System description

ABB Procontic T300

Multiprocessor Control System

General Part

Order number
GATS 1315 01 R2002 part 1
replaces
Publication number
D AT 1679 87 E

ABB Schalt- und Steuerungstechnik GmbH
Regulations

Regulations Concerning the Setting up of Installations

Apart from the basic "Regulations for the Setting up of Power Units" VDE 0100 and for "The Rating of Creepage Paths and Air Gaps" VDE 0110 the regulations "The Equipment of Power Units with Electrical Components" VDE 0160 in connection with VDE 0680, part 500, have to be taken into due consideration. Further attention has to be paid to VDE 0113 in case of the control of working and processing machines. If operating elements are to be arranged near shock-hazard parts with protection against electrical shock, VDE 0105, part 100, is relevant.

The user has to ensure that the units as well as the associated components have to be installed according to these regulations. Respectively valid safety regulations, e.g. regulation for the prevention of accidents and the law concerning technical working material, are valid for machines and units connected as well.

ABB Procontic units have been built according to VDE regulation 0160. The protection against direct touching as demanded by chapter 5.5.1 of this VDE regulation has to be satisfied by the user, e.g. at installing of switch cabinet.

ABB Procontic units have been designed for operation according to insulation class A of VDE 0110. If considerable pollution is expected during operations, the units have to be installed in housings of the respective kind of protection.

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

Note: Please observe the national regulations for the installation of electrical equipments, which are valid in your country.

ABB Schalt- und Steuerungstechnik GmbH
ABB Procontic T300 is a controller with a modular structure for the realization of very different tasks with a single system solution.

The function blocks:
- Programmable controller PLC
- Numerical controller CNC
- Industrial computer IC

are formed with the same basic hardware.

Any combination or accumulation of these functions is possible with the multiprocessor capability of the ABB Procontic T300 for the automation task. The function blocks communicate with each other via the system bus.
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<td>7</td>
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<td>8</td>
<td>Advice support and addresses</td>
<td>8- 1</td>
</tr>
</tbody>
</table>
ABB Proconic T300 has the following structure and capabilities divided according to function blocks:

**ABB Proconic T300, function block PLC**

This function block is generally the central block for solving an automation problem as regards the control.

It consists of a central unit 35 ZE 93 and various binary and analog input and output units as an interface for the process.

An extensive command reserve is available for the use, testing and communication with other PLC processors.

Programming the user programs can be carried out via an IBM compatible personal computer (PC) and the ABB programming software either in the

- Instruction list
- Function block diagram or
- Ladder diagram.

The language scope for compiling the user programs includes the following functions, among others:

- Binary and word processing
- Comparison functions
- Function blocks including control blocks.
- Text outputs (messages)
- Axis control.

**ABB Proconic T300, function block CNC**

The function block CNC, for positioning or path control, is capable of controlling an almost infinite number of axes or moving according to a given path due to the possibility of the multiple use.

Axis cards and positioning modules are used here as I/O units.

The paths to be moved can be programmed in the absolute measuring system or the relative measuring system. The positioning module moves a maximum of 16 axes in a path-controlled way. The path control module can interpolate a maximum of 4 axes; 3 axes in a linear way or 2 axes in a circular way.

Programming the function block CNC is carried out in accordance with DIN 66025. Every function can be programmed individually via a central interface. A personal computer or a standard terminal can be used as the programming unit. DNC transfer including set operating modes and manual functions is also possible.

The data exchange with the function block PLC is carried out via the multiprocessor-based control parallel bus.

**ABB Proconic T300, function block IC**

The industrial computer is a computer, which can be used in an industrial environment for processing automation tasks.

The scope of use of the industrial computer includes data processing, man–machine communication and networking.

Programming the industrial computer is carried out in the usual high-level languages like PASCAL, C, FORTRAN, etc. The program compilation can be carried out on an IBM compatible personal computer, an INTEL development system or on the industrial computer itself.

A programming system known to the programmer is used. The operating system manages the operating means typical for a computer, like, e.g., the memory tasks, communication means, the printer and the bulk storage device.

