











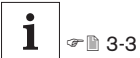
# RFID Systems

Version **4.0**

ID 200 / ID 40 / ID 15 / ID 10

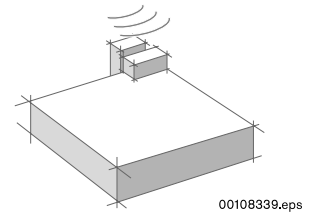


# Symbols

	Suitable for use in ESD sensitive areas. Please contact your Rexroth representative.
	Protection class [IP]
	Dynamic data transmission
	Working frequency 125 kHz
	Pneumatic connection required 4...6 bar
	PROFIBUS DP
	AS-interface
<b>Modbus</b>	ModbusTCP
	EtherNet/IP
	PROFINET
	Reference to technical data/dimensions 6-2
	Reference to another page 3-3

RFID systems

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RFID systems

## RFID in assembly technology

Identification and data storage systems are used for controlling numerous production and transport systems in assembly technology. On the one hand, data related to objects is the basis for targeted control of process and processing steps and, on the other, is used for type or variant-dependent infeeding and outfeeding of workpiece pallets when manufacturing product variants on multi-branch flexible assembly systems.

Two basic principles are used for dealing with workpiece-related data:

### Central data storage

Based on central collection of all workpiece-relevant data. Reliable identification of the workpiece at the processing station is required so that the appropriate data can be retrieved from the central data storage location.

### Decentralized data storage

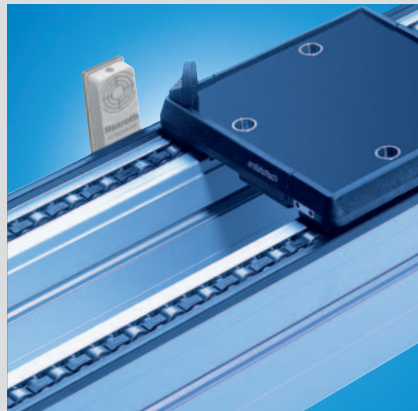
Based on mobile data tag systems, where the workpiece-relevant data is sent along directly with the workpiece (or on the workpiece pallet). Powerful read and write heads that can read out or modify the information needed at the processing stations.



ID 200 - VarioFlow



ID 200 - TS 5



ID 200 - TS 2plus



ID 40 - TS 2plus



ID 15 - TS 2plus



ID 10 - TS 2plus



RFID systems

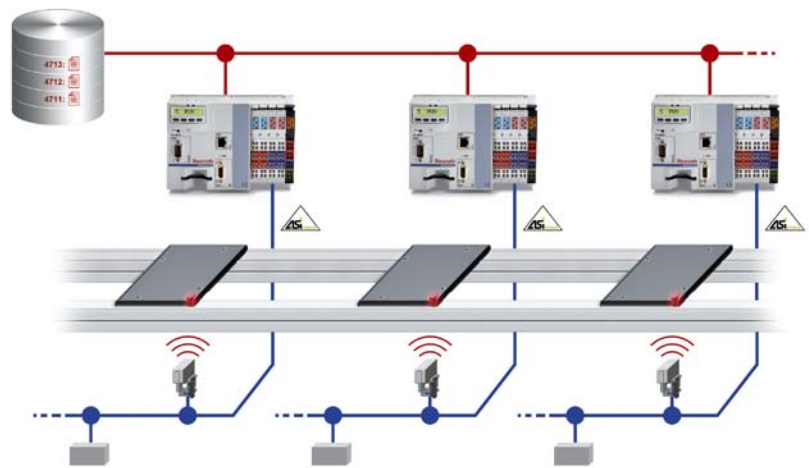
## Types of data storage

### Central data storage

With central data storage, the data related to the process and product is centrally collected.

Mobile data tags on the workpiece pallet, as well as the appropriate reading devices, ensure reliable identification of the workpieces at the processing stations. Using the workpiece ID, the appropriate data set is indexed to load the data into the PLC or cell control. The cell control unit reads the product type (variants, order or production lot) and the corresponding manufacturing status. This information is used to indicate whether any process steps are necessary and which ones.

At the end, after finishing in the processing station, the information in the data set is supplemented. The data flow between the processing station and the host process requires a network.

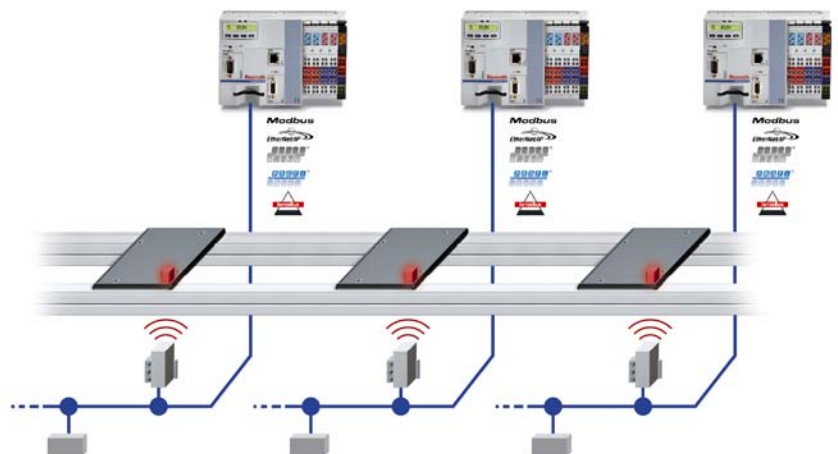


### Decentralized data storage

With decentralized data storage, the data related to the process and product accompanies the workpiece.

To do this, the workpiece pallets are equipped with a mobile data tag with more storage capacity, which offers the option to read and write data.

The data is always up-to-date at every processing station thanks to the read/write heads that can read out and edit data at any time. The individual stations can thus carry out the production process independently; a network is not necessary for the workpiece data.



RFID systems

## Main features

System		ID 200	ID 40	ID 15	ID 10
Central data storage		++	0	++	0
Decentralized data storage		++	++	-	+
PLC connection via	AS-i	-	-	+	-
	PROFIBUS DP	+	+	-	-
	Modbus	+	-	-	-
	EtherNet/IP	+	-	-	-
	PROFINET	+	-	-	-
	TCP/IP	+	-	-	-
	Parallel	-	-	-	+
Data	Write	+	+	0	+
	Read	+	+	+	+
Installation on workpiece pallet	Assembly module	+	+	+	+
	Integration	+	-	+	-
Maximum speed for dynamic reading	(m/min)	30	30	20	0
Frequencies		125 kHz 13.56 MHz	1.28 MHz	125 kHz	-
Max. static reading distance	(mm)	35	12	20	3
Operating temperature	(°C)	-25 to +85	0 to +70	-40 to +85	+5 to +60
Min. number of write cycles		10 billion	10 billion	100000	10 million
Max. storage size		2 KB	32 KB	15 bits	2 bit/MDT

