2.3 Basic Unit 07 SL 97
Basic unit with max. 480 kB user program + 256 kB user data,
CS31 system bus

The basic unit 07 SL 97 is a slot PLC and can be integrated into PCs with PCI interface. This plug-in card is designed as a standard PCI full-size card. The basic unit 07 SL 97 R0160 has a CS31 bus connection as well as an ARCNET coupling.

Optionally further couplings are possible for the following units:

- PROFIBUS-DP 07 SL 97 R0162
- DeviceNet 07 SL 97 R0165.

A table listing the options is shown on the following page.

![Fig. 2.3-1: Basic unit 07 SL 97 R0160](SL97_01.EPS)

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<td>2.3.6.11</td>
<td>Ordering data</td>
<td>20</td>
</tr>
</tbody>
</table>
**Functionality of the basic units 07 SL 97**

User program 480 kB (Flash EPROM)
User data 256 kB

Serial interfaces COM1 as MODBUS interface and for programming and test functions

Internal interface
for connection to coupler Optionally for PROFINET coupling card or DeviceNet coupling card
System bus interface CS31
Integrated couplers ARCNET

**PCI interface**
Acc. to PCI interface specification V2.1 (PCI = Peripheral Component Interconnect)
32 bit bus / 33 MHz
Self-configuring PCI card, designed in 5 V technology
PCI interface realized using PLX chip
8 k memory range on PCI bus
Interrupt processing as PCI target
Interrupt setting depending on the PC

Real-time clock integrated
SmartMedia Card Storage medium for operating system, user program and user data
LED displays for signal states, operating conditions and error messages

Power supply 24 V DC
Data buffering with Lithium battery 07 LE 90
Programming software 907 AC 1131

---

**Available basic units 07 SL 97**

<table>
<thead>
<tr>
<th>Basic unit</th>
<th>07 SL 97 R0160</th>
<th>07 SL 97 R0162</th>
<th>07 SL 97 R0165</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binary inputs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Binary outputs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Binary inputs/outputs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Analog inputs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Analog outputs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CS31 bus connection</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>ARCNET interface</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>PROFIBUS-DP interface</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>DeviceNet interface</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Order number</td>
<td>GJR5 2534 00 R0160</td>
<td>GJR5 2534 00 R0162</td>
<td>GJR5 2534 00 R0165</td>
</tr>
</tbody>
</table>
2.3.1 Brief description

The basic unit 07 SL 97 can work as:

- Bus master basic unit on the CS31 system bus
- Bus master basic unit on the CS31 system bus with ARCNET networking
- Bus master basic unit on the CS31 system bus with ARCNET networking and coupling to PROFIBUS-DP or DeviceNet
- Basic unit with ARCNET networking
- Basic unit with ARCNET networking and coupling to PROFIBUS-DP or DeviceNet
- Basic unit with coupling to PROFIBUS-DP or DeviceNet
- Slave basic unit on the CS31 system bus

The supply voltage for the unit is 24 V DC.

2.3.1.1 Main features

- 1 PCI interface V2.1
- 1 ARCNET interface
- 1 CS31 system bus interface for system expansion
- 1 interface for connecting communication modules
- 1 serial interface COM1
  - as MODBUS interface and
  - for programming and test functions
- Real-time clock
- LEDs for displaying operating conditions and error messages
- Detachable screw-type terminal blocks
- Fastening inside the PC by inserting the slot PLC into the PCI direct plug connector
- A lithium battery 07 LE 90 can be inserted into the battery compartment in order to
  - store and backup data additionally contained in the RAM, e.g. states of the flags
  - backup the time and date (real-time clock)
- RUN/STOP switch for starting and aborting the program execution
- Extensive diagnosis functions
  - self-diagnosis of the basic unit
  - diagnosis of the CS31 system bus and the connected modules
- Integrated Flash EPROM for storing program and data
- Exchangeable SmartMedia Card 07 MC 90 for user data and for updating the operating system or the PLC program
- Separate 24 V DC power supply which is independent from the PC
- Diagnosis of the 07 SL 97 via the PC and via ARCNET diagnosis of further connected decentralized processors, such as 07 KT 97/98 (Routing)
- Remote diagnosis using 907 AC 1131 in connection with standard software (e.g. PC Anywhere)
- OPC interface