The ABB Proconic T300 is a modular automation system from the ABB Proconic family, which was developed and produced with very modern points of view. ABB proconic T300 fulfills all the main automation tasks in the medium and upper performance levels.
## 2 Technical System Data, Features and General Capabilities

### Voltage data

<table>
<thead>
<tr>
<th>Process voltage UP</th>
<th>24 V DC (+ 25 %, - 20 %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP\textsubscript{1} (incl. residual ripples)</td>
<td>or 48 V DC (+ 25 %, - 20 %)</td>
</tr>
<tr>
<td>UP\textsubscript{3}</td>
<td>12 V DC (+ 10 %)</td>
</tr>
<tr>
<td>UP\textsubscript{5}</td>
<td>110 V AC (+ 20 %, - 22 %)</td>
</tr>
<tr>
<td>UP\textsubscript{7}</td>
<td>or 220 V AC (+ 20 %, - 22 %)</td>
</tr>
<tr>
<td>UP\textsubscript{8}</td>
<td>24 V AC</td>
</tr>
<tr>
<td>Residual ripples U\textsubscript{pp}</td>
<td>48 V AC</td>
</tr>
<tr>
<td>UP\textsubscript{1} = 24 V DC</td>
<td>&lt; 4 V</td>
</tr>
<tr>
<td>UP\textsubscript{1} = 48 V DC</td>
<td>&lt; 8 V</td>
</tr>
<tr>
<td>Reference potential ZP</td>
<td>0 V for process voltage UP</td>
</tr>
<tr>
<td>ZP</td>
<td></td>
</tr>
<tr>
<td>Mains voltage UN</td>
<td>220 V AC (+ 20 %, - 22 %)</td>
</tr>
<tr>
<td>UN\textsubscript{1}</td>
<td>110 V AC (+ 20 %, - 22 %)</td>
</tr>
<tr>
<td>UN\textsubscript{2}</td>
<td></td>
</tr>
<tr>
<td>Logic voltage UB</td>
<td>5 V DC</td>
</tr>
<tr>
<td>UB\textsubscript{1}</td>
<td>24 V DC</td>
</tr>
<tr>
<td>UB\textsubscript{4}</td>
<td></td>
</tr>
<tr>
<td>Reference potential ZB</td>
<td>0 V for logic voltage UB</td>
</tr>
<tr>
<td>ZB</td>
<td></td>
</tr>
</tbody>
</table>

### Creep distances and air gaps

The creep distances and air gaps correspond to the DIN VDE regulation 0160.

### Test voltages

The test voltages correspond to the DIN VDE regulation 0160.

### Electro–magnetic compatibility

The electro–static discharge (ESD) corresponds to the standard IEC 801–2 with a severity of 3. Interference voltage

8 kV

The radiation with electro–magnetic fields (RFI=radio-frequency interference) corresponds to the standard IEC 801–3.

Field strength

10 V/m

The fast transient test (FTT) meets the standard specification IEC 801–4. Interference voltages for:

- 220 V AC power supply units 2 kV
- 24 V DC power supply units 1 kV
- binary I/O units 110 V/220 V 2 kV
- binary I/O units 24 V 1 kV
- analog I/O units 1 kV
- networking 2 kV
- other connections 0.5 kV
Radio interference level

The measurement of the radio interference voltage is carried out according to the DIN VDE regulation 0871, limit value category A.

Operating conditions

Temperature according to DIN 40040 operation, storage, transport

Humidity according to DIN 40040 annual average on 30 days in the year on the other days when observing the annual average, occasionally

Air pressure according to DIN 40040 operation, storage

Resistance to vibration

Degree of protection

according to DIN 40050 IP 20

Conductor cross sections of the process connections

Power supplies
L1, N max. 1.5 mm²
PE max. 2.5 mm²
I/O units max. 1.5 mm²
Subrack, earth terminals max. 6.0 mm²

Function block PLC

Note: The data listed in the following are valid for one PLC central unit each.

Number of the user programs

battery buffer

Inputs, binary
Outputs, binary
Inputs, word
Outputs, word
Flags, binary
Flags, word
Constants, binary
Constants, word
Constants, double word
Program processing per 1 K instructions:
Bit
Word

2, time-controlled with a maximum of 14K control instructions per central unit for user program, operand memory and comment memory

1024
1024
256
256
4096 per program
4096 per program
2 per program
640 per program
128 per program

3 ms
6 to 17 ms
Function block CNC

General capabilities:

Displays
Operation modes

G and M functions:

Zero point shift
Path programming
Number of NC programs

Capabilities of the path control:

Path-controlled axes
Level selection
Interpolation
Interpolation and position control cycle
Linear interpolation
Path speed
Sentence sequence time
Circular interpolation
Override
Max. jog speed
Acceleration and deceleration ramps
Measuring cycle can be recalled via a G function