RFID system ID 200

# RFID system ID 200

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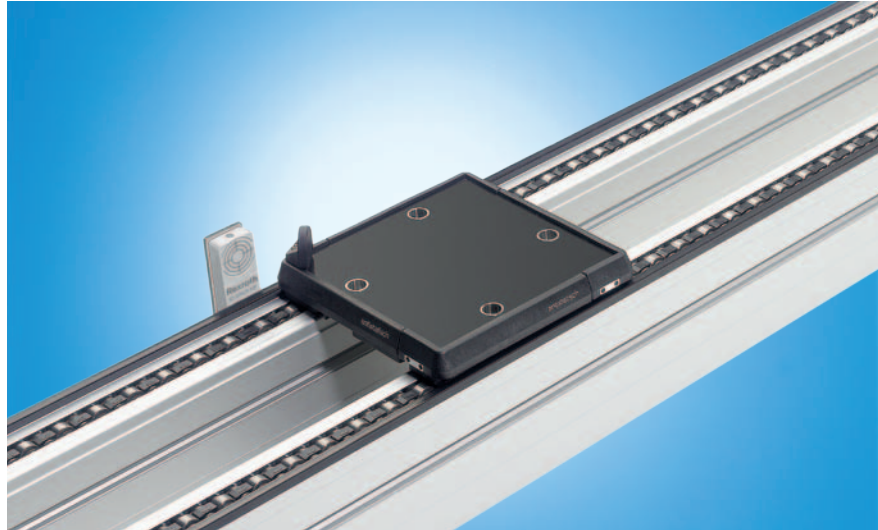
RFID system ID 200

# RFID system ID 200



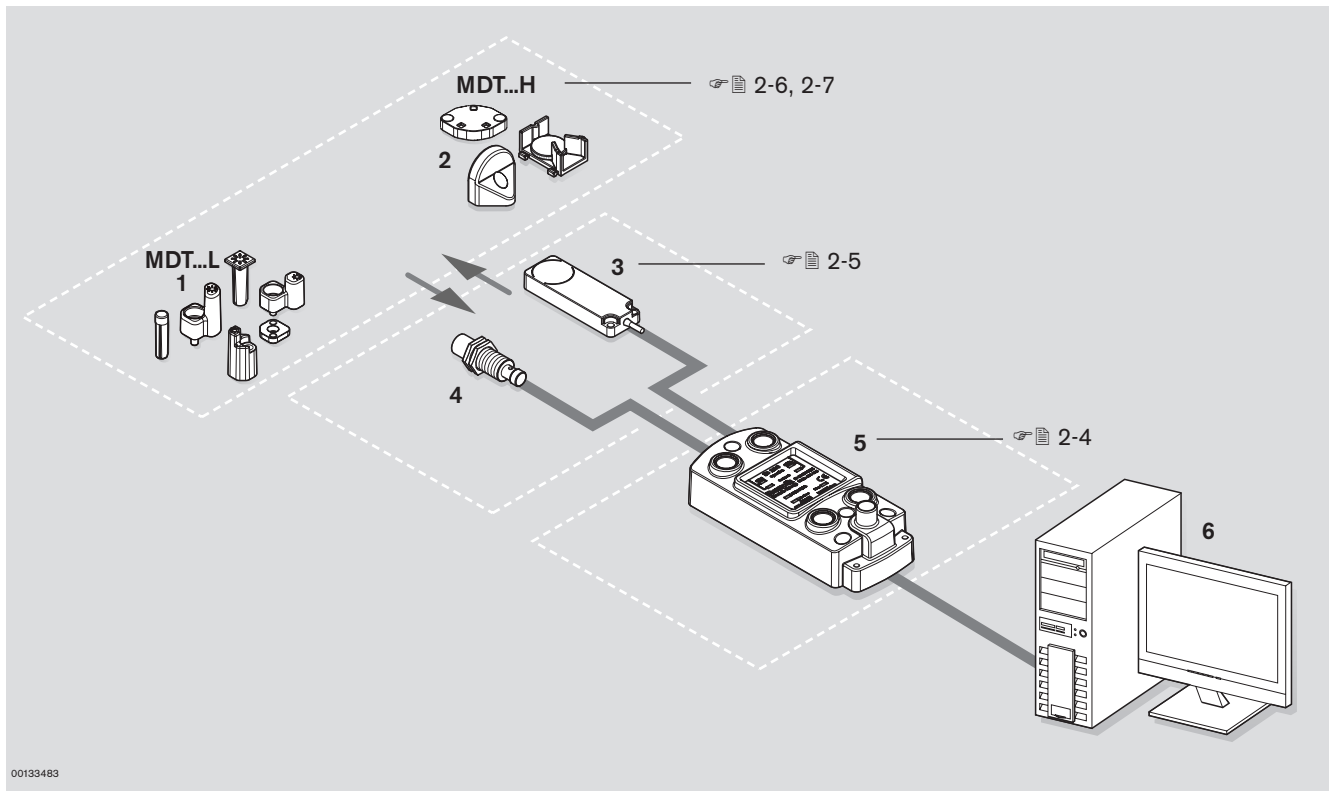
The RFID system ID 200 is a modular identification system developed for industrial use in production environments. The system consists of mobile data tags, antennas and communication modules. It is characterized by the robust and compact construction of its components, as well as by particularly interference-resistant and safe data transmission.

ID 200 is ideal for applications with central or decentralized data storage. The mobile data tags with cost-effective EEPROM memory are very small and suitable for applications with low data volume. The design with FRAM memory is able to store larger data quantities decentrally and can be read/written almost an indefinite number of times. They are preferable for applications with short transmission times. Antennas are available in various construction designs and transmission frequencies. This allows the best design to be selected for each application and installation location. The communication modules connect the antennas and the master control system. They can control up to two antennas simultaneously, even with different frequencies. The interface to the control system can be either PROFIBUS DP or Ethernet.



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## RFID system ID 200



**1** Mobile data tags MDT...L for 125 kHz.  
**2** Mobile data tags MDT...H for 13.56 MHz

**3** Flat antennas A...F for 125 kHz or 13.56 MHz.  
**4** Round antennas A...R for 125 kHz or 13.56 MHz

**5** Communication module C-... for PROFIBUS or Ethernet.  
**6** Control system



RFID system ID 200

# Communication module ID 200/C-...



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The communication module connects the antennas with the control system. There are plug-in connections for up to two antennas, which can be simultaneously active and are able to work with different frequencies. A digital sensor can optionally be connected at each antenna connection. Parameterization and diagnosis are performed via the integrated web server.

### ID 200/C-PDP

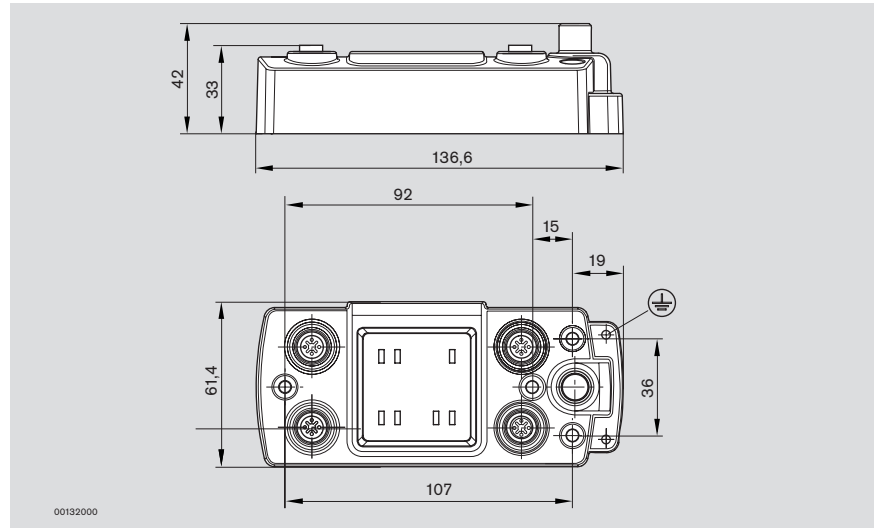
The connection to the control system is established via PROFIBUS-DPV0. The integrated web server can be reached via a separate RS-232 interface.

