power supply unit 07 NG 66 R1 is to be used, an EMC filter (FN 680-2,5/06 made by Schaffner or equivalent) must be used in order to meet the radio interference level A.

Mechanical data

Conductor cross section of process terminals

- power supplies L1, N max. 1.5 mm²
- PE max. 2.5 mm²
- I/O modules max. 1.5 mm²
- subracks, ground terminals max. 6.0 mm²

Degree of protection

- IP 20

Vibration resistance

- all three axes continuous 0.0375 mm
- peak 0.075 mm
- 57 Hz...150 Hz continuous 0.5 g
- peak 1.0 g

Shock test

- all three axes 15 g, 11 ms, half—sinusoidal
Mechanical data, mounting dimensions

Dimensioned drawings of subracks in detail see "2 Subracks" (Volume 2)

The width of the units is equal to the width of the slots or a multiple of it (e.g., if a unit needs 2 or 3 I/O slots, see Technical Data of the descriptions of units, Volume 2).

For dimensioned side view of a subrack fitted with units in order to determine the necessary mounting depth see next page.

Fig. 2.1: Mounting dimensions of ABB Procontic T200

All dimensions in mm
Mechanical data, determination of mounting depth

- 170 mm (key of the central unit)
- 150 mm mounting depth
- 255 mm
- 165 mm mounting depth of I/O units
- 180 mm (interface cable, connector block)
- 220 mm (TRIAX cable, connector block)
- 230 mm (interface cable, front panel)

<table>
<thead>
<tr>
<th>Case</th>
<th>07 ZE 60...63</th>
<th>07 BR 60 R1</th>
<th>07 BR 60 R2</th>
<th>07 BR 61 R1</th>
<th>07 BR 61 R2</th>
<th>07 ZB 60 R1</th>
<th>07 ZB 60 R2</th>
<th>07 ZB 69 R1</th>
<th>07 ZB 69 R2</th>
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<tbody>
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<td></td>
<td></td>
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<td></td>
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<td>2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- This case is relevant

Case 1 = 180 mm
Case 2 = 220 mm
Case 3 = 230 mm

The connection of optical fibres as well as the use of system cables 07 SV 60 and 07 SV 61 for central expansion do not influence the mounting depth.

Width of slots or units respectively:
- Power supply slot: NG 55.8 mm
- Central unit slot: ZE 106.5 mm
- Bus connector slot: BV 35.5 mm
- I/O module slot: I/O 35.5 mm

Fig. 2.2: Side view of a subrack fitted with units, determination of mounting depth
Assortment Overview

Assortment overview
Configuration table
### Assortment Overview

Configuring your application the following table can help you to take an overview of the total requirement as well as to prepare an order list.

You find more detailed information about the assortment on the following pages.

### Configuring Table (see next page)

#### Explanations for Using of the Table

1. Make copies of the configuring table.
2. Take the first configuring sheet and fill in all modules and units (accept central units and coupler) used in your application (quantity and type).
3. Enter the occupied I/O points in column "Σ I/O points" and sum them up below. This helps you to select the appropriate central unit(s).

4. Decide depending on type and quantity of modules and units whether a basic subrack is sufficient or a central or remote I/O expansion is required or several central stations connected via bus system are necessary.

5. Create the total configuration, select central unit(s), coupler and communication units as well as quantity and type of subracks.

6. Use for each subrack a separate configuring table. Enter all modules and units into both the drawing(s) of the subrack and the table(s).

7. In each table:
   → Fill in the current consumptions of 5 V and 24 V and sum them up.
   → Depending on the total current consumption select the appropriate power supply unit.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Type</th>
<th>Order No.</th>
<th>Quantity</th>
<th>Type</th>
<th>Order No.</th>
<th>Quantity</th>
<th>Type</th>
<th>Order No.</th>
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</thead>
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<td>07 BT 60 R1</td>
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<td>GJV3074336R2</td>
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ABB Proconic T200/iissued: 06.94