Capabilities of the positioning control:

Number of the path-controlled axes
Position control
Programming possibility
Max. jog speed
Interpolation and position control cycle

selectively all actual values or following errors
single sentence mode/automatic mode

programmable
in increments μm or mm
999 (max. 256 KBytes)

2 to 4
x/y, y/z, x/z
Helical interpolation
5 ms
in 3 axes (4th axis is towed)
programmable
5 ms
in 2 out of 3 axes (3rd axis is towed)
adjustable
16 m/min (with 1 μm resolution)
can be switched per G function

1 ... 16
disconnectable
jog path and speed for each axis
64 m/min with 1 μm resolution
2.5 ms + number of axes x 0.5 ms

Function block IC

Features of the industrial computer function block:

- Infinite extension to the single board computer
through to the multi-microcomputer system
- The separation of the local bus and the multiprocessor-based control system bus guarantees a high processing speed
- An additional 80 bit arithmetical processor (8087)
can be used, if necessary
- Intelligent preprocessing of process signals with a high calculation performance
- Several data transfer possibilities
- Real-time multi-user operating system IRMX 86 with
real-time processing in the μs range, almost parallel
control of processes, multi-computing, user-friendly
operation, connection with superior units, support
from standard peripheral units.
### Assortment Overview

#### Subracks

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 GS 91 R1</td>
<td>Subrack 19”, 6 U, for 16 slots with a bus line and a power supply unit 220 V AC, 5 V DC/25 A, ± 15 V DC/1A</td>
<td>GJR5136400R1</td>
</tr>
<tr>
<td>35 GS 93 R1</td>
<td>Subrack 19”, 6 U, for 16 slots with a bus line and a power supply unit 24 V DC, 5 V DC/12 A, ± 15 V DC/2A</td>
<td>GJR5144000R1</td>
</tr>
<tr>
<td>34 LU 31 R2</td>
<td>Ventilation level</td>
<td>GJV3071301R2</td>
</tr>
</tbody>
</table>

#### Power supply units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 NE 93 R1</td>
<td>Power supply unit 24 V DC, 5 V DC/12 A, ± 15 V DC/2A as a plug-in unit in 35 GS 93 R1</td>
<td>GJV3072601R1</td>
</tr>
</tbody>
</table>

#### Couplers

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 EK 90 R1</td>
<td>Bus-coupler for 1st subrack (basic subrack) for the connection of up to 3 extension subracks</td>
<td>GJR5143100R1</td>
</tr>
<tr>
<td>35 EK 91 R1</td>
<td>Bus-coupler for 2nd to 4th subracks (extension subracks)</td>
<td>GJR5143200R1</td>
</tr>
<tr>
<td>35 SK 96 R1</td>
<td>Connection cable for the bus coupler</td>
<td>GJR5143700R1</td>
</tr>
</tbody>
</table>

#### Processor units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 ZP 93 R11</td>
<td>Processor unit with a processor, Intel 8086, 5 MHz</td>
<td>GJR5133200R11</td>
</tr>
<tr>
<td>35 ZP 93 R21</td>
<td>Processor unit with processors, Intel 8086 and 8087, 5 MHz</td>
<td>GJR5133200R21</td>
</tr>
<tr>
<td>35 ZP 93 R31</td>
<td>Processor unit with a processor, Intel 8086, 8 MHz</td>
<td>GJR5133200R31</td>
</tr>
<tr>
<td>35 ZP 93 R41</td>
<td>Processor unit with processors, Intel 8086 and 8087, 8 MHz</td>
<td>GJR5133200R41</td>
</tr>
</tbody>
</table>
### Data interface units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 DS 90 R20</td>
<td>Data interface and memory extension for 35 ZP 93 serial interfaces RS 422, RS 232 and current loop 20 mA, data transfer rate adjustable from 110 ... 38400 baud; memory expansion up to 256 KByte is possible</td>
<td>GJR5133300R2000</td>
</tr>
<tr>
<td>35 DS 91 R2</td>
<td>Data interfaces with memory for 35 ZP 93 R31/R41 mit buffered memory, 2 serial interfaces RS 422, RS 232 data transfer rate adjustable from 110 ... 38400 baud; memory expansion up to 512 KByte is possible</td>
<td>GJR5137400R1</td>
</tr>
<tr>
<td>35 DS 91 R3</td>
<td>Data interfaces and memory extension for 35 ZP 93 R31/R41 mit battery buffered memory, 2 serial interfaces RS 422, RS 232 with iSBX interface for multi-function modules, data transfer rate adjustable from 110 ... 38400 baud; memory expansion up to 512 KByte is possible</td>
<td>GJR5137400R3</td>
</tr>
</tbody>
</table>