### ID 200/C-ETH

The connection to the control system is established via Ethernet. Ethernet protocols PROFINET/IO, Modbus/TCP and EtherNet/IP are available in addition to TCP/IP. An integrated switch allows cabling in line structure as well as the classical Ethernet star-form cabling.

Communication module ID 200/C-...

	No.
ID 200/C-PDP	3 842 410 061
ID 200/C-ETH	3 842 410 060



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<b>Operating voltage</b>	20 to 30 VDC, PELV
<b>Ripple</b>	≤ 10%
<b>Power consumption</b>	Max. 1.5 A (incl. 2 antennas)
<b>Status displays</b>	7 LEDs
<b>Connections</b>	RS232 ID 200/C-PDP PROFIBUS-DPV0 PROFINET ID 200/C-ETH Ethernet/IP Modbus/TCP TCP/IP
<b>Protection class</b>	IP65
<b>Housing material</b>	Aluminum, powder coated RAL 7035
<b>Ambient temperature</b>	-25 to +70°C
<b>Storage temperature</b>	-30 to +80°C
<b>Humidity</b>	Max. 96%
<b>Vibration resistance</b>	3.5 mm (10 to 55 Hz); 20 g (55 to 2000 Hz)
<b>Shock and impact resistance</b>	70 g/6 ms, 18 cycles
<b>Approvals</b>	EN 300330, ETS 300683, CE, FCC
<b>Mass</b>	0.5 kg

RFID system ID 200

## Antenna ID 200/A-...



The antennas enable reading from and writing to mobile data tags MDT...L (125 kHz, low frequency) or MDT...H (13.56 MHz, high frequency). The antennas are intended for operation with a communication module, which supplies them with voltage.

### Antenna ID 200/A-...F (flat antenna)

The flat design of the antenna is optimal for installation on the side of transfer systems. Other installation sites are possible with the corresponding mounting kits.

### Antenna ID 200/A-...R (round antenna)

The round design of the antenna is particularly suited for reading data tags mounted on the bottom of workpiece pallets. Other installations are possible with the corresponding mounting kits.

Accessories: Mounting kits 2-8

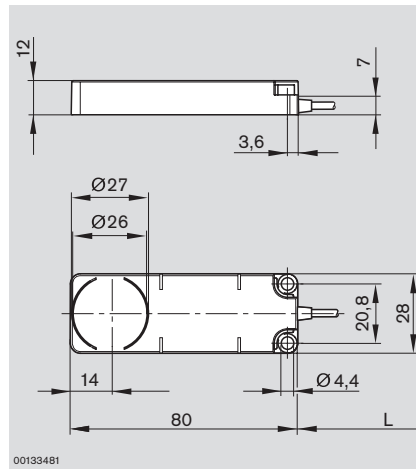
#### Note:

Mobile data tags MDT.../...H for 13.56 MHz 2-6

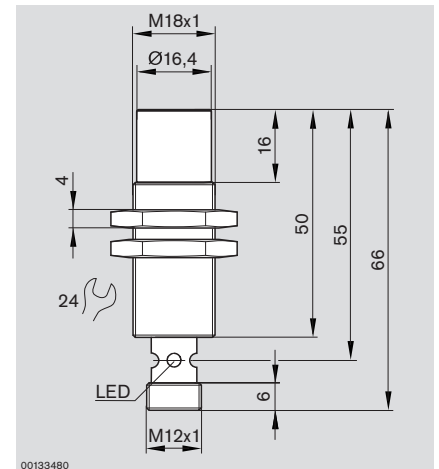
Mobile data tags MDT.../...L for 125 kHz 2-7



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Antenna ID 200/A-...F

	No.
ID 200/A-HF (13.56 MHz)	<b>3 842 410 065</b>
ID 200/A-LF (125 kHz)	<b>3 842 410 176</b>

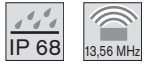
Antenna ID 200/A-...R

	No.
ID 200/A-HR (13.56 MHz)	<b>3 842 410 063</b>
ID 200/A-LR (125 kHz)	<b>3 842 410 177</b>

Type	ID 200/A-LR	ID 200/A-LF	ID 200/A-HR	ID 200/A-HF
<b>Operating voltage (from communication module)</b>	24 V	24 V	24 V	24 V
<b>Power consumption</b>	0.35 A	0.35 A	0.35 A	0.35 A
<b>Status display</b>	LED yellow/green	LED yellow/green	LED yellow/green	LED yellow/green
<b>Protection class</b>	IP67	IP67	IP67	IP67
<b>Housing material</b>	PBT/ stainless steel	ABS	PBT/ stainless steel	ABS
<b>Ambient temperature</b>	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
<b>Storage temperature</b>	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
<b>Humidity</b>	Max. 96%	Max. 96%	Max. 96%	Max. 96%
<b>Vibration resistance</b>	1 mm (10 to 55 Hz); 5 g (10 to 2000 Hz)			
<b>Shock and impact resistance</b>	30 g/11 ms, 18 cycles			
<b>Mass</b>	0.1 kg	0.1 kg	0.1 kg	0.1 kg
<b>Transmission frequency</b>	125 kHz	125 kHz	13.56 MHz	13.56 MHz
<b>Write/read distance</b>				
- Static	18 mm	18 mm	35 mm	35 mm
- Dynamic (v = 20 m/min)	16 mm	16 mm	30 mm	30 mm
<b>Min. distance between two antennas</b>				
- Multiplex operation	30 mm	50 mm	30 mm	100 mm
- Simultaneous operation	180 mm	290 mm	80 mm	150 mm

RFID system ID 200

# Mobile data tags MDT...H (13.56 MHz)



The mobile data tags are compatible with international standard ISO 15693 (13.56 MHz) and operate without a battery with FRAM memory. Several housing types allow for many installation positions on the workpiece pallet or directly on the products to be identified. The data tags can be read from several sides, also dynamically while passing.

MDTs with FRAM memory

- Storage capacity: 2000 byte user memory
- Each with an additional and unique 64 bit serial number
- Read/write cycles:  $10^{10}$