3-3 ASSORTMENT 1
## Subracks

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<tr>
<td>07 BT 60 R1</td>
<td>Basic subrack with slots for the central unit and 2 I/O modules</td>
<td>GJV3074301R1</td>
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<td>07 BT 61 R1</td>
<td>Basic subrack with slots for the central unit and 5 I/O modules</td>
<td>GJV3074302R1</td>
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<td>07 BT 62 R1</td>
<td>Basic subrack with slots for the central unit and 8 I/O modules</td>
<td>GJV3074303R1</td>
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<td>07 BE 60 R1</td>
<td>Expansion subrack with slots for 4 I/O modules</td>
<td>GJV3074304R1</td>
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<td>07 BE 61 R1</td>
<td>Expansion subrack with slots for 7 I/O modules</td>
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<td>07 BE 62 R1</td>
<td>Expansion subrack with slots for 10 I/O modules</td>
<td>GJV3074306R1</td>
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<td>07 BE 69 R1</td>
<td>Expansion subrack for remote I/O couplers</td>
<td>GJV3074309R1</td>
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## Power Supply Units (for inserting into subracks)

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<td>07 NG 60 R1</td>
<td>Power supply unit: input voltage: 110/220 V AC, output voltage: 5 V DC/2 A and 24 V DC/2 A</td>
<td>GJV3074310R1</td>
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<tr>
<td>07 NG 61 R1</td>
<td>Power supply unit: input voltage: 110/220 V AC, output voltage: 5 V DC/4 A and 24 V DC/1.5 A</td>
<td>GJV3074311R1</td>
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<tr>
<td>07 NG 63 R1</td>
<td>Power supply unit: input voltage: 110/220 V AC, output voltage: 5 V DC/9 A and 24 V DC/0.5 A</td>
<td>GJV3074313R1</td>
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<tr>
<td>07 NG 66 R1</td>
<td>Power supply unit: input voltage: 24 V DC, output voltage: 5 V DC/4 A and 24 V DC/1.5 A</td>
<td>GJV3074315R1</td>
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<tr>
<td>07 NG 88 R1</td>
<td>Power supply unit: input voltage: 24 V DC, output voltage: 5 V DC/9 A and 24 V DC/0.5 A</td>
<td>GJV3074317R1</td>
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For power supply units for mounting into switchgear cabinets see "Accessories".

## I/O Expansions and Coupler

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<td>07 BV 60 R1</td>
<td>Bus connector for central I/O expansion</td>
<td>GJV3074370R1</td>
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<tr>
<td>07 BR 60 R1</td>
<td>Remote I/O coupler with triaxial cable 1) for 512 I/O points maximum</td>
<td>GJV3074375R1</td>
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<tr>
<td>07 BR 60 R2</td>
<td>Remote I/O coupler with optical fibre for 512 I/O points maximum</td>
<td>GJV3074375R2</td>
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<tr>
<td>07 BR 61 R1</td>
<td>Remote I/O coupler with triaxial cable 1) for remote substation</td>
<td>GJV3074376R1</td>
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<td>07 BR 61 R2</td>
<td>Remote I/O coupler with optical fibre for remote substation</td>
<td>GJV3074376R2</td>
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<tr>
<td>07 ZB 60 R1</td>
<td>Coupler with triaxial cable 1) for connection to ABB Proconic field bus ZB 10</td>
<td>GJR5240200R1</td>
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<tr>
<td>07 ZB 60 R2</td>
<td>Coupler with TWINAX 2) cable for connection to ABB Proconic field bus ZB 10</td>
<td>GJR5240200R2</td>
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<tr>
<td>07 ZB 69 R1</td>
<td>Coupler with triaxial cable 1) for connection to ZB 20 bus</td>
<td>GJV3074378R1</td>
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<td>07 ZB 69 R2</td>
<td>Coupler with optical fibre for connection to ZB 20 bus</td>
<td>GJV3074379R2</td>
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<td>07 CS 61 R202</td>
<td>Remote I/O coupler for connection of ABB Proconic CS31 to ABB Proconic T200</td>
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## Central Units 3)