### Program memories

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<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 PS 91 R12</td>
<td>RAM card with 32 KByte memory, battery buffered</td>
<td>GJR5137100R12</td>
</tr>
<tr>
<td>35 PS 91 R13</td>
<td>RAM card with 128 KByte memory, with automatic error detection and correction (EDC), battery buffered</td>
<td>GJR5137100R13</td>
</tr>
<tr>
<td>35 PS 91 R14</td>
<td>RAM card with 128 KByte memory, battery buffered</td>
<td>GJR5137100R12</td>
</tr>
<tr>
<td>35 PS 91 R22</td>
<td>RAM card with 514 KByte memory, battery buffered</td>
<td>GJR5137100R12</td>
</tr>
</tbody>
</table>

### PLC central processors

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 ZE 93 R301</td>
<td>Central processor PLC with 14 K instructions of user program, bit- and word processing, blocks, 2 serial interfaces, battery buffered memory, 2.5 ms/K bit processing</td>
<td>GJR5145000R301</td>
</tr>
</tbody>
</table>

### CNC central processors

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 GV 80 R101</td>
<td>Positioning unit for 1 ... 4 axes, 35 AE 92 R4/R5 also required</td>
<td>GJR5145300R101</td>
</tr>
<tr>
<td>35 GV 83 R101</td>
<td>Path control unit for 1 ... 4 axes, 35 AE 92 R4/R5 also required</td>
<td>GJR5145400R101</td>
</tr>
<tr>
<td>35 ZS 86 R101</td>
<td>Central control device for the path control and positioning, among other things</td>
<td>GJR5145500R101</td>
</tr>
</tbody>
</table>
## Axis units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 PO 90 R101</td>
<td>Positioning unit for 1 axis with an NC data memory, 1 serial interface, input for incremental measuring systems, output ±10 V</td>
<td>GJR5144100R101</td>
</tr>
</tbody>
</table>

### Accessories for 35 PO 90 R101:

- Operating and programming unit 35 AB 50
  - GJR5139200R102
- Electronic reversing and control logic 35 US 50 b
  - GJR5141800R101
- Software for the Personal Computer 935 AM 50
  - GJR5512000R202
- Dialogue cable 35 AK 10, 35 PO 90 - 35 AB 50/PC
  - R1 2.5 m
    - GJR5139300R1
  - R2 5 m
    - GJR5139300R2
  - R3 10 m
    - GJR5139300R3
  - R4 20 m
    - GJR5139300R4
- Dialogue cable 35 AK 20, 35 PO 90 - 35 RC 50
  - R1 1 m
    - GJR5142000R1
- Engine speed set value cable 35 AK 30
  - R1 2.5 m
    - GJR5139500R1
  - R2 5 m
    - GJR5139500R2
- Initiator cable 35 AK 40
  - R1 2.5 m
    - GJR5139600R1
  - R2 5 m
    - GJR5139600R2
- Locator cable 35 AK 60
  - R5 5 m
    - GJR5142200R5
  - R6 10 m
    - GJR5142200R6
  - R7 20 m
    - GJR5142200R7
- Locator cable 35 AK 70 for AXODYN² Inverter, DRH range
  - R1 2.5 m
    - GJR5142300R1
- Incremental locator (for adaptor flanges with a 50 mm pick-up bore)
  - 500 Pulses per revolution
    - GJV3075101R1
  - 1000 Pulses per revolution
    - GJV3075101R2
- Proximity sensors
  - NJ 5-18 GK 50-E3 (closed-circuit current)
    - GJV32000001R2
  - NJ 5-18 GK 50-E2 (working current)
    - GJV3200003R2
- 35 AE 92 R4 Axis card to control 2 axes
  - GJR5137200R4
- 35 AE 92 R5 Axis card to control 4 axes
  - GJR5137200R5
- 35 AE 92 R6 4-fold incremental input
  - GJR5137200R6

## IC Central units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>935 IR 86 R101</td>
<td>Software for the central unit IC (industrial computer with a 14 K instruction user program, bit and word processing, blocks, 2 serial interfaces, buffered flag range)</td>
<td>GJR5122700R101</td>
</tr>
</tbody>
</table>
## Video Sensor, OMS-F