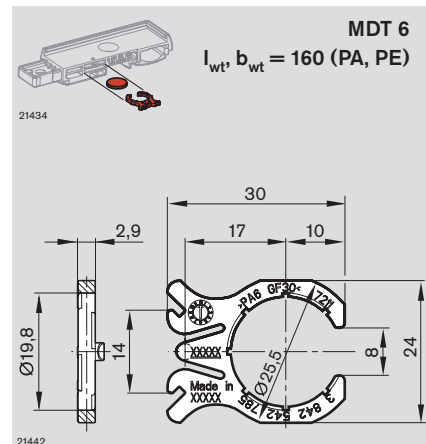
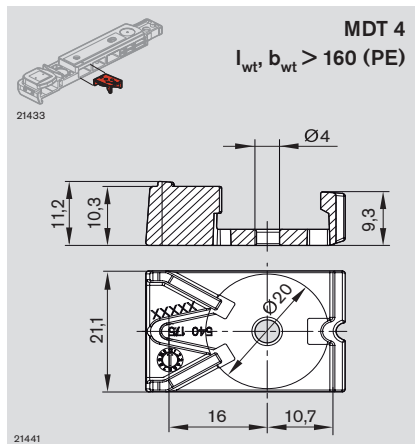
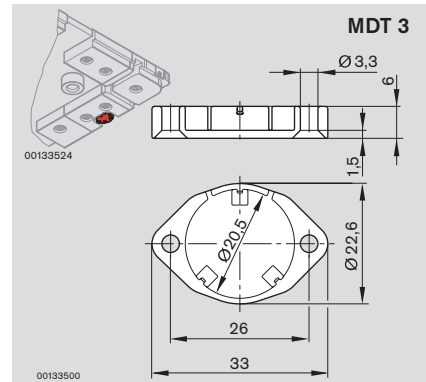
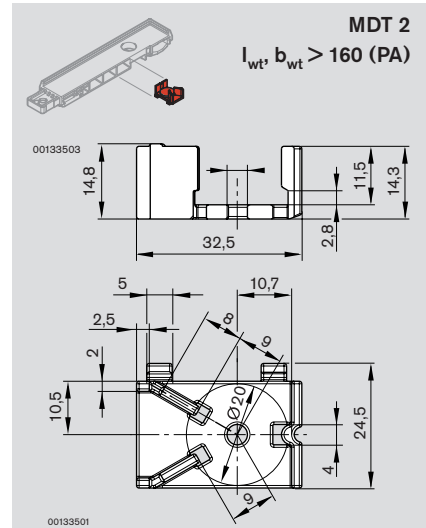
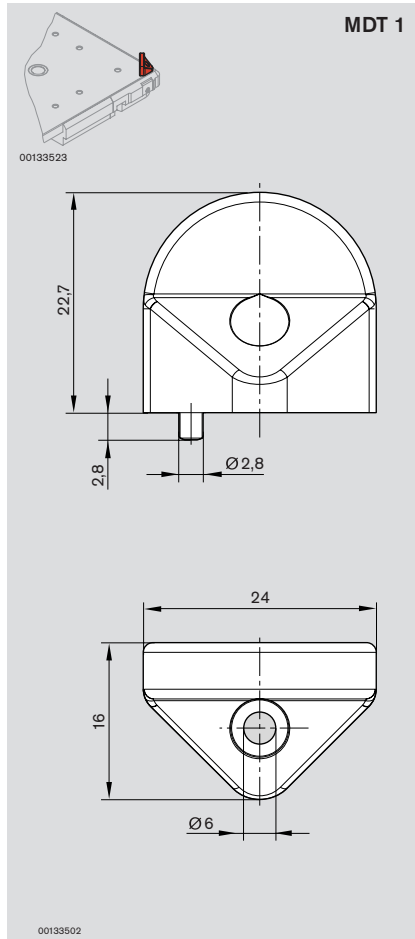
MDTs with FRAM memory

		No.
MDT 1/2K-H	5	3 842 410 104
MDT 2/2K-H	5	3 842 410 103
MDT 3/2K-H	5	3 842 410 102
MDT 4/2K-H	5	3 842 410 124
MDT 6/2K-H	5	3 842 410 184

<b>Type</b>	MDT.../2K-H
<b>Frequency</b>	13.56 MHz
<b>Conformity with standards</b>	ISO 15693
<b>Storage capacity</b>	2000 bytes
<b>Data access</b>	8-byte block
<b>Memory type</b>	FRAM
<b>Number of write cycles</b>	$\geq 10$ billion
<b>Number of read cycles</b>	Unlimited
<b>Transfer distance</b>	
- Static	35 mm
- Dynamic	30 mm
<b>Ambient temperature during operation</b>	-25 to +85°C
<b>Housing material</b>	PA66



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RFID system ID 200

# Mobile data tag MDT...L (125 kHz)



The mobile data tag MDT.../28-L is located directly on the workpiece pallet and stores the identification assigned by the user during initialization. The compact MDT has a non-volatile EEPROM (battery buffers are not necessary) and a storage capacity of 5 bytes (useful data).

MDT.../28-L can be read from all sides (front, left/right side, top and bottom) with unlimited frequency.

In addition to numerous installation positions on the workpiece pallet, the data tag can also be seamlessly integrated in the workpiece pallet 4-8, 4-9.

ID 15 data tags from production date FD986 onward can be initialized with the aid of the DPS/L diagnostic set for use with ID 200. However, simultaneous operation on ID 15 and ID 200 is not possible.

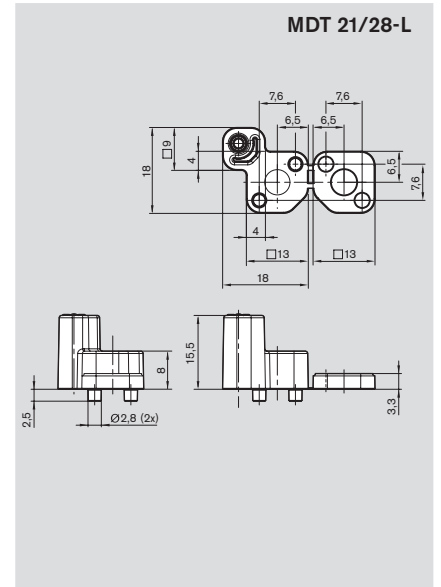
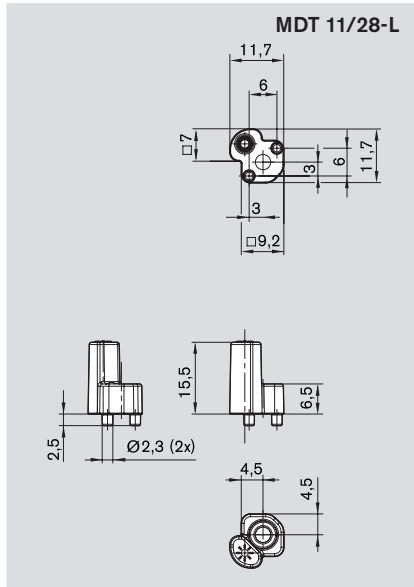
### MDT...L

		No.
MDT 11/28-L	5	3 842 535 916
MDT 21/28-L	5	3 842 535 919
MDT 22/28-L	5	3 842 535 443
MDT 13/28-L	5	3 842 535 911
MDT 23/28-L	5	3 842 535 442

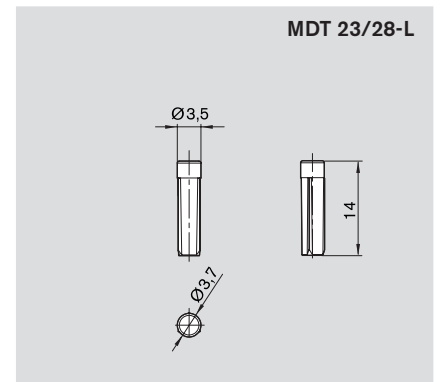
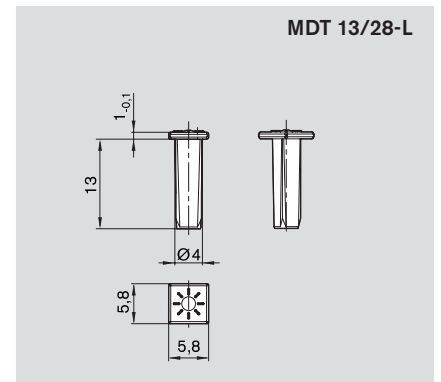
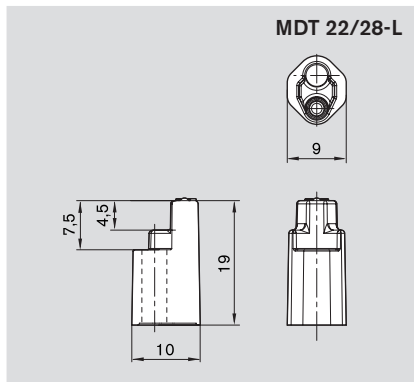
<b>Type</b>	MDT.../28-L
<b>Frequency</b>	125 kHz
<b>Conformity with standards</b>	–
<b>Storage capacity</b>	5 bytes
<b>Memory type</b>	EEPROM
<b>Number of write cycles</b>	≥ 100,000
<b>Number of read cycles</b>	Unlimited
<b>Transfer distance</b>	
– Static	18 mm
– Dynamic	16 mm
<b>Ambient temperature during operation</b>	–40 to +85°C
<b>Housing material</b>	PA66