2.3.1.2 Project planning / Commissioning

The following has to be observed for project planning and commissioning:

- Programming is performed using the AC31 programming software which can be run on standard IBM compatible PCs with Windows NT and Windows 98 SE (refer to the documentation of the programming system 907 AC 1131).
- Online program modification
  Quick modification of the user program is possible without interruption of operation (refer to programming system 907 AC 1131).
- Buffering of data areas
  Buffering of data, i.e. saving of data during power OFF/ON, is only possible when a battery is available.
  Furthermore data can be stored on the SmartMedia Card in order to become voltage breakdown-safe.
2.3.2 Connections and operating elements

Fig. 2.3-2: 07 SL 97, connections and operating elements

ARCNET connector
93 ohm, BNC-type
ARCNET status LEDs
Supply voltage available / RUN
RUN/STOP switch
Bus active / Sum error massage FK1, FK2, FK3
CS31 system bus connector
Programming and test interface / MODBUS
8-pole MiniDIN plug connector
Connection of the supply voltage

ON = active
OFF = inactive

Switch S4
CS31-terminating resistor

Direct plug connector
PCI interface

Plug connector for internal coupler, e.g. PROFIBUS-DP, DeviceNet

Battery connector and fastening

Smart-Media Card

Fig. 2.3-2: 07 SL 97, connections and operating elements
2.3.3 Electrical connection / earthing concept

- Connect the earth connection (e.g. earth stud) of the PC housing to functional earth (switch-gear cabinet earth) using an 6 mm² earth lead which is as short as possible.
- Connect the CS31 bus according to chapter 1.2 „CS 31 system bus“ in part 1 „Hardware“ of the 907 AC 1131 system description.

Fig. 2.3-3: Application example: Basic unit 07 SL 97
2.3.3.1 Connection of the supply voltage

The 24 V DC supply voltage is connected via a 2-pole detachable screw-type terminal block.

Caution: Plug and unplug the terminal block only when power is off!

Fig. 2.3-4: Assignment of the terminal block for the 24 V DC-IN supply voltage

Using a power supply for the 07 SL 97 which is separate from the PC provides high availability of the slot PLC. The PLC program of the slot PLC works independent from the PC. Therefore the communication with the CS31 bus modules and the ARCNET, PROFIBUS or DeviceNet subscribers is maintained. The communication between the slot PLC and the PC can be started after the power supply of the PC is switched on.

2.3.3.2 Connection for CS31 system bus

The connection to the CS 31 system bus is made via a 2-pole detachable terminal block. Please observe:

- All AC31 devices, no matter whether they are master or slave devices, are connected by a twisted-pair bus line as follows:
  - One core of the bus line is looped through via the BUS1 terminals of all devices to be connected to the CS31 system bus.
  - The other core of the bus line is looped through via the BUS2 terminals of all devices to be connected to the CS31 system bus.
- If the 07 SL 97 device is located at the beginning or at the end of the bus line, the bus terminating resistor (120 Ω) on the board has to be switched on using switch S4.

The mounting position of switch S4 is shown in chapter 2.3.2 „Connections and operating elements“ on page 2.3-4.

Switch in „On“ position = Bus terminating resistor active
Switch in „Off“ position = Bus terminating resistor inactive
The shield of the twisted-pair bus line is connected with a clamp to the metal housing of the PC.

Handling of the CS31 system bus is described in detail in volume 2 „System data“.

