

M2D LASER-Scanner

for 2-dimensional
profile sensing

- Measuring
- Controlling
- Monitoring



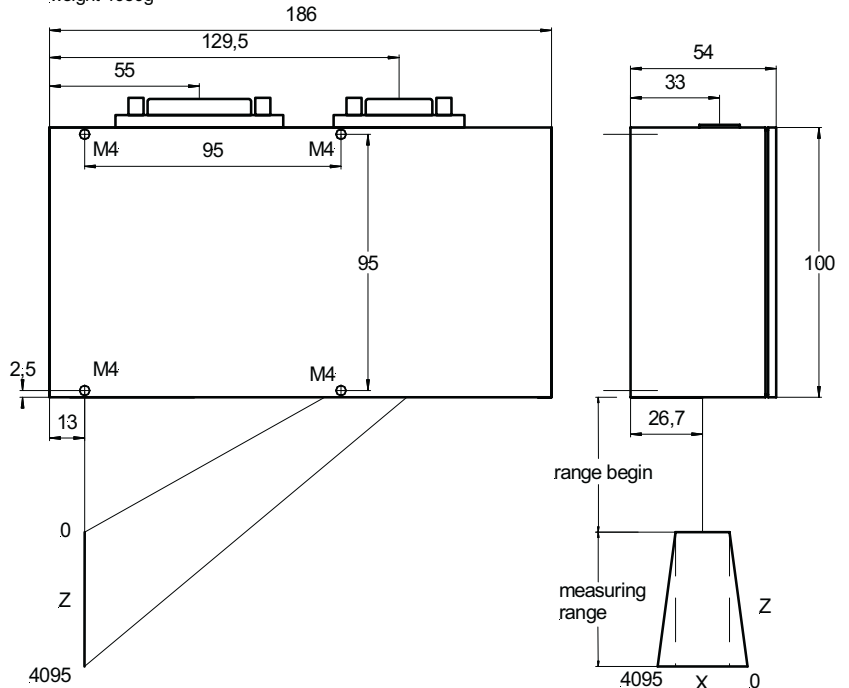
M2D 85/46
M2D 120/54
M2D 200/68



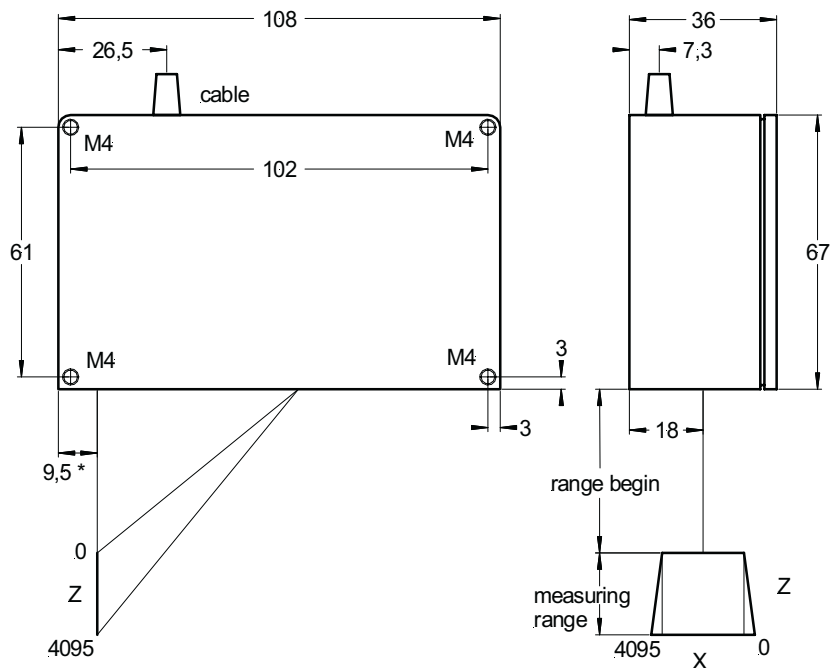
M2D 17/10
M2D 40/20
M2D 60/30

- range: 7 up to 1200 mm
- Scan width:
6 up to 600 mm
- Scan rate 50 or 100 Hz
- many accessories,
software and options