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<tr>
<td>07 ZE 60 R302</td>
<td>Central unit for max. 1 subrack with max. 8 I/O slots, only remote I/O expansion possible</td>
<td>GJV3074320R302</td>
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<tr>
<td>07 ZE 61 R302</td>
<td>Central unit for max. 2 subracks with 18 I/O slots in central expansion with 1 subrack, additional remote I/O expansion possible</td>
<td>GJV3074321R302</td>
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<tr>
<td>07 ZE 62 R302</td>
<td>Central unit for max. 5 subracks with 58 I/O slots in central expansion with 5 subracks, additional remote I/O expansion possible</td>
<td>GJV3074322R302</td>
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<tr>
<td>07 ZE 63 R302</td>
<td>Central unit for max. 6 subracks with 58 I/O slots in central expansion with 5 subracks, additional remote I/O expansion possible</td>
<td>GJV3074323R302</td>
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1) TRIAX = triaxial cable (double shielded coaxial cable)

2) TWINAX = twin axial cable (2-core, twisted and shielded high-frequency data transmission line)

3) Depending on the size of the user program the central unit has to be equipped with an appropriate program memory which has to be ordered separately.
Program Memories

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<td>07 PS 60</td>
<td>Program memory: CMOS RAM with 3.5 k instructions, RAM data memory with 2 k word flags</td>
<td>GJV3074330F2</td>
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<tr>
<td>07 PS 61</td>
<td>Program memory: CMOS RAM with 7.6 k instructions, RAM data memory with 2 k word flags</td>
<td>GJV3074331R2 or GJV3074331R3</td>
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<tr>
<td>07 PS 62</td>
<td>Program memory: CMOS RAM with 15.7 k instructions, RAM data memory with 16 k word flags</td>
<td>GJV3074332R2 or GJV3074332R3</td>
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<tr>
<td>07 PS 63</td>
<td>Program memory: CMOS RAM with 48.5 k instructions, RAM data memory with 50 k word flags</td>
<td>GJV3074333R2 or GJV3074333R3</td>
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<td>07 PR 62</td>
<td>Program memory: EPROM with 15.7 k instructions, RAM data memory with 16 k word flags</td>
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<tr>
<td>07 PR 63</td>
<td>Program memory: EPROM with 48.5 k instructions, RAM data memory with 50 k word flags</td>
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Binary Input Modules

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<td>Binary input module 24 V AC/DC, electrically isolated, 16 inputs</td>
<td>GJV3074340F1</td>
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<tr>
<td>07 EB 61 R1</td>
<td>Binary input module 24 V AC/DC, electrically isolated, 32 inputs</td>
<td>GJV3074341R1</td>
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<td>07 EB 62 R1</td>
<td>High-speed binary input module 24 V DC, el. isolated, 32 inputs</td>
<td>GJV3074342R1</td>
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<tr>
<td>07 EB 63 R1</td>
<td>Binary input module 48 V AC/DC, electrically isolated, 16 inputs</td>
<td>GJV3074343R1</td>
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<td>Binary input module 48 V AC/DC, electrically isolated, 32 inputs</td>
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<tr>
<td>07 EB 65 R1</td>
<td>Binary input module 110 V AC, electrically isolated, 16 inputs</td>
<td>GJV3074346R1</td>
</tr>
<tr>
<td>07 EB 67 R1</td>
<td>Binary input module 220 V AC, electrically isolated, 16 inputs</td>
<td>GJV3074347R1</td>
</tr>
</tbody>
</table>