2.3.3.3 Battery and battery replacement

- The lithium battery 07 LE 90 can be used for data backup purposes as follows:
  - Storage and backup of data additionally contained in the RAM memory, e.g. states of the flags
  - Backup of time and date

The battery lifetime is typically 5 years. The battery lifetime is the time during which the device remains operable in order to backup data while the supply voltage of the basic unit is switched off. As long as the supply voltage is available there is no more load on the battery other than its self-discharge.

Please observe the following handling notes:

- Use only lithium batteries approved by ABB.
- Replace the battery by a new one at the end of its life.
- Observe the instructions of the PC manufacturer before opening the PC housing!
- Never short-circuit the battery! There is danger of overheating and explosion. Avoid accidental short-circuits. Therefore do not store batteries in metallic containers or boxes and do not bring them into contact with metallic surfaces.
- Never try to charge a battery! Danger of overheating and explosion!
- Replace the battery only with the supply voltage of the slot PLC switched on. Otherwise you risk data being lost.
- The battery condition is not indicated by a LED. Checking whether the battery is available or not can only be done by performing a visual inspection of the slot PLC or by reading the status word
  
  EW07,15 / %IW1007.15   Bit 3
  Bit 3 = 0  Battery not available
  Bit 3 = 1  Battery available

See also volume 15 of the 907 AC 1131 description, „System Technology 90 Series“, System Technology Basic Units, 2.6.6 CS31 status word

1. Connect the new battery to the unused connector
2. Remove the old battery and disconnect it
3. Fasten the new battery to the circuit board using a cable tie

Fig. 2.3-6: Battery and battery replacement
2.3.3.4 Serial interface COM1

**Interface standard:** EIA RS-232

**Assignment of the serial interface COM1**

The pin assignment of the serial interface COM1 is as follows:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>active mode (open-ended)</td>
</tr>
<tr>
<td>0</td>
<td>passive mode (pin 6 is bridged to GND inside the plug)</td>
</tr>
</tbody>
</table>

- **RxD**: Receive Data
- **TxD**: Transmit Data
- **VCC**: reserved
- **RTS**: Request To Send
- **CTS**: Clear To Send
- **PROG**: Active/Passive Mode Switching
- **Schirm**: Cable Shield / Protective Ground
- **CD**: Carrier Detect
- **DTR**: Data Terminal Ready
- **DSR**: Data Set Ready
- **GND**: Ground / Signal Ground
- **RI**: Ring Indicator

**Interface cables for COM1**

Figure 2.3-8 shows two system cables for the serial interface COM1 for active mode (programming and test) and passive mode (MODBUS).

![Connection diagramm 07 SK 93 for programming and test purposes (active mode)](image)

![Connection diagramm 07 SK 94 for MODBUS operation (passive mode)](image)

![Front view to the pins of the MiniDIN cable conn.](image)

![Front view to the sockets of the 9-pole SUB-D cable connector](image)
2.3.4 Networking / Couplers

2.3.4.1 Basic units with ARCNET coupler

07 SL 97 R160   Order No. GJR5 2534 00 R0160 (ARCNET)
07 SL 97 R162   Order No. GJR5 2534 00 R0162 (ARCNET and PROFIBUS-DP)
07 SL 97 R165   Order No. GJR5 2534 00 R0165 (ARCNET and DeviceNet)

2.3.4.1.1 Information about ARCNET

Refer to volume 15 „System Technology 90 Series“, Internal couplers, The ARCNET coupler

2.3.4.1.2 ARCNET - Connection and address assignment

The ARCNET coupler is integrated in the slot PLC of the basic unit. The DIL switch for setting the ARCNET address is located near the upper edge of the board (refer to page 2.3-4). The ARCNET coupler is supplied from the internal 24 V DC power supply.

The ARCNET coupler is designed as a bus with BNC connectors for coaxial cables. The ARCNET bus is earthed inside the module by a capacitor. As an EMC measure and for protection against dangerous contact voltages, the bus has to be earthed directly at a central place.