TYPE 1 weight 1050g



TYPE 2 weight 350 g



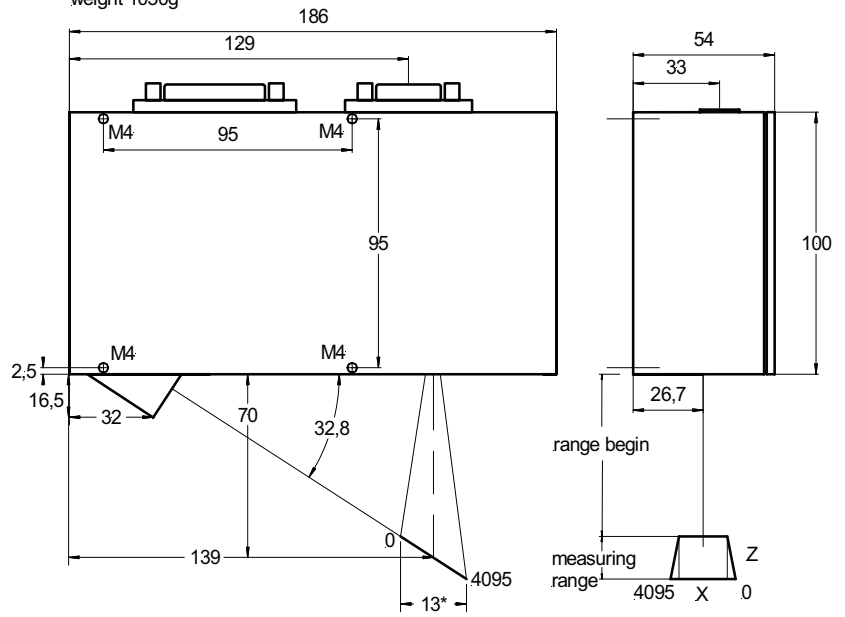
* M2D40/20: distance case/laser = 8,6



M2D 10/13

TYPE 4

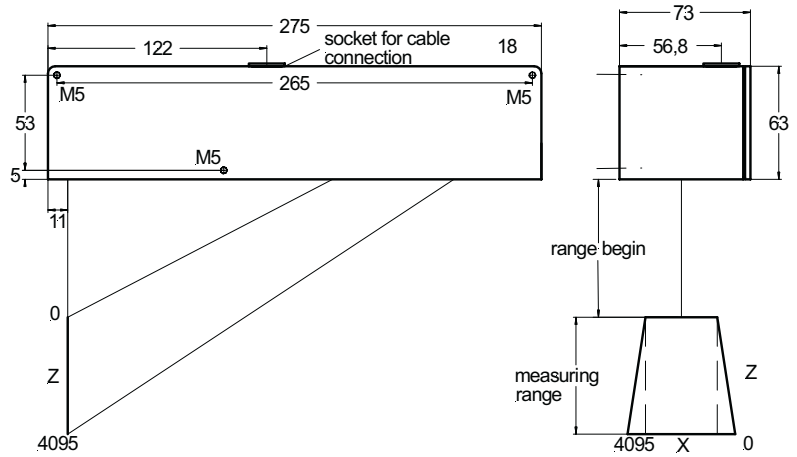
weight 1050g



M2D 220/120

TYPE 5

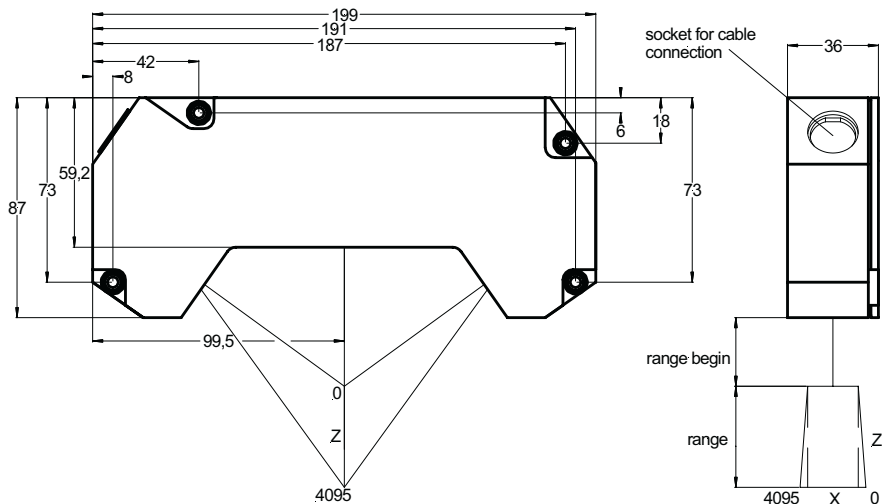
weight 1400 g