Analog Input Modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 EA 60 R1</td>
<td>Analog input module 0...10 V, 8 bits, 8 channels, el. isolated</td>
<td>GJV3074350R1</td>
</tr>
<tr>
<td>07 EA 61 R1</td>
<td>Analog input module 4...20 mA, 8 bits, 8 channels, el. isolated</td>
<td>GJV3074351R1</td>
</tr>
<tr>
<td>07 EA 62 R1</td>
<td>Analog input module -10...+10 V, 12 bits, 8 channels, el. isolated</td>
<td>GJV3074352R1</td>
</tr>
<tr>
<td>07 EA 63 R1</td>
<td>Analog input module 4...20 mA, 12 bits, 8 channels, el. isolated</td>
<td>GJV3074353R1</td>
</tr>
<tr>
<td>07 EA 64 R1</td>
<td>Analog input module 0...20 mA, 8 bits, 8 channels, el. isolated</td>
<td>GJV3074355R1</td>
</tr>
<tr>
<td>07 EA 65 R1</td>
<td>Analog input module 0...20 mA, 12 bits, 8 channels, el. isolated</td>
<td>GJV3074359R1</td>
</tr>
<tr>
<td>07 EA 66 R1</td>
<td>Analog input module Pt 100, measuring range -50 °C to +400 °C, 13 bits, 8 channels, electrically isolated</td>
<td>GJV3074354R1</td>
</tr>
<tr>
<td>07 EA 67 R1</td>
<td>Analog input module for thermocouples, 13 bits, 8 channels electrically isolated, measuring range 0 °C to 1600 °C</td>
<td>GJV3074358R1</td>
</tr>
</tbody>
</table>

Special Input Modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 EI 60 R1</td>
<td>Interrupt input module 24 V DC, electrically isolated, 16 interrupt channels</td>
<td>GJV3074357R1</td>
</tr>
<tr>
<td>07 ZG 60 R1</td>
<td>High-speed counter, 16 bits, 50 kHz</td>
<td>GJV3074356R1</td>
</tr>
</tbody>
</table>

Binary Output Modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 AB 60 R1</td>
<td>Binary output module, transistor outputs, electrically isolated, 16 outputs</td>
<td>GJV3074360R1</td>
</tr>
<tr>
<td>07 AB 61 R1</td>
<td>Binary output module, transistor outputs, electrically isolated, 32 outputs</td>
<td>GJV3074361R1</td>
</tr>
<tr>
<td>07 AB 62 R1</td>
<td>Binary output module, transistor outputs, short-circuit proof, electrically isolated, 16 outputs</td>
<td>GJV3074362R1</td>
</tr>
<tr>
<td>07 AB 63 R1</td>
<td>Binary output module, transistor outputs, short-circuit proof, electrically isolated, 32 outputs</td>
<td>GJV3074363R1</td>
</tr>
<tr>
<td>07 AB 67 R1</td>
<td>Binary output module, relay outputs, electrically isolated, 16 outputs</td>
<td>GJV3074364R1</td>
</tr>
<tr>
<td>07 AB 68 R1</td>
<td>Binary output module, thyristor outputs, electrically isolated, 16 outputs</td>
<td>GJV3074373R1</td>
</tr>
</tbody>
</table>
## Analog Output Modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 AA 60 R1</td>
<td>Analog output module</td>
<td>GJV3074365R1</td>
</tr>
<tr>
<td>07 AA 61 R1</td>
<td>Analog output module</td>
<td>GJV3074365R1</td>
</tr>
<tr>
<td>07 AA 62 R1</td>
<td>Analog output module</td>
<td>GJV3074365R1</td>
</tr>
<tr>
<td>07 AA 63 R1</td>
<td>Analog output module</td>
<td>GJV3074365R1</td>
</tr>
<tr>
<td>07 AA 65 R1</td>
<td>Analog output module</td>
<td>GJV3074365R1</td>
</tr>
</tbody>
</table>

## Communication Units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 KP 60 R101</td>
<td>Communication processor (interfaces for RS-232-C and RS-422)</td>
<td>GJV3074380R101</td>
</tr>
<tr>
<td>07 KP 62 R101</td>
<td>Communication processor ASCII (2 interfaces for RS-232-C)</td>
<td>GJR5240400R101</td>
</tr>
<tr>
<td>07 KP 63 R101</td>
<td>Communication processor PROFIBUS (2 interfaces for RS-232-C and 2 interfaces for RS-485)</td>
<td>GJR5240500R101</td>
</tr>
<tr>
<td>07 KP 64 R101</td>
<td>Communication processor RCOM (2 interfaces for RS-232-C)</td>
<td>GJR5240600R101</td>
</tr>
<tr>
<td>07 KT 60 R101</td>
<td>Text processor (interfaces for RS-422 or RS-423 (RS-232-C))</td>
<td>GJV3074381R101</td>
</tr>
</tbody>
</table>