Fig. 2.3-9: BNC connector for ARCNET

Fig. 2.3-10: Setting the ARCNET node number (station address) at the basic unit (binary coded)

Signalling: green LED (BS) Operating condition „controller active“, i.e. the PLC performs write or read operations

green LED (TX) Operating condition „transmit active“, i.e. the PLC is sending via the ARCNET
2.3.4.2 Basic units with integrated PROFIBUS-DP coupler
07 SL 97 R162 Order No. GJR5 2534 00 R0162

2.3.4.2.1 Information about PROFIBUS
Refer to volume 15 „System Technology 90 Series“, Internal couplers, The PROFIBUS-DP coupler

2.3.4.2.2 Installing the PROFIBUS-DP coupler

The PROFIBUS-DP master coupler is mounted on the 07 SL 97. In order to provide the bus interface at the exterior of the PC housing the bus interface is connected to an assembly board by using a flat cable. This assembly board additionally contains 4 LEDs for indicating the coupler states.

The slot PLC 07 SL 97 together with the mounted coupler occupies two partitions inside the PC.

![Diagram of PROFIBUS-DP coupler](SL97r_4.EPS)

Fig. 2.3-11: 07 SL 97 with PROFIBUS-DP coupler

Caution:
Jumpers for setting the basic address and the interrupts are located on the coupler right next to the connector for internal couplers.
The positions of these jumpers (open-ended or plugged) must not be changed.
See also section „Jumper settings“ on page 2.3-12.
2.3.4.2.3 Pin assignment, meaning of the LEDs and jumper settings

The following figure shows the pin assignment of the PROFIBUS-DP interface as well as the names of the 4 LEDs.

**Pin assignment for the PROFIBUS-DP connector**

9-pole SUB-D female

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shield</td>
<td>Shielding, protection earth</td>
</tr>
<tr>
<td>2</td>
<td>Unused</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>RxD/TxD-P</td>
<td>Receive/transmit line, positive</td>
</tr>
<tr>
<td>4</td>
<td>CNTR-P</td>
<td>Control signal for repeater, positive (optional)</td>
</tr>
<tr>
<td>5</td>
<td>DGND</td>
<td>Reference potential for data exchange and +5 V</td>
</tr>
<tr>
<td>6</td>
<td>VP</td>
<td>+5 V (power supply for bus terminating resistors)</td>
</tr>
<tr>
<td>7</td>
<td>Unused</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>RxD/TxD-N</td>
<td>Receive/transmit line, negative</td>
</tr>
<tr>
<td>9</td>
<td>CNTR-N</td>
<td>Control signal for repeater, negative (optional)</td>
</tr>
</tbody>
</table>

**Caution:**

The 9-pole SUB-D male connector "Diagnosis interface" is intended only for service purposes and must not be wired-up from outside.
### Meaning of the LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>READY</td>
<td>yellow</td>
<td>on</td>
<td>coupler ready</td>
</tr>
<tr>
<td></td>
<td></td>
<td>on</td>
<td>bootstrap loader active</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flashes cyclic</td>
<td>hardware or system error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flashes irregularly</td>
<td>defective hardware</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off</td>
<td></td>
</tr>
<tr>
<td>RUN</td>
<td>green</td>
<td>on</td>
<td>communication is running</td>
</tr>
<tr>
<td></td>
<td></td>
<td>on</td>
<td>communication stopped</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flashes cyclic</td>
<td>missing or erroneous configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flashes irregularly</td>
<td>no communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off</td>
<td></td>
</tr>
<tr>
<td>STATUS</td>
<td>yellow</td>
<td>on</td>
<td>sending data or token</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off</td>
<td>no token</td>
</tr>
<tr>
<td>ERROR</td>
<td>red</td>
<td>on</td>
<td>PROFIBUS error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off</td>
<td>no error</td>
</tr>
</tbody>
</table>

### Jumper settings PROFIBUS-DP

The positions of these jumpers (open-ended or plugged) must not be changed.