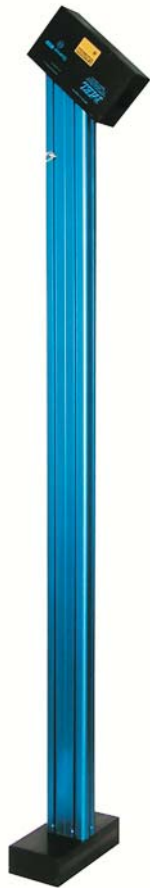


**M2D2 15/10
Double head sensor**

TYPE 11

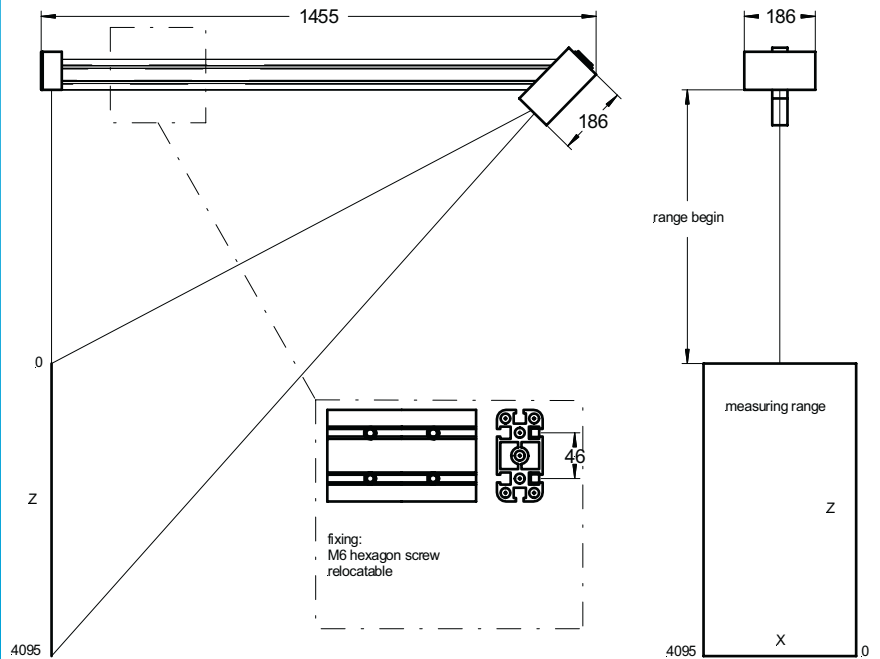
weight 730 g





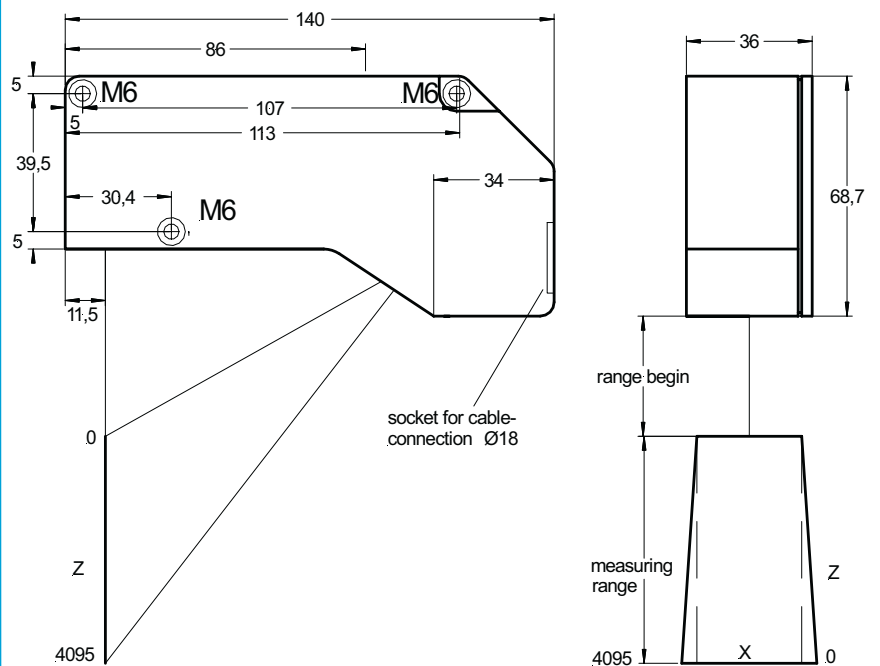
M2D 1200/600

TYPE 6
weight 6700 g



M2D 75/30

TYPE 8
weight 510 g



Technical Data M2D / 50 Hz- and 100 Hz version::