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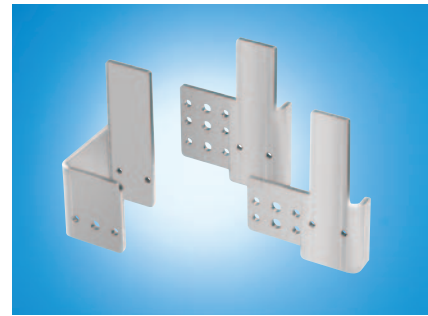


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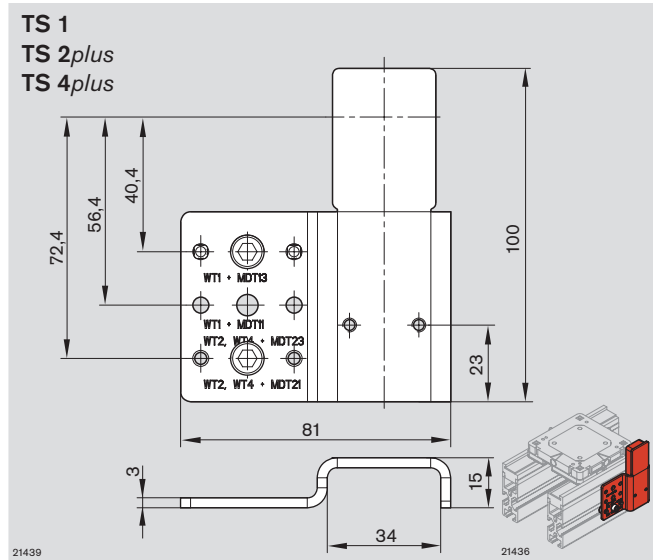
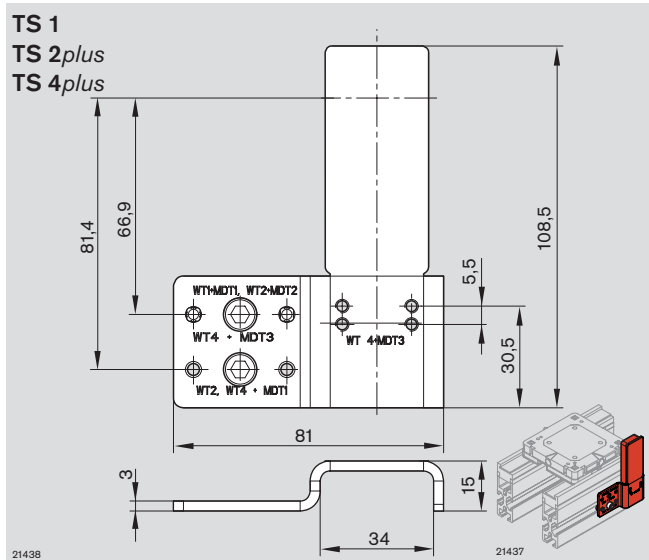


RFID system ID 200

# ID 200 mounting kits



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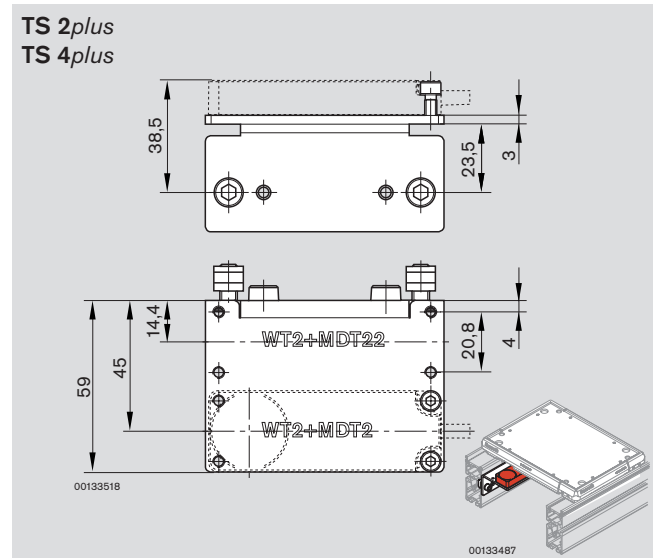
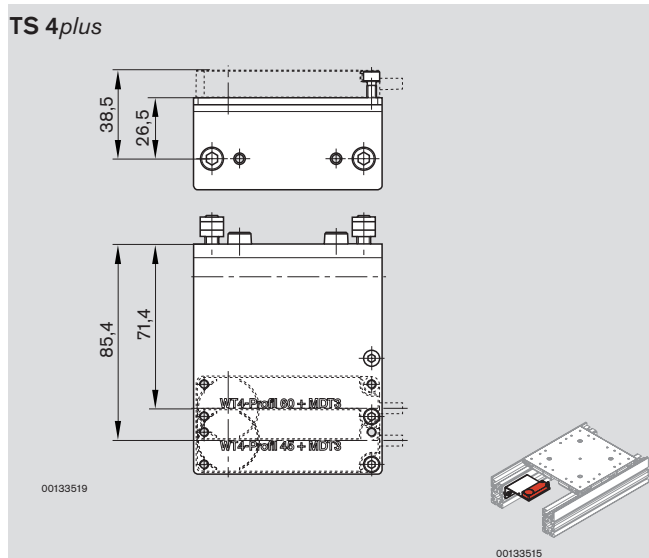


