BCL 45 / MA 15

Bar Code Scanner for Device-Net with Connector Unit

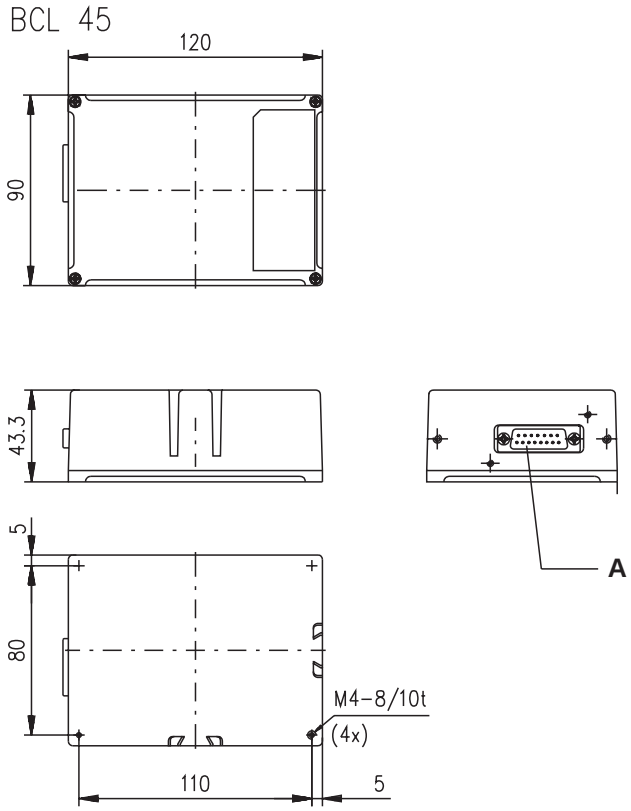
11 - 30 V DC

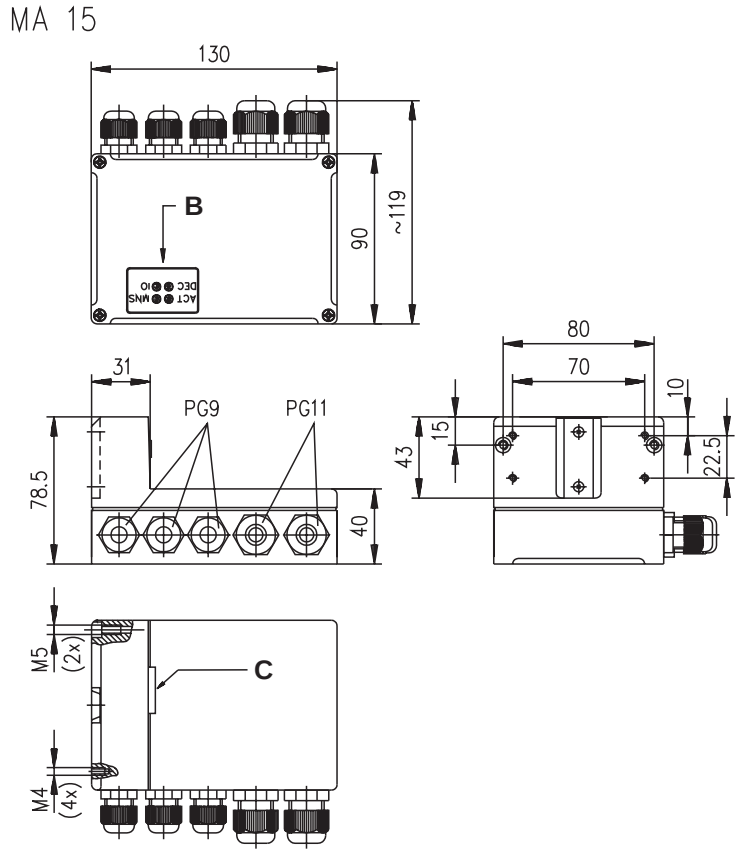
ODVA

Features

- Scanning rate 1200 scans/s
- Automatic code type detection
  Automatic code quality check
- Additional RS232 service interface
- Scanner parameterization via Device-Net or service interface
- MAC ID and baud rate set via rotary code switch
- Device status visualization
- Parameters are stored fail-safe in an EEPROM
- Switching inputs and outputs
- Simple mounting and fastening
- Code and reference code are not equal

Dimensioned drawing





A 15-pole plug
B LED indicator
C 15-pole plug

We reserve the right to make changes

CE

ISO 9001

IP 65

IEC 801...