The following figure shows the valid settings.

![Jumper settings PROFIBUS-DP](Jumper_PROFIBUS.bmp)

Fig. 2.3-14: Jumpers
2.3.4.3 Basic units with integrated DeviceNet master coupler

07 SL 97 R165

Order No. GJR5 2534 00 R0165

2.3.4.3.1 Information about DeviceNet

Refer to volume 15 „System Technology 90 Series“, Internal Couplers, The DeviceNet coupler

2.3.4.3.2 Installing the DeviceNet master coupler

The DeviceNet master coupler is mounted on the 07 SL 97. In order to provide the bus interface at the exterior of the PC housing the bus interface is connected to an assembly board by using a flat cable. This assembly board additionally contains 4 LEDs for indicating the coupler states.

The slot PLC 07 SL 97 together with the mounted coupler occupies two partitions inside the PC.

Fig. 2.3-15: 07 SL 97 with DeviceNet Master coupler

Caution:

Jumpers for setting the basic address and the interrupts are located on the coupler right next to the connector for internal couplers.

The positions of these jumpers (open-ended or plugged) must not be changed.

See also section „Jumper settings“ on page 2.3-15.
2.3.4.3.3 Pin assignment, meaning of the LEDs and jumper settings

The following figure shows the pin assignment of the DeviceNet interface as well as the names of the 4 LEDs.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-V</td>
<td>Reference potential for external power supply +24 V</td>
</tr>
<tr>
<td>2</td>
<td>CANL</td>
<td>Receive/transmit line, low</td>
</tr>
<tr>
<td>3</td>
<td>Shield</td>
<td>Shield of the bus line</td>
</tr>
<tr>
<td>4</td>
<td>CANH</td>
<td>Receive/transmit line, high</td>
</tr>
<tr>
<td>5</td>
<td>+V</td>
<td>+24 V external power supply</td>
</tr>
</tbody>
</table>

Pin assignment for the DeviceNet connector

COMBICON socket (female)

It is absolutely necessary that all lines (i.e. the data lines CANH / CANL, the external 24 V power supply +V / -V and the shielding) are connected.

Caution:
The 9-pole SUB-D male connector on the assembly board is intended only for service purposes and must not be wired-up from outside.
### Status LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDY</td>
<td>yellow</td>
<td>on, flashes cyclic,</td>
<td>coupler ready</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flashes irregularly,</td>
<td>bootstrap loader active</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off</td>
<td>hardware or system error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>defective hardware</td>
</tr>
<tr>
<td>RUN</td>
<td>green</td>
<td>on, flashes cyclic,</td>
<td>communication is running</td>
</tr>
<tr>
<td></td>
<td></td>
<td>flashes irregularly,</td>
<td>communication stopped</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off</td>
<td>missing or erroneous configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>no communication</td>
</tr>
<tr>
<td>NET</td>
<td>green/red</td>
<td>green on, flashes green</td>
<td>connected to the bus, communication established</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off, red on, flashes red</td>
<td>connected to the bus, no communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>no supply voltage, not connected to the bus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>critical connection error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>timing supervision error</td>
</tr>
<tr>
<td>MOD</td>
<td>green/red</td>
<td>green on, flashes green</td>
<td>coupler running</td>
</tr>
<tr>
<td></td>
<td></td>
<td>off, red on, flashes red</td>
<td>coupler ready for operation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>no supply voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>uncorrectable error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>minor error</td>
</tr>
</tbody>
</table>

### Jumper settings DeviceNet master

The positions of these jumpers (open-ended or plugged) must not be changed.

The following figure shows the valid settings.
2.3.5 **SmartMedia Card 07 MC 90**

The SmartMedia Card serves for storing data up to 2 MB to protect them against being lost while the power is off. It is inserted into the basic unit 07 SL 97. It is recommended only to use ABB-proven SmartMedia Cards.