Scanner	7/6	10/13	17/10	15/10 M2D2	40/20	60/30	75/30	85/46	120/ 54	200/ 68	220/ 120	1200/ 600
Case type	2	4	2	11	2	2	8	1	1	1	5	6
Range Z [mm]	7	10	17	15	40	60	75	85	120	200	220	1200
Begin scan range X [mm]	6	13	10	10	20	30	30	46	54	68	120	600
End scan range X [mm]	7	15	13	11,6	27	40	40	60	80	100	160	600
Range begin [mm]	20	65	35	20	50	49	90	85	110	90	115	900
Resolution Z [mm]	0,015	0,02	0,03	0,025	0,05	0,08	0,15	0,15	0,25	0,3	0,3	1,5
Resolution X [mm]	0,015	0,02	0,02	0,025	0,03	0,05	0,05	0,08	0,1	0,1	0,18	1,0
Linearity [% of meas. value]	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Laser protection class	2	3R	2	2	3R	2	2	2	2	2	2	2

Scan rate*	50 Hz	100 Hz
Shutter speed**	1/28.000 s up to 1/125 s	1/47.000 up to 1/225 s
Specials		feeler gage, elapsed hour counter, serial number electronically readable

Light source	Laser, wave length 658 nm, red visible
Ambient light	5.000 Lux
Operating time	Laser diode: 50.000 h
max. Vibration	5 g up to 1 kHz
Operating temperature	0° ... +40°C
Storage temperature	-20° ... +70°C
Humidity	< 90% RH
Protection class	IP 64
Power supply	via Electronic module: i-Control, Blue Box or ISA-Card
Measuring surface	white to black, shiny, high mirroring

*) please order

**) adjustable via software

Delivery:

- Sensor head
- Sensor cable 2 m
- Demo-Software
- Manual
- Electronic module alternatively:
 - i-Control
 - Blue Box
 - ISA-Card

Options:

- Special cable length

Accessories:

- Protection window / glass
- Protection window / plastics
- 2 Scanner synchronized

M2DW LASER-Scanner

with air- or water-cooling



M2DW 160/40



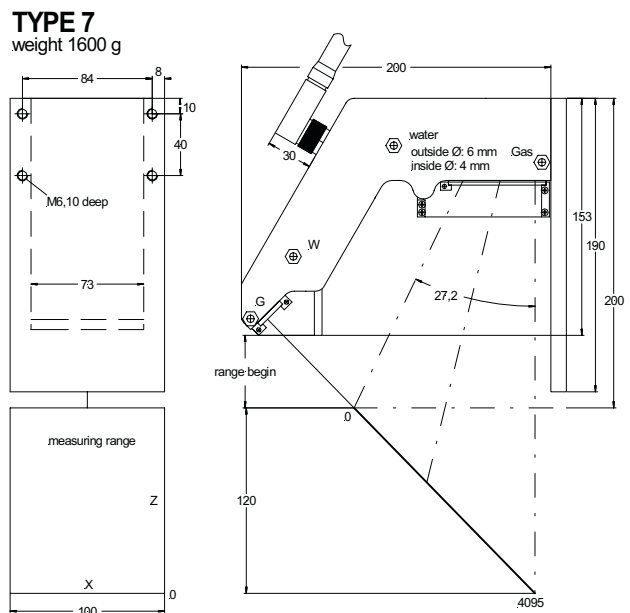
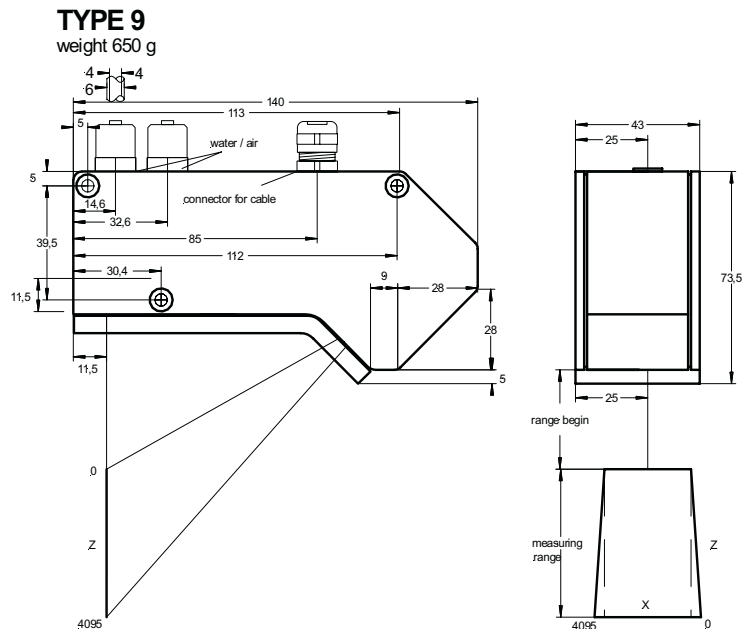
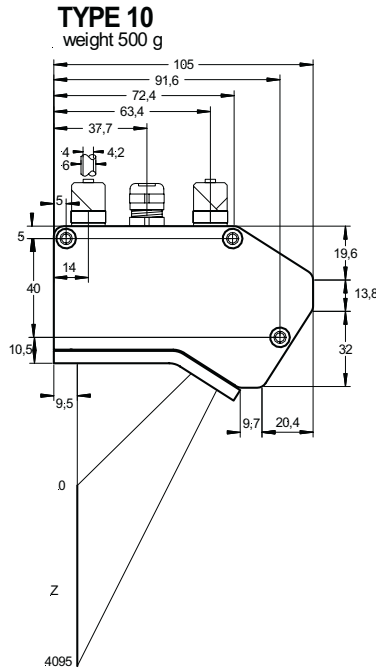
M2DW 75/30