Specifications

	BCL 45 Bar code scanner for operation with Device-Net	MA 15 Connector unit and parameter memory for BCL 45
Electrical data		
Operating voltage U_B	11 ... 30 V DC	11 ... 30 V DC
Power consumption	5 VA	2 VA
Switching input	12 ... 30 V DC	12 ... 30 V DC
Switching output	I_{max} = 100 mA	I_{max} = 100 mA
Mechanical data		
Housing	Diecast aluminum	Diecast aluminum
Dimensions (WxHxD)	120 x 90 x 43 mm	130 x 90 x 78 mm
Weight	0.418 kg	0.584 kg
Environmental data		
Operating temperature	0°C ... +40°C	0°C ... +50°C
Storage temperature	-20°C ... +60°C	-20°C ... +60°C
Protection class	IP 65	IP 65
Electromagnetic compatibility	According to IEC 801	According to IEC 801
Air moisture	Max. 90% rel. humidity, non-condensing	

Tables

Description

The BCL 45 bar code reader is a high-speed scanner with integrated CAN-data-bus interface and is operated with the Device-Net protocol. The integrated decoder can quickly and reliably read all standard bar codes, e.g. 2/5-Interleave, Code 39 etc.

In combination with the MA 15 connector unit, a simple electrical connection can be established to the CAN bus as per the Device-Net specifications. According to these specifications, it is possible by means of line loops to connect 15 to 63 bar code readers to one another in the network. The CAN system is equivalent to a master-slave system in which the master, which is in the form of a PLC, manages the data transfer. The data are exchanged by means of various messages; which message is used is dependent on the type of situation. The used messages are:

I/O-Poll Command Response / Request
I/O-Change of State / Cyclic Message
Explicit Response / Request Message

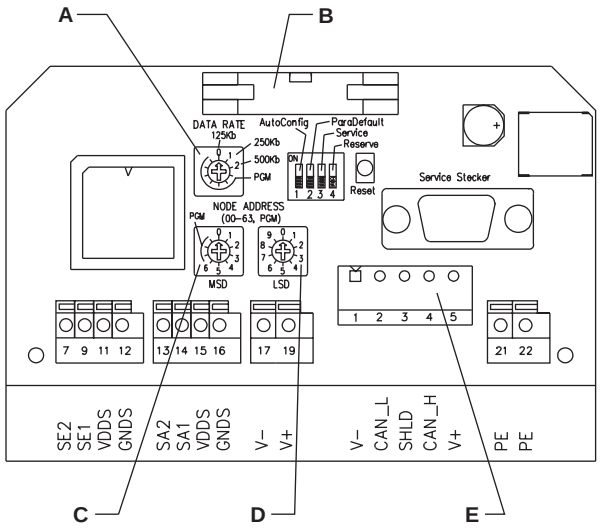
The data structures transmitted with the messages can be assembled on demand by using predefined assembly instances.