## Preprocessors

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 IR 60 R101</td>
<td>Industrial computer Basic</td>
<td>GJV3074385R101</td>
</tr>
<tr>
<td>07 PO 60 R201</td>
<td>One-axis positioning unit</td>
<td>GJR5240000R201</td>
</tr>
<tr>
<td>07 UD 60 R1</td>
<td>Programmable real-time clock</td>
<td>GJV3074384R1</td>
</tr>
</tbody>
</table>

## System Cables

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 SV 60 R1:</td>
<td>System—expansion cable for central I/O expansion connecting central unit and expansion subrack (cable length 0.5 m)</td>
<td>GJV3074371R1</td>
</tr>
<tr>
<td>07 SV 60 R2:</td>
<td>System—expansion cable for central I/O expansion connecting central unit and expansion subrack (cable length 1.0 m)</td>
<td>GJV3074371R2</td>
</tr>
<tr>
<td>07 SV 61 R1:</td>
<td>System—expansion cable for central I/O expansion connecting two subracks (cable length 0.5 m)</td>
<td>GJV3074372R1</td>
</tr>
<tr>
<td>07 SV 61 R2:</td>
<td>System—expansion cable for central I/O expansion connecting two subracks (cable length 1.0 m)</td>
<td>GJV3074372R2</td>
</tr>
<tr>
<td>07 SZ 60 R1:</td>
<td>System cable set connecting an input/output module and its remote mounted front panel</td>
<td>GJV3074398R1</td>
</tr>
<tr>
<td>07 SK 60 R2:</td>
<td>Interface cable connecting the serial interface of a central unit and the hand-held monitoring tool 07 BG 60 (cable length 2 m)</td>
<td>GJV3074329R2</td>
</tr>
<tr>
<td>07 SK 60 R5:</td>
<td>Interface cable connecting the serial interface of a central unit and the hand-held monitoring tool 07 BG 60 (cable length 5 m)</td>
<td>GJV3074329R5</td>
</tr>
<tr>
<td>07 SK 61 R1:</td>
<td>Serial interface cable; SUB—D plugs: Side A: 25 pole female; side B: 15 pole male</td>
<td>GJV3073906R1</td>
</tr>
<tr>
<td>07 SK 62 R1:</td>
<td>Serial interface cable; SUB—D plugs: Side A: 9 pole female; side B: 15 pole male</td>
<td>GJV3073907R1</td>
</tr>
<tr>
<td>07 SK 63 R1:</td>
<td>Serial interface cable for connection of the industrial computer Basic 07 IR 60</td>
<td>GJV3073908R1</td>
</tr>
<tr>
<td>07 SK 64 R1:</td>
<td>Serial interface cable for connection of the text processor 07 KT 60</td>
<td>GJV3073909R1</td>
</tr>
<tr>
<td>07 SK 65 R1:</td>
<td>Serial interface cable for connection of the positioning unit 07 PO 60</td>
<td>GJV3073910R1</td>
</tr>
</tbody>
</table>
07 SK 66 R1: Serial interface cable for connection between 2 positioning units 07 PO 60 and the electronic switch and control logic 35 US 50

07 SK 67 R1: Serial interface cable for connection of the text processor 07 KT 60 to the printer 07 DR 12

07 SK 68 R1: Serial interface cable for connection of the text processor 07 KT 60 to the operator station 35 BS 40

07 SK 90..92R1: Interfaces cables for connection of peripheral units to the 9-pole serial interfaces of the compact PLCs 07 KR 91, 07 KT 92 (ABB Proconct CS31) and the communication processors 07 KP 62, 07 KP 63 and 07 KP 64 (ABB Proconct T200):

- 07 SK 90 R1
- 07 SK 91 R1
- 07 SK 92 R1

07 LK 60 R1: Fibre-optic cable (Patchcord) for direct connection between couplers (07 BR 60/61 R2, 07 ZB 69 R2)

07 LK 61 R1: Fibre-optic cable (Pigtail) for connection of couplers (07 BR 60/61 R2, 07 ZB 69 R2) to an external optical fibre