ID 200/MS-1 mounting kit

	No.
ID 200/MS-1	<b>3 842 410 098</b>

ID 200/MS-2 mounting kit

	No.
ID 200/MS-2	<b>3 842 410 095</b>



ID 200/MS-3 mounting kit

	No.
ID 200 /MS-3	<b>3 842 410 101</b>

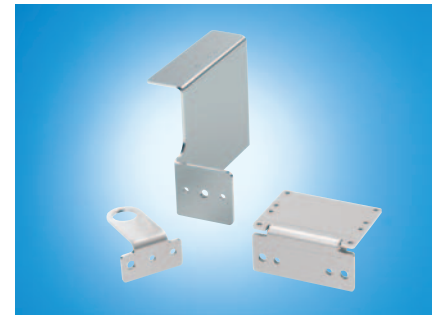
ID 200/MS-4 mounting kit

	No.
ID 200/MS-4	<b>3 842 410 100</b>

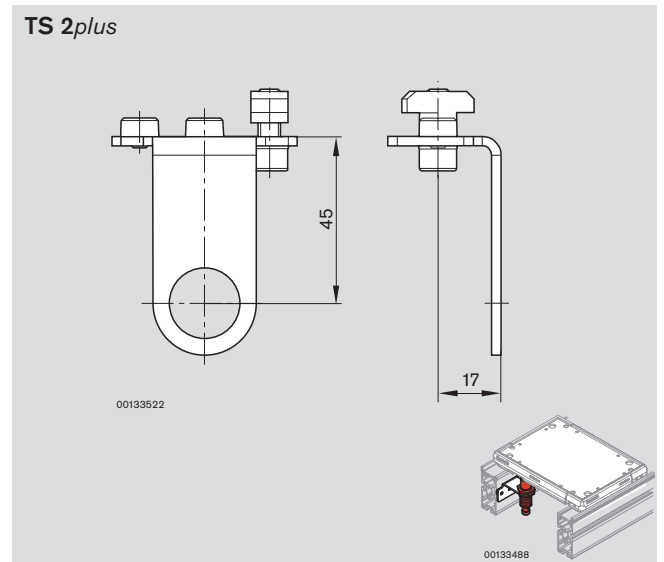
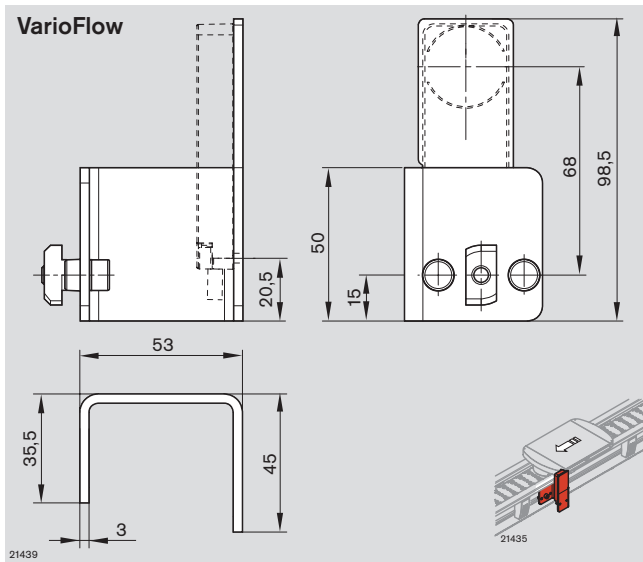


RFID system ID 200

# ID 200 mounting kits



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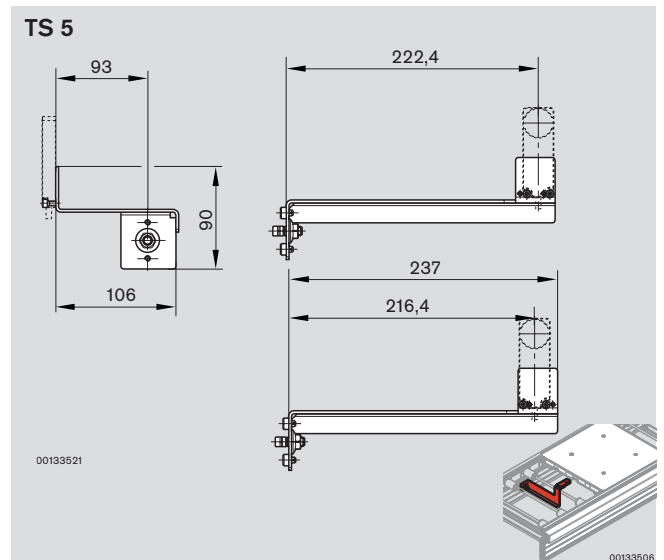
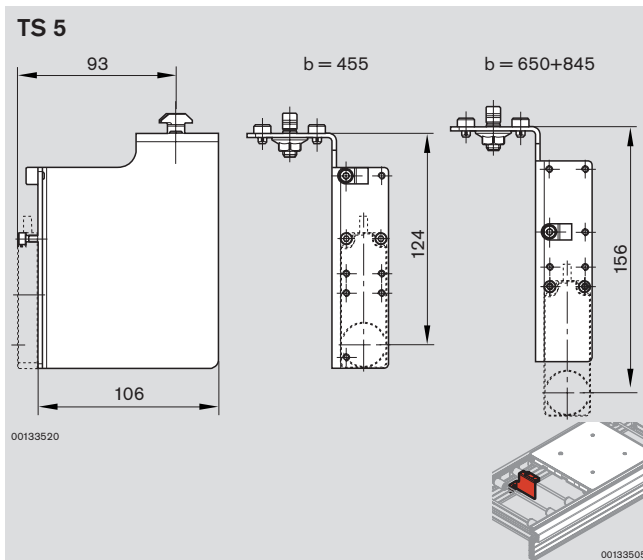
2

ID 200/MS-5 mounting kit

	No.
ID 200/MS-5	3 842 410 096

ID 200/MS-6 mounting kit

	No.
ID 200/MS-6	3 842 410 097



ID 200/MS-7 mounting kit

	No.
ID 200/MS-7	3 842 545 144








ID 200/MS-8 mounting kit

	No.
ID 200/MS-8	3 842 545 148



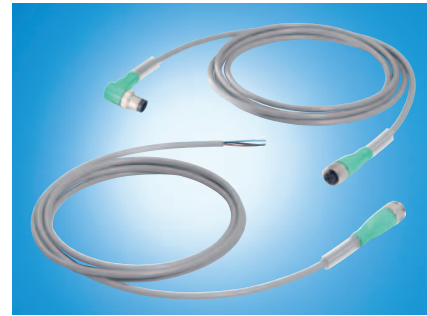
RFID system ID 200

# ID 200 mounting options

TS 2plus $I_{wt}, b_{wt} = 160$ (PA, PE) 	TS 4plus 	TS 5 	VarioFlow 
	3 842 410 104		
		3 842 410 102 3 842 410 102	3 842 410 102 3 842 410 102
3 842 410 184			
		3 842 545 450 3 842 545 450	
	3 842 410 098 3 842 410 098		
		3 842 410 101	
3 842 410 100			
		3 842 545 144	
			3 842 545 148
3 842 410 065	3 842 410 065 3 842 410 065 3 842 410 065	3 842 410 065 3 842 410 065	
3 842 410 097			
3 842 410 063			
			
	3 842 535 919		
		3 842 535 443	
	3 842 535 442	3 842 535 442 3 842 535 442	3 842 535 442
		3 842 545 450 3 842 545 450	
	3 842 410 095 3 842 410 095		
		3 842 410 101	
		3 842 410 100	
			3 842 410 096
		3 842 545 144	
			3 842 545 148
	3 842 410 176 3 842 410 176 3 842 410 176	3 842 410 176 3 842 410 176	3 842 410 176

RFID system ID 200









# Accessories – cable



00133440


Connection cable between antenna and communication module.

### Antenna cable

	Socket	Plug	l (m)	No.
ID 200/K-ANT2-2M	 00133489 straight	 angled	2	3 842 410 108
ID 200/K-ANT2-5M	 00133489 straight	 angled	5	3 842 410 109
ID 200/K-ANT3-2M	 00133490 angled	 angled	2	3 842 410 110
ID 200/K-ANT3-5M	 00133490 angled	 angled	5	3 842 410 111

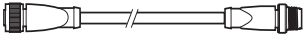
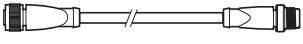
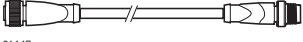
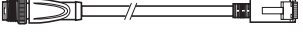
Power supply for communication module.