**Field of application**
- Storing and loading of PLC programs
- Storing and loading of user data
- Loading of firmware updates

**Handling instructions**
- **Observe the instructions of the PC manufacturer before opening the PC housing!**
- Insert or remove the SmartMedia Card only with the slot PLC switched off.
- The SmartMedia Card must be inserted with the contact field upwards (contacts are visible, see figure above).
- After a SmartMedia Card has been initialized once as user data memory it cannot be used any more as an user program card.
- The SmartMedia Card has to be protected against
  - mechanical damages (e.g. do not bend)
  - electrostatic discharge
  - contact pollution (do not touch the contacts)

**Important note**

SmartMedia Cards with a supply voltage of 3.3 V, e.g. GJR5 2526 R0201, cannot be used with 07 SL 97 basic units.

**Access**
- The SmartMedia Card can be accessed within the PLC program via function blocks. Refer to the documentation of the programming software 907 AC 1131.

**Technical data**
- **Weight**: 2 g
- **Dimensions**: 45 x 37 x 0.7 mm
- **Order number**: 07 MC 905 V 2 MB GJR5 2526 00 R0101

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**Fig.: Insertion of the SmartMedia Card**
2.3.6  Technical data for 07 SL 97

In general, the technical system data listed under „System data and system configuration“ in chapter 1 of volume 2 of the „AC31 with 907 AC 1131“ system description are valid. Additional data or data which are different from the system data are listed below.

2.3.6.1  General data

Number of binary inputs onboard, none
Number of binary outputs onboard, none
Number of binary in-/outputs onboard, none
Number of analog inputs onboard, none
Number of analog outputs onboard, none
Expansion via CS31 system bus possible up to 992 binary inputs
992 binary outputs
224 analog input channels
224 analog output channels
max. 31 remote modules altogether
Number of serial interfaces 1 (for programming or connection to man-machine communication)
Number of internal interfaces 1 interface for connecting a coupler card for networking with other bus systems e.g. PROFIBUS-DP or DeviceNet
Integrated memory Flash EPROM 512 kB
(480 kB program + configuration data)
RAM 2 MB
(480 kB program with online programming + 256 kB variables)
Resolution of the integrated real-time clock 1 second
Processing time, 65 % bits, 35 % words typ. 0.3 ms/kB program
Number of software timers any
delay time of the timers 1 ms...24.8 days
Number of up/down counter software blocks any
Number of bit flags in the addressable flag area 8192
Number of word flags 8192
Number of double word flags 1024
Number of step chains 256
Number of constants KW 1440
Number of constants KD 384
Indication of operating states and errors 6 LEDs altogether
Wiring method detachable screw-type terminal blocks
supply terminals, CS31 system bus 2 x 0.08 mm² - 1.5 mm² AWG 28-16
Phoenix-type terminals line cross section 0.08 - 1.5 mm² rigid / flexible
item no. 18 40366 MC 1,5/ 2-ST-3.81 AWG 28-16

2.3.6.2  Power supply

Rated supply voltage 24 V DC
Current consumption at nominal voltage max. 0.21 A
Protection against reversed polarity yes
2.3.6.3 Lithium battery
Battery for backup of RAM data
battery module 07 LE 90
Lifetime at 25 °C
typ. 5 years

2.3.6.4 Connection of the serial interface COM1
Interface standard
EIA RS-232
Programming using 907 AC 1131
with IBM PC (or compatible)
Programming modifications using 907 AC 1131
with IBM PC (or compatible)
Man-Machine Communication
yes, e.g. with operating station
Electrical isolation
against CS31 system bus interface
Potential differences
In order to avoid potential differences between the
07 SL 97 basic unit and the peripheral devices
connected to COM1, these devices are supplied by the
same socket in the control cabinet.