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
</table>
| 35 CI 90 R101 | Camera interface  
35 IP 90 R1  | Iconic image processor  
Sensor periphery unit                                                                                                                   | GJR5146000R101  
GJR5145900R1 |

## Binary input units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 EB 90 R2</td>
<td>Binary input unit, 24 V DC, isolated, 64-fold</td>
<td>GJR5132100R2</td>
</tr>
<tr>
<td>07 EM 61 R1</td>
<td>Input module, 24 V DC, isolated, 8-fold</td>
<td>GJR5210800R1</td>
</tr>
<tr>
<td>35 SK 90 R3</td>
<td>Ribbon cable for I/O-units</td>
<td>GJR5135000R3</td>
</tr>
<tr>
<td>35 EB 91 R1</td>
<td>Binary input unit, 24 V DC input signals with LED, not isolated. 32-fold, input delay typically 8 ms</td>
<td>GJR5142600R1</td>
</tr>
<tr>
<td>35 EB 91 R2</td>
<td>Binary input unit, 48 V DC input signals with LED, not isolated. 32-fold, input delay typically 8 ms</td>
<td>GJR5142600R2</td>
</tr>
<tr>
<td>35 EB 92 R1</td>
<td>Binary input unit, 24 V DC input signals with LED, not isolated. 32-fold, input delay typically 8 ms</td>
<td>GJR5145800R1</td>
</tr>
<tr>
<td>35 EB 92 R2</td>
<td>Binary input unit, 48 V DC input signals with LED, not isolated. 32-fold, input delay typically 8 ms</td>
<td>GJR5145800R2</td>
</tr>
</tbody>
</table>

## Analog input units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 TP 90 R1</td>
<td>Carrier board for accepting up to 4 input modules</td>
<td>GJR5143600R1</td>
</tr>
<tr>
<td>35 EA 90 R1</td>
<td>Input module for 8 analog signals. ± 10 V or. ± 5 V, for the installation in 35 TP 90 R1</td>
<td>GJR3073002R1</td>
</tr>
<tr>
<td>35 EA 91 R1</td>
<td>Input module for 8 analog signals, 4 ... 20 mA, for the installation in 35 TP 90 R1</td>
<td>GJR3073003R1</td>
</tr>
<tr>
<td>35 EA 92 R1</td>
<td>Input module for 4 analog signals Pt100, for the installation in 35 TP 90 R1, -50 °C ... +150 °C</td>
<td>GJR3073004R1</td>
</tr>
<tr>
<td>35 EA 92 R2</td>
<td>Input module for 4 analog signals Pt100, for the installation in 35 TP 90 R1, -50 °C ... +400 °C</td>
<td>GJR3073004R2</td>
</tr>
</tbody>
</table>
**Binary output units**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 AB 90 R1</td>
<td>Binary output unit, 24 V DC, isolated, 64-fold</td>
<td>GJR5132200R1</td>
</tr>
<tr>
<td>07 LM 61 R1</td>
<td>Lamp driver level, 24 V DC/120 mA, short-circuit-proof, with LED, 6-fold</td>
<td>GJ5210900R1</td>
</tr>
<tr>
<td>07 AM 62 R2</td>
<td>Reed relay switch level, 60 V DC/100 mA, with LED, 8-fold</td>
<td>GJ5214500R2</td>
</tr>
<tr>
<td>07 SK 90 R3</td>
<td>Ribbon cable for 07 LM 61 R1 or 07 AM 62 R2, socket connector with 34 poles and 2 x 16 poles, 1.5 m</td>
<td>GJ5135000R3</td>
</tr>
<tr>
<td>07 TM 61 R1</td>
<td>Transistor switch level, 24 V DC:2 A, with LED, 4-fold</td>
<td>GJ5211100R1</td>
</tr>
<tr>
<td>07 RM 61 R1</td>
<td>Relay switch level 220 V AC/4 A, with LED 4-fold</td>
<td>GJ5211000R1</td>
</tr>
<tr>
<td>35 SK 91 R3</td>
<td>Ribbon cable for 07 TM 61 R1 or 07 RM 61 R1, socket connector with 32 poles and 4 x 8-poles, 1.5 m</td>
<td>GJ5135100R3</td>
</tr>
<tr>
<td>35 AB 94 R1</td>
<td>Binary output unit, 24 V DC/100 mA, with LED, not isolated, 32-fold</td>
<td>GJ5142800R1</td>
</tr>
<tr>
<td>35 AB 95 R1</td>
<td>Binary output unit, 24 V DC/0.5 A, with LED, isolated, total load 8 A, 32-fold</td>
<td>GJ5145600R1</td>
</tr>
<tr>
<td>35 AB 96 R1</td>
<td>Binary output unit, 250 V AC and/or DC/2 A, with LED, isolated, 4 changeover contacts, 12 make contacts, 16-fold</td>
<td>GJ5142900R1</td>
</tr>
<tr>
<td>35 AB 97 R2</td>
<td>Binary output unit, 24 V DC/2 A, with LED, isolated, total load 8 A, 16-fold</td>
<td>GJ5145700R2</td>
</tr>
</tbody>
</table>

