MA 22 DC

Daisy chain connector unit for BCL 22

10 - 30 V
DC

- Easy wiring of up to 4 BCL 22 bar code readers in a daisy chain
- Terminals for central voltage supply
- RS 232 interface to host
- Switching input and switching output for each bar code reader
- Central switching input

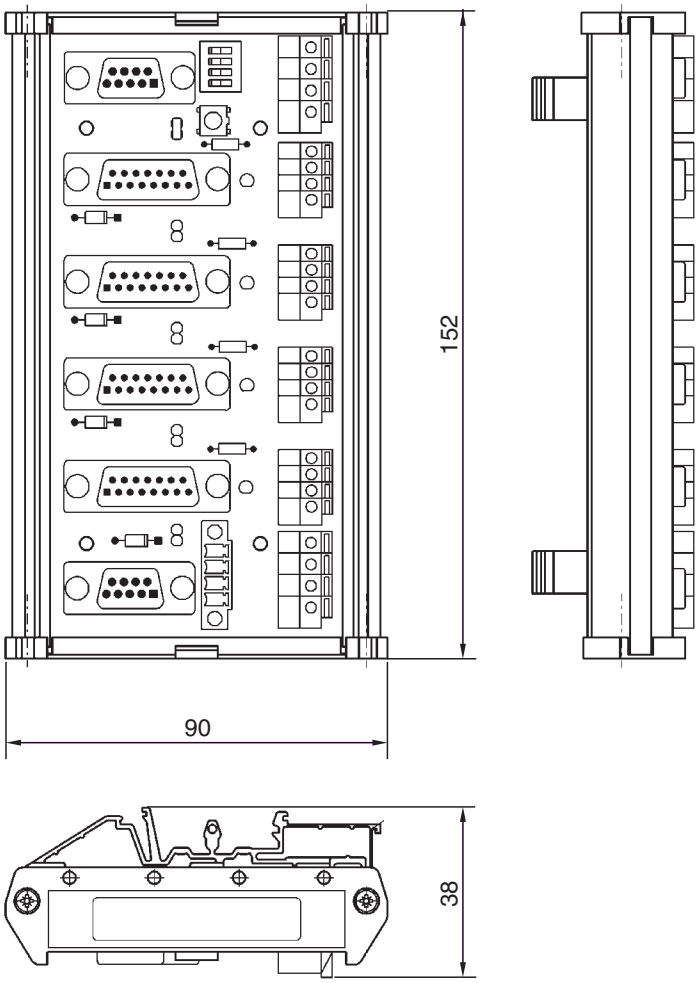
CE ISO 9001

IEC 801...

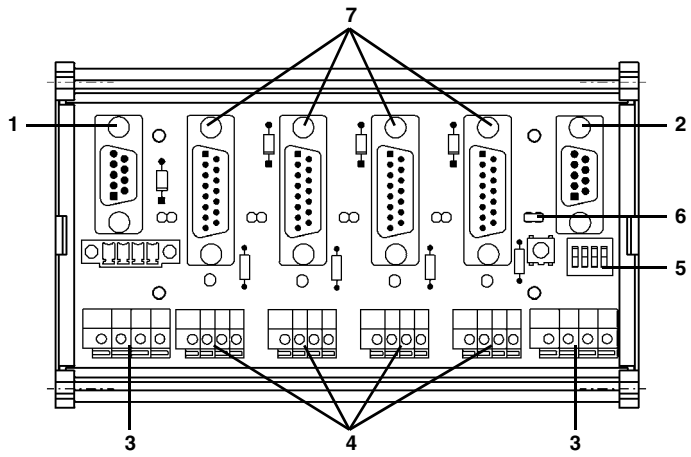
Accessories

- **Bar code reader BCL 22 xx 3xx**

Dimensioned drawing



Electrical connection



1 Host connection: 9 pin Sub-D connector (Pin 2: RxD, Pin 3: TxD, Pin 5: GND)
2 Alternative host connection: 9 pin Sub-D connector (Pin 2: TxD, Pin 3: RxD, Pin 5: GND)
3 Central voltage supply and common switching input
4 Switching input and switching output separate for each BCL
5 Service interface: each BCL can be switched to service operation separately
6 Jumper: the bridge after the last BCL must be connected
7 BCL connections: 15-pin Sub-D connector for BCL 22 xx 3xx,
the bar code readers must be plugged in from left to right with no gaps.