Terminal assignment and description
of the interface COM 1
refer to chapter 2.3.3.4

2.3.6.5 Connection to the CS31 system bus
Interface standard
EIA RS-485
Connection as a master PLC
yes, transmit and receive areas are configurable
yes, see „System constants“
Connection as a slave PLC
Setting of the CS31 module address
yes, by system constant, stored in the
Flash EPROM of the slave PLC
Electrical isolation
against supply voltage, inputs and outputs,
against interface COM1

Terminal assignment and description
of the CS31 system bus interface
refer to chapter 2.3.3.2

2.3.6.6 PCI interface
According to PCI interface specification V2.1
32 bit bus / 33 MHz
Self-configuring full-size PCI card, designed in 5 V
technology
PCI interface realized using PLX chip
8 k memory range on PCI bus
Interrupt processing as PCI target
Interrupt setting depending on the PC

2.3.6.7 Connection to ARCNET
Coaxial cable of the type RG62/U, 93 Ω
data transfer rate 2.5 Mbits/s
Coaxial connector suitable for the coaxial cable
2.3.6.8 LED displays

LEDs for signalling:

- supply voltage available (Supply) – 1 green LED
- program is running (RUN) – 1 green LED
- controller-specific errors (FK1, FK2, FK3) – sum error message 1 red LED
- CS31 bus initialized (BA) – sum error message 1 green LED
- ARCNET status LED – 2 green LEDs

2.3.6.9 Mechanical data

Fastening in PCI direct plug connector to the PC housing using 1 M4 screw

Fastening by screws

<table>
<thead>
<tr>
<th>Board size</th>
<th>width x height x depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>without board holder</td>
<td>311.78 x 106.68 x 19 mm</td>
</tr>
<tr>
<td>with board holder</td>
<td>311.78 x 126.68 x 19 mm</td>
</tr>
</tbody>
</table>

Wiring method: detachable screw-type terminal blocks

| supply terminals, CS31 system bus | max. 0.08 - 1.5 mm$^2$ |
| all other terminals | max. 0.08 - 1.5 mm$^2$ |

Combicon-type terminals

| item no. | 189 4244 MC 1,5/ 2-ST-3.81 Gy |
| Weight | 1.0 kg |

Dimensions for mounting refer to the following figure

![Dimensions for mounting](image-url)
2.3.6.10 Mounting hints

Mounting position
vertically, terminals on the left or on the right hand side

Vibration and shock resistance
To obtain the specified vibration and shock resistance the board edge opposite to the terminals has to be fixed to the PC housing by means of guide rails. The guide rails are provided as an accessory with the PC.

Cooling
The natural convection cooling must not be hindered by other mounted material.

2.3.6.11 Ordering data

Basic unit 07 SL 97 R0160 (ARCNET) Order No. GJR5 2534 00 R0160
Scope of delivery
Basic unit 07 SL 97 R0160
2 x 2-pole terminal block (3.81 mm grid space)

Basic unit 07 SL 97 R0162 (ARCNET with PROFIBUS-DP) Order No. GJR5 2534 00 R0162
Scope of delivery
Basic unit 07 SL 97 R0162 with integrated PROFIBUS-DP coupler
2 x 2-pole terminal block (3.81 mm grid space)

Basic unit 07 SL 97 R0165 (ARCNET with DeviceNet) Order No. GJR5 2534 00 R0165
Scope of delivery
Basic unit 07 SL 97 R0165 with integrated DeviceNet coupler
2 x 2-pole terminal block (3.81 mm grid space)

PC programming cable 07 SK 93 Order No. GJR5 2535 00 R0001
MODBUS/ASCII communication cable 07 SK 94 Order No. GJR5 2536 00 R0001
Battery module 07 LE 90 Order No. GJR5 2507 00 R0001
SmartMedia Card 07 MC 90 5 V 2 MB Order No. GJR5 2526 00 R0101