**Analog output units**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 AA 92 R2</td>
<td>Analog output unit ±10 V, 16 bit resolution, 4-fold</td>
<td>GJ5143000R2</td>
</tr>
</tbody>
</table>

**Communication units**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 KP 91 R101</td>
<td>Communication processor for the connection to the Master via an EXCOM interface, 2 serial interfaces</td>
<td>GJ5146100R101</td>
</tr>
<tr>
<td>35 KP 92 R101</td>
<td>Communication processor for the connection to a VERITRON converter PAD type, 2 serial interfaces</td>
<td>GJ5146400R101</td>
</tr>
</tbody>
</table>

**Area bus coupling units for the ABB field bus ZB10**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 ZB 91 R1</td>
<td>ABB Proconic T300 - ABB field bus ZB10 coupler</td>
<td>GJ5143500R1</td>
</tr>
</tbody>
</table>

**System cables**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 SK 93 R1</td>
<td>Connecting cable for the serial interface RS422, 25-polar socket - 25-polar socket, 5m</td>
<td>GJ5135400R1</td>
</tr>
<tr>
<td>35 SK 93 R11</td>
<td>Extension cable for the serial interface RS422 (35 SK 93 R1).</td>
<td>GJ5135400R11</td>
</tr>
<tr>
<td>35 SK 94 R2</td>
<td>Connecting cable for V24 interface RS232 for 07 PC 31/07 PC 32 with 35 DS 90, 35 DS 91, 35 ZE 93 and 07 ZV 86 as well as 35 BS 95 with 07 ZV 86, 25-polar socket - 25-polar socket, 5m</td>
<td>GJ2370500R2</td>
</tr>
<tr>
<td>35 SK 95 R1</td>
<td>Extension cable for the V24 interface RS232 (35 SK 94 R1). 0.25 m</td>
<td>GJ2371000R1</td>
</tr>
<tr>
<td>35 SK 97 R1</td>
<td>Connecting cable for the V24 interface RS232 for 07 PC 32/07 PH 31 with 35 DS 90, 35 DS 91 and 35 ZE 93, 9-polar socket - 25-polar socket, 3m</td>
<td>GJ2371000R1</td>
</tr>
</tbody>
</table>
# Service aid units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 SH 90 R1</td>
<td>Bus extension card for separating and measuring all bus lines</td>
<td>GJR5136700R1</td>
</tr>
<tr>
<td>35 SH 91 R1</td>
<td>Bus display for displaying the status of the addresses, data and controlled</td>
<td>GJR5136500R1</td>
</tr>
<tr>
<td></td>
<td>signals on the multiprocessor-based control bus</td>
<td></td>
</tr>
<tr>
<td>35 SH 94 R1</td>
<td>Axis simulator, for the simulation of the automatic control unit, the</td>
<td>GJR3074201R1</td>
</tr>
<tr>
<td></td>
<td>motor and the actual value pulse generator</td>
<td></td>
</tr>
</tbody>
</table>