M2DW 120/100

- for temperatures up to 500°C
- Heat shield and integrated cooling

- Measuring
- Controlling
- Monitoring



DB-M2DW_3-05-E

Technical Data M2DW / 50 Hz- and 100 Hz version:

Scanner	M2DW-75/30	M2DW-160/40	M2DW-120/100
Case type	9	10	7
Range Z [mm]	75	160	120
Begin scan range X [mm]	30	40	100
End scan range X [mm]	40	110	100
Range begin [mm]	90	60,0	47
Resolution Z [mm]	0,15	0,25	0,3
Resolution X [mm]	0,05	0,16	0,3
Linearity [% of meas. value]	0,2	0,2	0,2
Laser protection class	2	2	2

	50 Hz	100 Hz
Scan rate*		
Shutter speed**	1/28.000 s up to 1/125 s	1/47.000 up to 1/225 s
Specials		feeler gage, elapsed hour counter serial number electronically readable
Light source	Connections for air- or water-cooling Laser, wave length 658 nm, red visible	
Ambient light	5.000 Lux	
Operating time	Laser diode: 50.000 h	
max. Vibration	5 g up to 1 kHz	
Operating temperature	0° ... +40°C	
Storage temperature	-20° ... +70°C	
Humidity	< 90% RH	
Protection class	IP 64	
Power supply	via Electronic module: i-Control, Blue Box or ISA-Card	
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*) please order

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Delivery:

- Sensor head
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- Demo-Software
- Manual
- Electronic module alternatively:
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Options:

- Special cable length

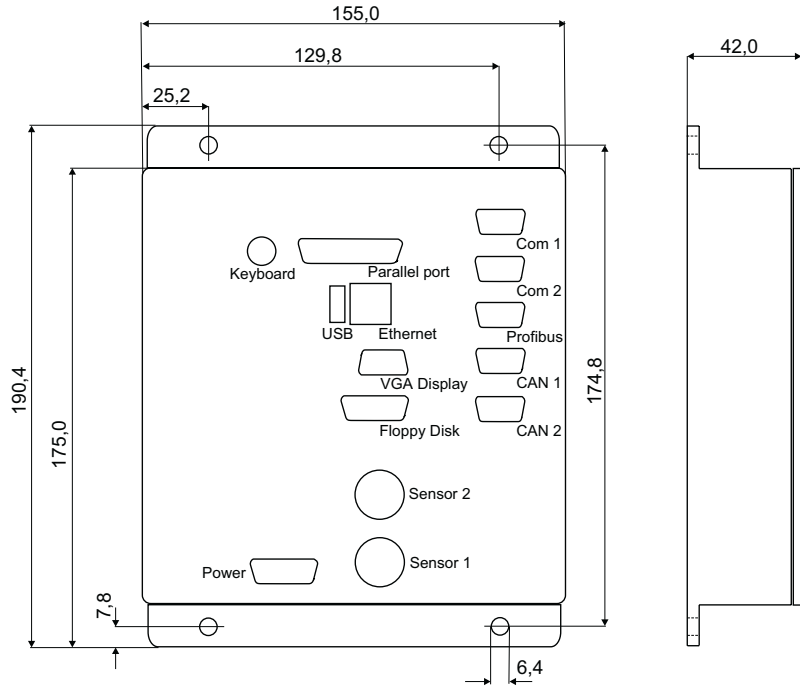
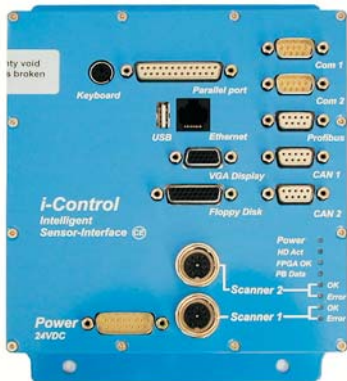
Accessories:

- Protection window / glass
- Protection window / plastics
- 2 Scanner synchronized

i-Control

Electronic module for
LASER-Scanner
with integrated PC 104

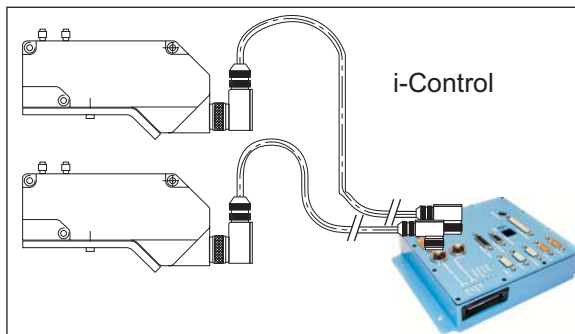
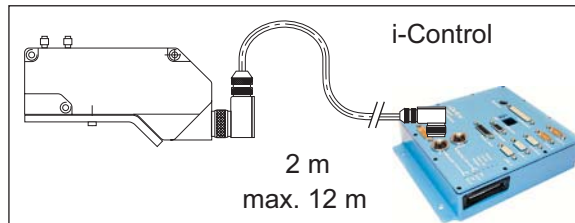
- Measuring
- Controlling
- Monitoring



■ all connections on front panel

■ Outputs:

- 2 x COMport RS 232
- Ethernet
- 2 x CAN Bus
- 4 x analog outputs 0 - 10 V
- option: Profibus-DP



Technical Data:

Operating systems	Windows 9.x / NT / XP / Linux
LEDs	Power, HD-Activity, FPGA-OK, PB-Data, Sensor functions
Operating temperature	0° ... +40°C
Storage temperature	-10° ... +70°C
Humidity	< 90% RH, non condensing
Protection class	IP 40
Power supply	18 ... 30 VDC / 800 mA
Weight	1,3 kg

i-Control connections:

- VGA Display (monitor)
- EPP / ECP parallel port
- Floppy Disc Drive
- 2 x COM port RS 232
- 2 x digitag input 5 ... 30 V (e. g. for displacement sensor)
- 2 x Cards: CF Memory / Microdrive
- PS/2 keyboard
- USB 1.1
- Ethernet / 10 / 100 MBit
- Profibus-DP slave potential free
- 2 x CAN Bus potential free
- 4 x digital output / oc max. 30 V / 20 mA
- 4 x analog output 0 ... 10 V
- Power supply +24 V / 800 mA / 16,5 ... 30 VDC

Delivery:

- i-Control with Celeron 300 MHz
- Micro Drive 1 GB (size depends on availability)
- 128 MB storage
- Manual

Options:

- 4 channel A/D-converter M2i-CAD4
e. g. for connection with M7 sensors



4 channel A/D converter M21-CAD4

Accessories:

- Installation of operating system Win 98
- Micro Drive
- Floppy Disc Drive
- Relais Box i-CR-8 for RS 232