### Power supply cable

		l (m)	No.
ID 200/K-VCC-5M	 00133493	5	3 842 410 119

Ethernet cable for connection between communication module and control system.

### Ethernet cable

		l (m)	No.
ID 200/K-ETH M12 - 5M	 21446	5	3 842 410 114
ID 200/K-ETH M12 - 10M	 21446	10	3 842 410 115
ID 200/K-ETH M12 - 20M	 21447	20	3 842 410 116
ID 200/K-ETH RJ - 5M		5	3 842 410 117

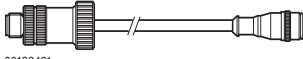
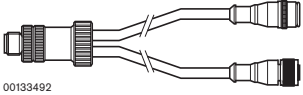
RFID system ID 200



00133439

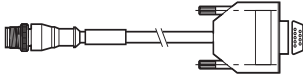
PROFIBUS cable for connection between communication module and control system.

PROFIBUS cable

	Cable	l (m)	No.
ID 200/K-PDP R	 00133491 PROFIBUS cable with terminating resistor	0.2	3 842 410 112
ID 200/K-PDP Y	 00133492 PROFIBUS Y cable	0.2	3 842 410 113

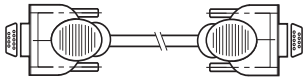
Diagnosis cable for PROFIBUS variants. For connection between communication module and PC. Required accessories: null modem cable

Diagnostic cable

		l (m)	No.
ID 200/K diag	 00133494	0.15	3 842 410 120

Null modem cable for connection of the diagnostic cable to a PC for PROFIBUS variants.

Null modem cable

		l (m)	No.
ID 200/K-NMK	 00133495	2	3 842 410 129



RFID system ID 200

## Diagnostic devices

### DPS/H diagnostic device

The manual control unit can be used as a convenient mobile diagnostic device or for initial startup of the system. It can be used for data entry and to read out data for MDTs with 13.56 MHz.

Required accessories: USB communication and charge cable, rechargeable battery

Optional accessories: recharging station

### Manual control unit DPS/H

	No.
DPS/H	3 842 410 066

### Rechargeable battery

	No.
DPS/H-ACC	3 842 410 164



00133435



00133454



00133447

### USB cable

	No.
DPS/H-USB	3 842 410 165



00133444

### Recharging station

	No.
DPS/H-CRG	3 842 410 166

### DPS/L diagnostic device

Test and initial description of the mobile data tags MDT.../28-L (125 kHz) via a PC outside the system.

### Software functions:

- Reading the MDT.../28-L
- Writing the MDT.../28-L
- Import prepared lists (csv format)
- Writing the MDT.../28-L according to a list

### Scope of delivery:

- Manual antenna with data cable for connection to a USB port
- Software on CD-ROM

### Diagnostic set DPS/L

	No.
DPS/L	3 842 406 959



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RFID system ID 40

# RFID system ID 40

Operating principle	3-2
Mobile data tag	3-3
Read/write head	3-4
Accessories	3-5



RFID system ID 40

# Identification and data storage system ID 40



The ID 40 identification system enables a secure and fast provision of workpiece data on the workpiece pallet. There needs to be certain information available on each arriving part at every workstation, for example:

- Type of workpiece
- Production stage
- Next processing step
- Parameter settings

These are particularly important if more than one product model is being processed on the same circuit. These data are stored by a stationary read/write head (SLK)  3-4 on a mobile data tag (MDT)  3-3, which is directly located on the workpiece pallet (WT) and stays there throughout the entire assembly process. This decentralized data storage ensures short access times and optimum system availability.

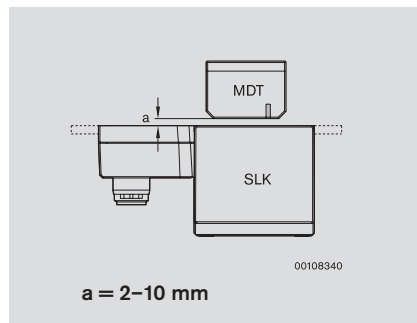
An integrated delete function that only has to be triggered in the SLK makes it possible to empty the data storage without remaining near the SLK.

The read/write head (SLK) offers a direct fieldbus connection, for the  
- PROFIBUS DP  
fieldbus system via M12 plug connectors.

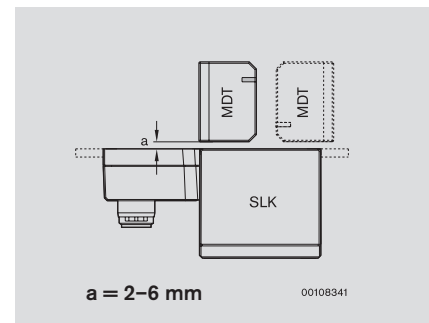
The ID 40 is suitable for dynamic data transfer: When travelling past at a distance of "a" with a transport speed of up to 30 m/min the transfer capacity of 64 bytes is reached.



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Front transmission area



Side transmission area

A user manual, current information and software can be downloaded at [www.boschrexroth.com/RFID](http://www.boschrexroth.com/RFID)

RFID system ID 40

## Mobile data tag ID 40/MDT...



The mobile data tag (MDT) for the ID 40 is located on the workpiece pallet and saves the workpiece data. The compact MDT has a non-volatile RAM (no battery buffer required). It can be read and written up to 10 billion times on three sides (on the front, left and right). The MDT can be mounted in a variety of different positions on the workpiece pallet.

The memory capacity of the MDT can be either approx. 2 KB, approx. 8 KB or approx. 32 KB. The three-color LED on the MDT displays OK data transfers and transfer errors. The MDT complies to the IP68 protection class.

Scope of delivery: Incl. mounting kit  
**3 842 529 237**.

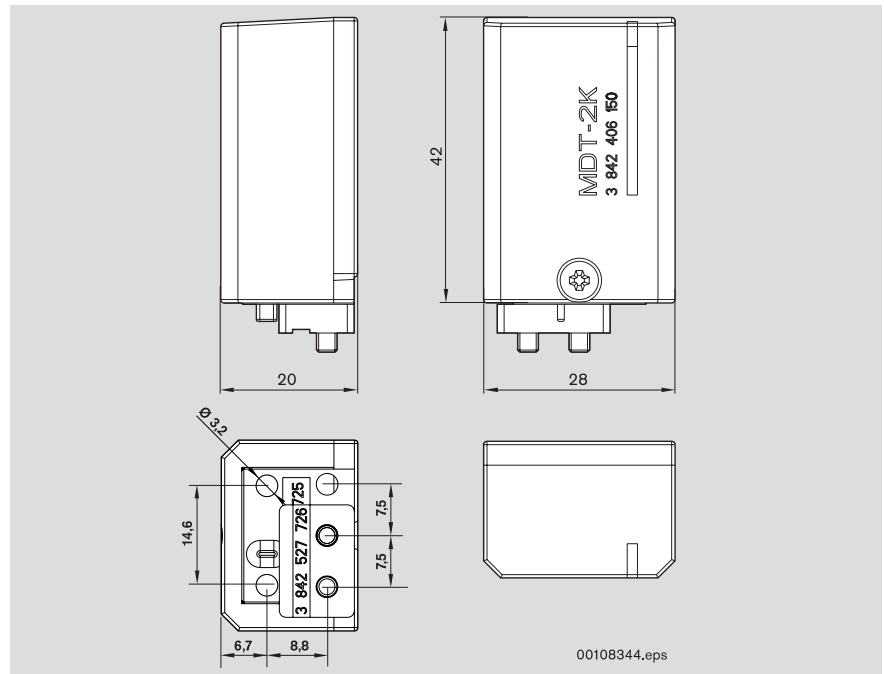
Optional accessories:  
Assembly kits 3-5

Mobile data tag ID 40/MDT...