# Accessories

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 ST 90 R1</td>
<td>Front connector for I/O-units</td>
<td>GJR5144900R1</td>
</tr>
<tr>
<td>35 SB 90</td>
<td>Label for the front connector with 9 insert strips and 9 sticky strips each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for the units</td>
<td></td>
</tr>
<tr>
<td>35 SB 90 R1</td>
<td>35 EB 91 R1</td>
<td>GJR5144600R1</td>
</tr>
<tr>
<td>35 SB 90 R2</td>
<td>35 EB 91 R2</td>
<td>GJR5144600R2</td>
</tr>
<tr>
<td>35 SB 90 R3</td>
<td>35 EB 92 R1</td>
<td>GJR5144600R3</td>
</tr>
<tr>
<td>35 SB 90 R4</td>
<td>35 EB 92 R2</td>
<td>GJR5144600R4</td>
</tr>
<tr>
<td>35 SB 90 R5</td>
<td>35 AB 94 R1</td>
<td>GJR5144600R5</td>
</tr>
<tr>
<td>35 SB 90 R6</td>
<td>35 AB 95 R1</td>
<td>GJR5144600R6</td>
</tr>
<tr>
<td>35 SB 90 R7</td>
<td>35 AB 96 R1</td>
<td>GJR5144600R7</td>
</tr>
<tr>
<td>35 SB 90 R8</td>
<td>35 AB 97 R1</td>
<td>GJR5144600R8</td>
</tr>
<tr>
<td>35 BA 60 R1</td>
<td>Blanking cover for 1 slot</td>
<td>GJV5135200R1</td>
</tr>
<tr>
<td>07 LB 20 R1</td>
<td>Spare lithium battery</td>
<td>GJR5223500R1</td>
</tr>
<tr>
<td>35 LE 90 R1</td>
<td>Lithium battery modules</td>
<td>GJR5146300R1</td>
</tr>
</tbody>
</table>
General ABB Procontic description systemat

A unit or a component is described functionally by the type description in the control system ABB Procontic T300. The development consultation is carried out using the order number. ABB Procontic units are described in accordance with the following rules:

a) Type description

Example:

35 PO 90 R 0101

Software version number
Hardware version number
Rubric description
Code for the unit
Code for the control group
Code of the unit type
Control technology in general

Note: The preceding zeroes of the hardware or software version numbers can be omitted, e.g., 35 PO 90 R101 and 35 PO 60 R0101 or 35 EK 90 R1 and 35 EK 90 R0001 are the same. The shorter form is preferred.

Codes of the unit types

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS</td>
<td>Subrack</td>
</tr>
<tr>
<td>NE</td>
<td>Power-supply unit</td>
</tr>
<tr>
<td>EK</td>
<td>Level coupler</td>
</tr>
<tr>
<td>SK</td>
<td>System cable</td>
</tr>
<tr>
<td>ZP</td>
<td>Central processor</td>
</tr>
<tr>
<td>DS</td>
<td>Data interface</td>
</tr>
<tr>
<td>PS</td>
<td>Memory unit</td>
</tr>
<tr>
<td>ZE</td>
<td>Central unit</td>
</tr>
<tr>
<td>IR</td>
<td>Industrial computer</td>
</tr>
<tr>
<td>KI</td>
<td>Camera interface</td>
</tr>
<tr>
<td>IV</td>
<td>Iconic processor</td>
</tr>
<tr>
<td>AE</td>
<td>Axis card</td>
</tr>
<tr>
<td>PO</td>
<td>Positioning unit</td>
</tr>
<tr>
<td>EB</td>
<td>Binary input unit</td>
</tr>
<tr>
<td>TP</td>
<td>Carrier board</td>
</tr>
<tr>
<td>EA</td>
<td>Analog input unit</td>
</tr>
<tr>
<td>AB</td>
<td>Binary output unit</td>
</tr>
<tr>
<td>AA</td>
<td>Analog output unit</td>
</tr>
<tr>
<td>KP</td>
<td>Communication processor</td>
</tr>
<tr>
<td>ZB</td>
<td>ABB field bus coupler</td>
</tr>
<tr>
<td>SH</td>
<td>Service aid units</td>
</tr>
<tr>
<td>FB</td>
<td>Blanking cover</td>
</tr>
<tr>
<td>ST</td>
<td>Front connector</td>
</tr>
</tbody>
</table>

b) Order number

Example: GJV3074301R1

Units, which are similar to a large extent but are not completely identical, are distinguished by the rubric description with the hardware and software version numbers. The rubric data in the type description and in the order number are the same.

c) Order data

The order data must include the complete type descriptions and order numbers in order to guarantee a perfect supply.
Asea Brown Boveri offers seminars to support configuring, starting and operating ABB Procon T300 controls. Seminars are also carried out on the customer's premises, if required.