07 LV 60 R1: Fibre-optic coupling device for cable-to-cable connection and test and measurement purposes

### Accessories

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 PR 67 R1</td>
<td>EPROM Set for program memory 07 PR 62 R1 1)</td>
</tr>
<tr>
<td>07 PR 67 R2</td>
<td>EPROM Set for program memory 07 PR 62 R2</td>
</tr>
<tr>
<td>07 PR 68 R1</td>
<td>EPROM Set for program memory 07 PR 63 R1 1)</td>
</tr>
<tr>
<td>07 PR 68 R2</td>
<td>EPROM Set for program memory 07 PR 63 R2</td>
</tr>
<tr>
<td>07 LB 60 R1</td>
<td>Replacement lithium battery</td>
</tr>
<tr>
<td>07 LE 90 R1</td>
<td>Lithium battery module</td>
</tr>
<tr>
<td>07 BA 60 R1</td>
<td>Dummy module for empty I/O slots</td>
</tr>
<tr>
<td></td>
<td>Replacement fuse fast 5 A, for module 07 AB 61</td>
</tr>
<tr>
<td></td>
<td>Replacement fuse fast 7.5 A, for module 07 AB 60</td>
</tr>
<tr>
<td></td>
<td>Spare key for central units</td>
</tr>
<tr>
<td>07 NG 32 R1</td>
<td>Power supply unit 115/230 V AC / 24 V DC, 2.5 A</td>
</tr>
<tr>
<td>07 NG 34 R1</td>
<td>Power supply unit 115/230 V AC / 24 V DC, 5.0 A</td>
</tr>
<tr>
<td>07 NG 35 R1</td>
<td>Power supply unit 230/400 V 3-phase AC / 24 V DC, 10 A</td>
</tr>
<tr>
<td>07 NG 36 R1</td>
<td>Power supply unit 230/400 V 3-phase AC / 24 V DC, 20 A</td>
</tr>
</tbody>
</table>

1) R1 will no longer be available in the future
General ABB Proconic designation systematics

Modules or components of the ABB Proconic T200 PLC are functionally designated via the type designation. The handling mode to address the units and components is done by using the order number. ABB Proconic modules are designated according to the following rules:

a) Type designation

Example:

```
0 7  K P  6 0 R 0101
```

- Hardware version number
- Software version number
- Version designation
- Designation for the module
- Designation for the controller group
- Designation the kind of the module
- Controller technique in general

Remark: The leading zeroes of the Hardware or Software version number can be omitted, e.g., 07 KP 60 R101 and 07 KP 60 R0101 or 07 BT 60 R1 and 07 BT 60 R0001 resp. are of equal value. The short form is preferred.

Designation of the kind of the units

- BT Basic subrack
- BE Expansion subrack
- NG Power supply unit
- BV Bus connector
- SV System-connection cable
- ZE Central unit
- PS Program memory (CMOS)
- PR Program memory (EPROM)
- EB Binary input module
- EA Analog input module
- ZG Counter
- EI Interrupt input module
- AB Binary output module
- AA Analog output module
- BR Remote I/O coupler
- ZB Coupler
- KP Communication processor
- KT Text processor
- IR Industrial computer
- PO Positioning unit
- UD Programmable real-time clock
- LB Lithium battery
- LE Lithium battery module
- BA Dummy module
- SZ System cable set
- SK System cable
- LK Fibre-optic cable
- LV Fibre-optic coupling device

b) Order number

Example: GJV3074301R1

Units which are more or less similar but not completely identical, are distinguished by the version designation (hardware version number and software version number). The version data of the type designation and in the order number are equal.

c) Data for ordering

To ensure a correct delivery the data for ordering have to comprise the complete type designations and order numbers.
To support project planning, commissioning, and operating of ABB Procontic control systems

ABB Schalt- und Steuerungstechnik GmbH
Abt. SST/MPS
Eppelheimer Straße 82  Postfach 10 50 09
D-69123 Heidelberg D-69040 Heidelberg
Telefon 06221 777-202
Telefax 06221 777-351

offers customer training. If desired, training can also be performed at customer sites.