Remarks

Control elements

Element	Function
Device-Net plug	
Terminals 1 to 5	PIN 1 and 5: voltage supply PIN 2 and 4: CAN-bus data lines PIN 3: shielding
Plug for BCL 45	
Ribbon cable connection	Connects the SubD plug in the housing cover to the electronics in the MA 15 base
Service switch	
DIP switch 3	ON: Service mode OFF: Standard operation
Service plug	
9-pole SubD plug	RS 232 interface for service/setup operation, monitoring of data in standard operation 2=RxD, 3=TxD, 5=GND
Sensor input	
Terminals 7, 9, 11 and 12	Input voltage 12 ... 36 V DC/AC for activation of the BCL 45
Switching output	
Terminals 13 to 16	Output voltage 5 ... 48 V DC for the display of e.g. "good read" or "bad read"
Data rate	
(1 rotary code switch)	Baud rate setting: switch position 0 = 125 kb 1 = 250 kb 2 = 500 kb >2 = baud rate can be set via software
Node address	
(2 rotary code switches)	Subscriber address settings (for settings, see chapter Addressing)
Reset	
Reset button	• press < 4s 'warm-star' • press > 4s 'cold-start'
ParaDefault	
DIP switch 2	ON: on reset ('cold-start') the factory default parameter set is loaded. OFF: on reset ('cold-start') a customer-specific parameter set is loaded.
reserved	
DIP switch 4	not assigned in standard version

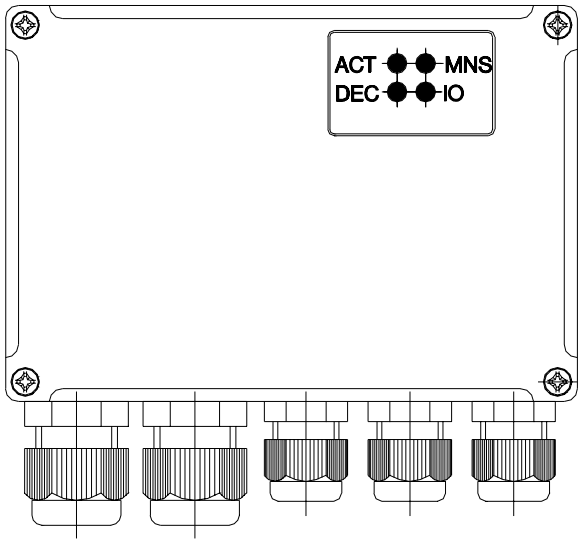
Electrical connection



- **A** Baud rate selector switch
- **B** Ribbon cable connection to the BCL
- **C** Addressing switch, tens
- **D** Addressing switch, single digits
- **E** CAN-interface connection plug

Indicators

LED	Color	Significance
MNS	green / red	Device-Net status indicator
I/O	green / red	Scanner active
ACT	red	Scanner active (ACTive)
DEC	gr0010een	Decoding successful (DECoding)



Status conditions of the LEDs

MNS green flashing	Device is ready, no message connection is established
MNS continuous light, green	Device is ready, message connection is established
MNS red flashing	Time-out of the message connection (corrected by reestablishing the message connection)
MNS continuous light, red	Serious error, e.g. a buffer overflow (corrected by switching on and off or by resetting the BCL 45)
ACT continuous light, red	Scanner is active - laser in operation
ACT flashes	During the 'autoControl' function, a warning is output
DEC continuous light, green	Approx. 1/2 second after successful completion of a decoding process.

Addressing

Device-Net has the capability to link 63 subscribers to one another.
These addresses are set in the MA 15 using rotary code switches.

MSD rotary code switch:	For setting the tens digits of the subscriber address Possible values: 0 ... 6
LSD rotary code switch:	For setting the single digits of the subscriber address Possible values: 0 ... 9
Example for subscriber 32:	Set MSD rotary code switch to 3 Set LSD rotary code switch to 2
Address > 63	Address can be set via software (software selection)

Order guide

Part designation	Description	Part No.
MA 15 150	Connector unit for Device-Net slave BCL 45	500 32909
BCL 45 R1 F 100	Raster scanner with F optics	500 32908
BCL 45 R1 N 100	Raster scanner with N optics	500 33621
BCL 45 SF 100	Single-beam scanner with F optics	500 35385
BCL 45 SM 100	Single-beam scanner with M optics	500 34493
BCL 45 R1 M 100	Raster scanner with M optics	500 34492

Additional scanner types on request