Specifications

Electrical data

Operating voltage U_B	10 … 30 VDC (BCL 22)
Power consumption	max. 15 W (approx. 3.2 W for each BCL 22))
Switching inputs	12 … 30 VDC
Switching outputs	I_{max} = 100 mA (for each BCL 22)

Mechanical data

Housing	plastic
Dimensions	90 x 152 x 38 mm (HxWxD)
Weight	0.220 kg
Connection type	9-pin/15-pin Sub-D connector, terminals
Fastening	mounting on C-rail or top-hat rail (EN 50022)

Environmental data

Ambient temp. (operation/storage)	0 °C … +40 °C/-20 °C … +60 °C
Air humidity	max. 90% rel. humidity, non-condensing
Electromagnetic compatibility	acc. to IEC 801

Tables

Diagrams

Order guide

	Type	Part No.
Daisy chain connector unit for BCL 22 xx	MA 22 DC	500 31496
Bar code reader BCL 22 xx 3xx	depending on version	

Remarks

The BCL 22 must not be plugged into the MA 22 DC while under voltage!

MA 22 DC — Daisy chain connector unit for BCL 22

Technical description

Networking multiple BCL 22 devices without separate master

The MA 22 DC connector unit enables the networking of up to 4 bar code readers on the basis of the RS 232 interface.
No additional network master is necessary, only a free RS 232 interface. In accordance with the RS 232 specifications, the total line length between the active bus subscribers must not exceed 10m.

Communication functionality

Host connection: Two 9-pin Sub-D connectors are provided for interface coupling with the host.

The host connection (**1**) is designed in the same way as all service connections in Leuze decoders and connector units.
(Pin 2: RxD / Pin 3: TxD / Pin 5: GND).

The alternative host connection (**2**) can also be used. **The pin assignments for TxD and RxD are, however, reversed with respect to those of the host connection (1)!**

Notice!

Depending on the last bar code reader, bridge J1 … J4 is to be connected. The plug-in ports for the bar code reader are to be used in sequence with no gaps.

In the event of an interruption or device failure, the TxD-/RxD connection is interrupted and data communication is no longer possible due to the fact that each message is passed through all BCL devices.

Addressing principle

Host –> BCL: All messages from the host to a BCL begin with [S] and a single-digit address between 0 and 9.

BCL –> Host: All messages from a BCL to the host begin with [R] and a single-digit address.

Broadcast: All messages from the host to all BCL devices beginning with [B] and any single-digit address, e.g. B0.

Addressing in the daisy chain

To activate network functionality, the BCL 22 xx 3xx is simply plugged into the MA 22 DC. Upon connection, the bar code reader is automatically switched to relative addressing for daisy chain operation.

Functionality within the daisy chain for relative addressing:

If, for example, message '**S2V**' is addressed to a BCL (here: address 2), the first BCL in the chain receives the message and recognises that the message is not intended for it (address not equal to 0) and decrements the address by 1. As a result, the new command to the next device is now '**S1V**', etc. The 3rd device in the chain (address 2) now recognises that it has been addressed on basis of address 0.

The answer is fed into the daisy chain as '**R0BCL22 V0403**'. The following BCL receives the telegram and directs the message to the next BCL by again increasing the address in the answer by one: '**R1BCL22 V0403**'.

This is repeated until the answer arrives at the host. In this way, a host can determine the number of subscribers.

Host	BCL address 0	BCL address 1	BCL address 2	Address 3	Host
S2V	S2V->S1v	S1V->S0V	S0V		
			R0BCL22 V04.03	R0… -> R1…	R1BCL22 V04.03

Table 1: Example of relative addressing in a daisy chain with 4 bar code readers

Example: Commands in a daisy chain with 4 bar code readers

Sn = contact the scanner with address n.

Rm = reaction of the subscriber with corresponding address m.

B0 = broadcast command to all connected subscribers.

Instruction	Command	Address (example)	Command string	Answer
Query the software version	V	3	S3V	R0[SW Vers.]
	V	0	S0V	R3[SW Vers.]
Activate the bar code reader	+	1	S1+	R2[DATA]
Activate AutoConfig	CA+	2	S2CA+	R1CS0
Store AutoConfig	CA-	2	S2CA-	R1CS0
Broadcast: activate all bar code readers	B0 (e.g.+)	All	B0+	All active
Broadcast: deactivate all bar code readers	B0 (e.g.-)	All	B0-	All deactivated

Table 2: Example commands in a daisy chain with 4 scanners

All online commands (see operating instructions for the BCL 22) can also be entered and used directly in terminal mode by prefixing with the addresses.

Parameters for daisy chain operation (optional):

daisy_chain_broadcast_char (**PAR 173**) This character identifies the messages which are directed to all devices in the daisy chain. The default here is a '**B**'.

daisy_chain_host_char (**PAR 174**) This character identifies the messages which are directed from the host to a slave. The default here is an '**S**'.

daisy_chain_slave_char (**PAR 175**) This character identifies the messages which are directed from a slave to the host. The default here is an '**R**'.

address_format (**PAR 111**) If 'automatic address detection' is activated (parameter value = 04), the format automatically switches to DC. Alternative: daisy chain (parameter value = 05).

Notice!

String values of parameters 173 to 175 are ASCII-hex encoded. If, for example, parameter 173 is to be reset to the default value '***B'**, the corresponding PT sequence is **'PT00217342'**, as **'B'** = 42hex.*