For detailed information on this training please refer to our "Seminar catalogue", which can be requested over the above mentioned address, over all other ABB service centres or all ABB Schalt- und Steuerungstechnik representatives.

The enrolment is to be done by directly contacting ABB Schalt- und Steuerungstechnik or via our regional offices.

The following seminars can be attended:
Basic knowledge
and programming

Knowledge of the different hardware components of the decentralized intelligent automation systems, basic knowledge of the ABB Procontic control systems and the 907 PC 33 programming system.

Practical training with the programming software at the automation systems. Exercises with different tasks at the 07 KR 91 / 07 KT 92 central units.

Bus systems
at ABB Procontic control systems

Knowledge of the ABB Procontic CS31 system bus. Start-up of the networking between different ABB automation systems via ZB20, ARCnet, Pdnet and MODBUS. Getting knowledge of the possibilities for communication between automation systems via the telephone network or via dedicated lines with RCOM. Exercises with the mentioned items.

Process visualization with
ABB Procontic control systems

Knowledge of the process visualization by means of process visualization software packages. Training of man-machine-communication. Exercises to the items at the model plant "Liquid-level control".

ABB Procontic T200 – S, the safety-related automation system

Knowledge of the hardware and software components of the safety-related automation system. Programming and commissioning of the T200 – S. Exercises at the model plant "3-axes model".

Customer-specific seminars

Upon request, seminars can also be arranged as desired by the customer. Depending on the requirements, seminars can be held in Heidelberg or in another place.

Concerning the automation systems ABB Procontics – plus, e, b, K200, T300, Axumerik m and the positioning of axes, we also offer seminars. Based on your requirements, we gladly arrange an individual seminar for you.

ABB Procontic
maintenance seminars

Getting knowledge of the programming language and the hardware components, possible combinations, start-up of a model plant including trouble shooting in the automation system, in the area of the process interface level and in the model plant itself.

ABB Procontic
project planning seminars

Project planning, programming and commissioning of model plants. Principles of networking and the data exchange via serial interfaces (process control). Practical training at the automation systems.
Maintenance Service

We operate a qualified service department, so we can help you to solve even difficult problems.

- Advice by telephone (Help line)
- Trouble shooting and fault recovery of the machine and plant
- Support in case of program development
- Training of the personnel in the factory
- Renting of programming tools

In case of service support we ask you to do the according preparations depending on the desired service e. g.:

- Making available the complete documentation
- Free access to the machine/plant
- Assignment of operating personnel etc.

Inquiries and orders are to address to:

ABB Schalt- und Steuerungstechnik GmbH
Abteilung SST/OA

Impexstraße 5
D-69190 Walldorf

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Teletax +49 6227 39-288

Support

The range of support provides for the following:

- Delivery of spare equipment
- Repairing of faulty units and systems

Inquiries and orders are to address to:

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Eppelheimer Straße 82
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Telephone +49 6221 777-444
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Our modular programmable control system ABB Procontic T200 provides you with a wide range of high-performance modules and standard software to master all your applications.

The applications department helps you select the appropriate system for solving your particular tasks. We are also in a position to develop your special user- or problem-oriented user program.

In this way you can make use of ABB's know-how in the field of 'factory automation'.

In particular the applications department offers:

- Cooperation during specification of control tasks and defining of the most suitable system configuration
- Developing of user programs such as PLC instruction lists or sequential function charts for the ABB Procontic T200 system
- Commissioning

Precondition for this is that a time schedule is agreed and progress of work supervised continuously by a project engineer to be appointed by the user.

For assistance please contact the Applications Department:

ABB Schalt- und Steuerungstechnik GmbH
Projekte, Applikationen, Engineering
Abteilung SST/MPE
Eppelheimer Straße 82
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D–69040 Heidelberg

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You can consult competent ABB employees worldwide under the following addresses, and they will be pleased to advise you:

**Germany**

**Hotline** Control Engineering:
Technical information, advising assistance by telephone

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D Definitions

A

AWP user program

B

Basic subrack abbreviation BT (German: Baugruppen-Träger), subrack with a slot for a central unit. Mountable are coupler to ABB Proconic field bus ZB 10 and ABB Proconic bus ZB 20 as well as all preprocessors, communication units and input/output modules. From the basic subrack begins the central and/or the remote expansion.