Floppy Disc Drive



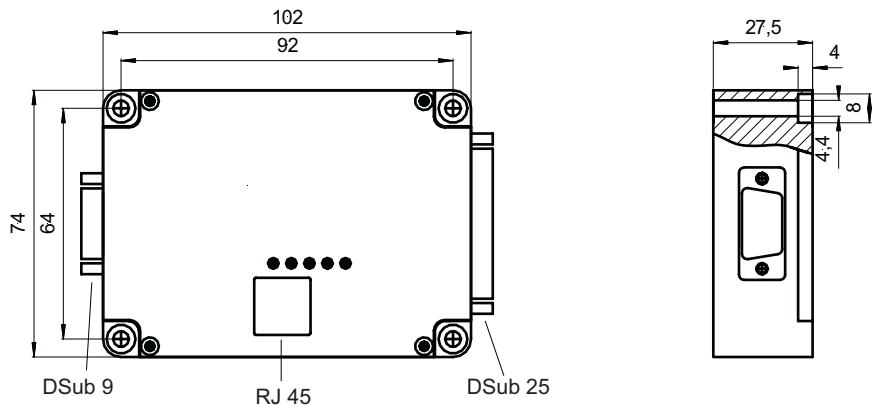
Relais box i-CR-8



Blue Box

Ethernet interface for
LASER-Scanner

- Measuring
- Controlling
- Monitoring



weight 300 g

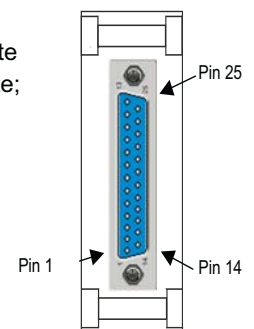
Technical data

Current consumption	280 mA (24 V), approx. 7 W
Voltage	10 ... 30 VDC
Connections	D-Sub 9 pin, female: -Scanner connection D-Sub 25 pin, male: -Supply -Ethernet -Strobe, ext. Trigger
Protection class	IP 40

Pin assignment D-Sub 25 pin:

Pin	Signal	Beschreibung / Signalpegel
1	GND	Ground
2	Sync. out	Sync out from the master is connected to sync in of the slaves
3	TxD_PROG	Send data RS 232 for firmware update
4	Din 1	Digital input 1
5	RIP	Reset IP-address - connect to GND
6	Tx-	Transmit Data - Ethernet
7	Rx-	Receive Data - Ethernet
8		Connect Case with GND!
14	GND	Ground
15	Sync. in	Sync. in from master, TTL ... 24 V logic, 1/0-edge (trailing edge) triggers scan. Ext. trigger mode needs to be set in software!
16	RxD_PROG	Receive data RS 232 for firmware update
17	CPU_PROG	Programming control for firmware update; connect to +Ub! *
18	Din 2	Digital input 2
19	Tx+	Transmit data + Ethernet
20	Rx+	Receive data + Ethernet
21	+Ub	Power supply 10 ... 30 V, approx. 7 W

* see Manual



D-Sub 25 pin

- robust industrial case
- splash-and dust-proof
- polarity saved up to 60 VDC

ISA-Card

Electronic module for
LASER-Scanner

- Measuring
- Controlling
- Monitoring

Connection:

Scanner 1 Scanner 2



Adjustment jumper block 1: X: Jumper set

no Interrupt
 Interrupt 5
 Interrupt 7
 Interrupt 9
 Interrupt 10
 Interrupt 11
 Interrupt 12
 basic address = 300 / 304 Hex
 basic address = 308 / 30C Hex
 basic address = 310 / 314 Hex
 basic address = 318 / 31C

1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16
					X		
				X			
			X				
	X						
X							
							X
						X	
						X	X

Base address of scanner connector 2 = base address of scanner connector 1 + 4 Hex

Jumper block 1:

2	4	6	8	10	12	14	16
1	3	5	7	9	11	13	15

Pin assignment of D-Sub-15pin scanner connector:

Pin	Signal	Level	Remarks
1	Video Signal	1 V	Coax cable 75 Ohm
2	n.c.		
3	+ 50 MHz		
4	Sync-Input	2 mA	Extern Trigger*
5	GND, 0 V	0 V	screen
6	- 50 MHz	V	
7	n.c.		
8	+10 V	+10V	max. 2 mV ripple
9	GND Video	0 V	schwarz coax shield
10	GND	0 V	grey coax
11	GND	0 V	grey coax shield
12	n.c.		
13	n.c.		
14	SerKO_data	V	
15	Syn_data	V	

* from Hardware 3.5

- short ISA-Card for PC
- no interrupt necessary
- available for 1 or 2 scanners
- enables Multi-Scanner-Systems