Detailed information is included in the leaflet, "Seminars for factory automation", which you can request from:

ABB Schalt- und Steuerungstechnik GmbH
Abteilung: SST/MV
Eppelheimer Straße 82
D-6900 Heidelberg 1
Telephone (06221) 777-135
Telefax (06221) 777-111

The registration is carried out directly at the above mentioned address or via our distribution centres:

ABB Schalt- und Steuerungstechnik GmbH
Vertriebszentrum Nord
Hildesheimer Straße 25
P. O. Box 1040
D-3000 Hannover 1
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Telefax (0511) 8501-200
Telex 922 708 bbcb d

ABB Schalt- und Steuerungstechnik GmbH
Vertriebszentrum West
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P. O. Box 10 04 52
D-4300 Essen 1
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Telefax (0201) 1004-371
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ABB Schalt- und Steuerungstechnik GmbH
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or (0372) 4374405
Telefax (0372) 4372432

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Telefax (0621) 388-2800

ABB Schalt- und Steuerungstechnik GmbH
Vertriebszentrum Süd
Schloßstraße 29
P. O. Box 609
D-7000 Stuttgart 1
Telephone (0711) 2059-300
Telefax (0711) 29 06 75
Telex 722567 bbcb d

The following seminars for the ABB Procon T300 are on offer:

Programmable controllers
Seminar concerning the principles

Contents: Getting to know the ABB Procon T300 controls and their components, learning the programming language, programming with the personal computer, practical exercises on ABB Procon T300 systems, configuration instructions, independent configuration using given tasks together with starting up a system model

Aim: Independent configuration of a system model with the ABB Procon PLC.

Prerequisite: Knowledge of the general control technology.

Duration: 5 days

ABB Procon T300 configuration seminar

Contents: Components of the ABB Procon T300, extension possibilities, networking, programming of the ABB Procon T300, practical exercises concerning the binary, word and analog processing, configuration with function blocks, setting up your own user blocks, applications for the control of various system models

Aim: Independent configuration of a system model with ABB Procon T300

Prerequisite: Knowledge of the general control technology.

Duration: 5 days
ABB Procontic T300 maintenance seminar

Contents: Getting to know the ABB Procontic T300 components, learning the ABB Procontic programming language, composing the hardware, starting a system model with fault-finding in the ABB Procontic T300 PLC in the range of the coupling level and in the system model.

Aim: Independently starting a system model and finding the faults with ABB Procontic T300.

Prerequisite: Knowledge of the general control technology

Duration: 5 days
Services
We have a qualified service department in order to be able to help with difficult problems as well.

- Consultation by telephone
- Malfunction analyses and removal from the machine/system
- Support when compiling programs
- Training of the personnel in the factory
- Leasing programming units

If you wish to consult our service department, we request you to take the corresponding preparations depending on the desired service, like, e.g.:

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

Inquiries and orders are to be directed to:

ABB Schalt- und Steuerungstechnik GmbH
Abteilung SST/VPS
Eppelheimer Straße 82
D-6900 Heidelberg 1

Telephone (06221) 777-210
Telefax (06221) 777-113

Support
Our range of services also includes the following:

- Supply of spare units
- Repairing faulty units and systems

Inquiries and orders are to be directed to:

ABB Schalt- und Steuerungstechnik GmbH
Abteilung SST/OA
Neuer Weg 47
D-6930 Eberbach

Telephone (06271) 81-467
The modular multiprocessor-based controller ABB Proconic T300 represents a competent range of units and standard software for the user's applications.

The application department is responsible for advising the customer when selecting the suitable system in the respective special case of application and, if desired, undertaking the compilation of user programs as a service.

The possibility of using the ABB know-how in the sector of factory automation exists in this way.

The application department offers the following:

- Cooperation when specifying the control task and when determining the suitable system configuration
- Compiling user programs in the form of PLC instruction lists or function block diagrams for ABB Proconic T300
- Executing commissioning

The basis for the execution of applications is a deadline schedule worked out with the user, which is constantly followed together with a project leader known to the user.

You can contact the application department under the following address:

ABB Schalt- und Steuerungstechnik GmbH
Vertriebszentrum Projekte
Abteilung: SST/VP
Eppelheimer Straße 82
D-6900 Heidelberg 1

Telephone 06221/777-200
Telefax 06221/777-113
8 Advice and addresses

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

**Germany**

ABB Schalt- und Steuerungstechnik GmbH
Abteilung: SST/V
Eppelheimer Straße 82
D-6900 Heidelberg 1
Telephone  (06221) 777-190
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Telex  922 708 abbh d

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