Battery lifetime The value of the battery lifetime says how long the battery is able to buffer the stored data when the unit is not supplied by supply voltages. If the supply voltages are present the battery is only discharged by its own leakage current.

BE see ‘expansion subrack’

Bit flag internal latch for one binary digit (0, 1)

Breakpoint is a test mode

BT see ‘basic subrack’

Buffering back-up of RAM data contents, when supply voltages fail

BV abbreviation of ‘bus connector’. (German: Bus-Verbinder).

BV slot bus connector slot, first slot to the right of the power supply slot (NG slot) in the expansion subrack. The bus connector 07 BV 60 or the coupler 07 BR 61 can be placed here.

C

Central I/O expansion By means of system cables and bus connectors 07 BV 60 the central unit can operate with further I/O modules which are installed nearby in expansion subracks (e.g. in the same cubicle).

Central station configuration consisting of a basic subrack equipped with modules plus (if existing) one or more expansion subracks of a central expansion.

D

Error code encoded error information (e.g. a number)

Error flag bit- or word flag used for the indication of an error

Expansion subrack abbreviation BE (German: Erweiterungs-Baugruppenträger), subrack without a slot for a central unit, used for mounting of modules in central or remote expansion

E

FBD abbreviation of ‘function block diagram’

Flags store intermediate results

to force stored overwriting of a variable, independent of operating results of the control

Function program block standardized software function

G

H

High-Byte (higher byte), higher byte of a word (the most significant 8 bits)

I

IL abbreviation of ‘instruction list’

Instruction part of a program (smallest convenient subdivision). Normally one instruction occupies 32 bits of a program memory. The data ‘capacity’ specified in the data sheet ‘program memories’ corresponds to this size of an instruction. The real size of the diverse instructions is described in the list of operators.

Internal voltages supply voltages (5 V DC and 24 V DC) available on the back panel (bus), supplying the internal circuitry of modules and units

Interrupt a break in the normal flow of cyclic operation

Interrupt signal signal that causes an interrupt

I/O point smallest unit with respect to the addressing.
1 I/O point is 1 bit. For I/O modules is defined: 1 channel requires 1 I/O point, 1 word-channel requires 16 I/O points.
I/O slot slot in a subrack where an input/output module can be placed. In a basic subrack all permitted units can be mounted in I/O slots (accep power supply unit and central unit). If an expansion subrack is used for a remote expansion the coupler 07 BR 61 (double-sized module) occupies the BV slot (bus connector slot) plus 1 I/O slot. The interrupt input module 07 EI 60 cannot be used in remote I/O expansion.

In expansion subracks used for central expansion it is possible to mount text processors 07 KT 60 and positioning units at I/O slots.

Remote I/O input/output modules located in remote substations

Remote I/O expansion The central station is in a basic subrack. By means of triaxial cables or optical fibres the central station and remote substations (remote I/O expansion) are connected over large distances. Coupler for use: 07 BR 60 (in the basic subrack) and 07 BR 61 (in each remote substation). The central unit in the basic subrack can operate with up to 4 lines (one coupler per line is necessary). Up to 10 remote substations can be connected to 1 line.

Remote substation (decentralized I/O station), expansion subrack with coupler and I/O modules connected via remote expansion to a central station

S

SFC abbreviation of 'sequential function chart'

Single cycle Test mode: Each time a preset number of cycles is processed

Single step Test mode: The program is processed command after command

T

Timer is adjusted by software

U

UB abbreviation for 'internal voltages', see 'internal voltages'

UN abbreviation of 'line voltage'

UP abbreviation of 'process voltage'

V

W

Word a data element of length 16 bits

Word flag internal latch for one word

Z

ZB Reference potential (0 V) for internal voltages UB

ZE abbreviation of 'central unit', (German: Zentral-Einheit)

ZE slot first slot to the right of the NG slot (power supply slot) in basic subracks. Only central units (including program memory) can be placed here.

ZP Reference potential (0 V) for process voltages UP