	No.
ID 40/MDT2K	<b>3 842 406 150</b>
ID 40/MDT32K	<b>3 842 406 170</b>



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3

### Storage capacity

- MDT2K	1904 bytes
- MDT32K	30800 bytes
<b>Data retention time</b>	>10 years (20 to 40°C)
<b>Data access</b>	Byte-wise
<b>Ambient temperature during operation</b>	-25 to +70°C
<b>Storage temperature</b>	-25 to +85°C
<b>Humidity</b>	+5 to 95%
<b>Protection class</b>	IP68
<b>Housing material</b>	Polyamide, PA6
<b>Resistance to media</b>	Water, mineral oil; others on request
<b>Mass</b>	0.06 kg
<b>Transmission direction</b>	Front or left/right side
<b>Read/write distance</b>	
- Front	4 to 12 mm / 4 to 10 mm, static/dynamic
- Side	1 to 7 mm / 1 to 6 mm, static/dynamic
<b>Permissible height offset between read/write station and MDT</b>	+/- 5 mm
<b>Status displays</b>	LED, 3-color
<b>Installation in metal</b>	10 mm free space required on all sides



RFID system ID 40

## Read/write head ID 40/SLK-...



The read/write head (ID 40/SLK-...) transfers workpiece data between the MDT and a bus master, which controls the workpiece pallets in the Rexroth transfer system.

With the standard-mounting kit, the SLK is easy to install in the TS 1, TS 2*plus* and TS 4*plus* Rexroth transfer systems. Direct connection to the – PROFIBUS DP (ID 40/SLK-PDP) fieldbus system via M12 plug connectors.

The antenna on the SLK can be swiveled to 90° and turned to 180°, which allows a variety of different installation positions. The semi-transparent antenna cover lights up when data is being transferred to the MDT.

The 4-digit alphanumerical LED displays the current status of the field bus connection and communication with the MDT. The integrated serial RS232 interface enables parameterization and diagnosis, e.g. with a web browser and a PC notebook. The standard AS-i profile cable provides a user-friendly power supply (black).

The SLK complies to protection class IP65.

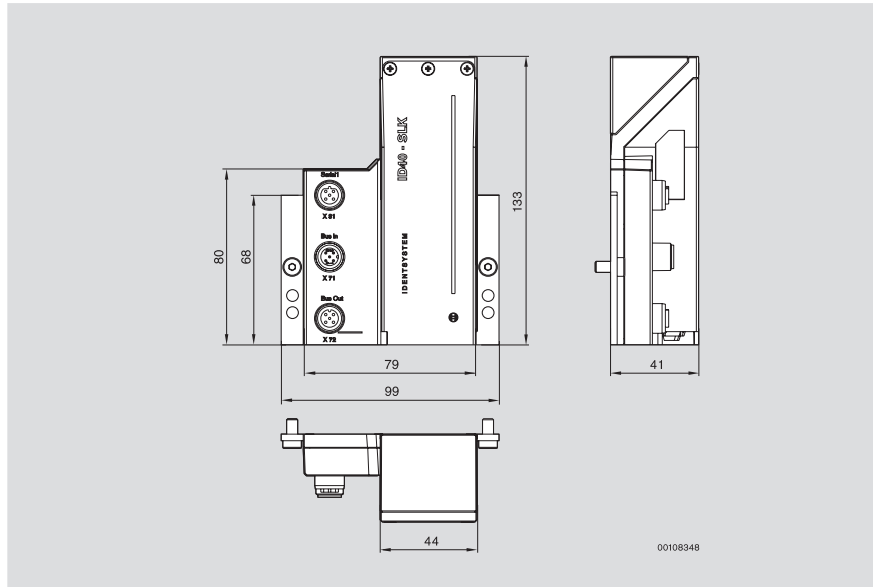
Scope of delivery: Incl. mounting kit  
3 842 527 634.

Read/write head ID 40/SLK-...

	No.
ID 40/SLK-PDP	3 842 406 130



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<b>Operating voltage</b>	24 V –15 + 20%
<b>Ripple</b>	< 10%
<b>Power consumption</b>	Max. 0.35 A
<b>Field bus connections</b>	Profibus DPV0
<b>Serial interface</b>	RS232
<b>Status displays</b>	1 LED Alphanumeric display
<b>Protection class</b>	IP65
<b>Ambient temperature</b>	+5 to +55°C
<b>Storage temperature</b>	–20 to +85°C
<b>Humidity</b>	≤ 96%
<b>Approvals</b>	EN 300330, ETS 300683, CE
<b>Mass (incl. mounting plate)</b>	0.4 kg
<b>Max. write/read distance</b>	
– Static	12 mm
– Dynamic (v = 20 m/min)	10 mm
<b>Min. distance between two write/read heads</b>	100
<b>Installation in metal</b>	10 mm free space required

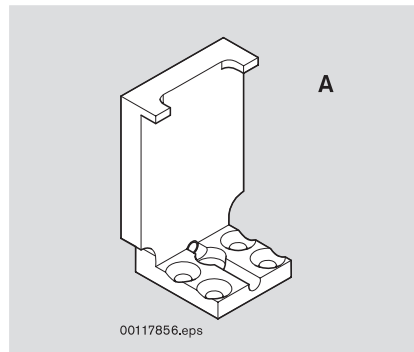


RFID system ID 40

## Accessories

### Assembly kit for ID 40/MDT...

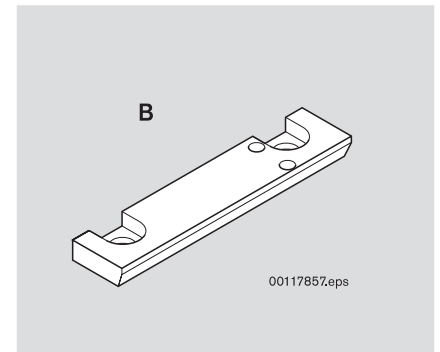
- Mounting kit (A) with reinforced design for applications with high mechanical load on the data tag.
- Mounting kit (B) for use with ID 40/MDT as a replacement for ID 80/E on WT2 workpiece pallets with ID 80 drilling plan.



Mounting kit (A)

No.

3 842 535 740

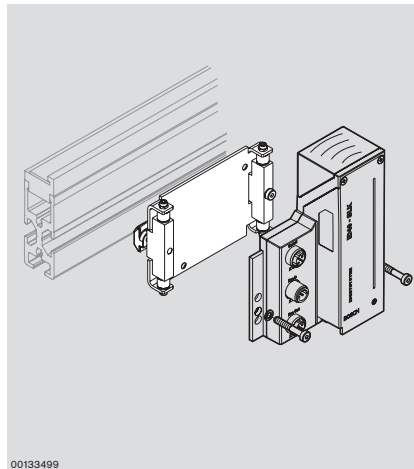


Mounting kit (B)

No.

3 842 532 630

**Mounting kit for ID 40/SLK only** vibration-free assembly. Application in environments with a higher vibration stress (on request).

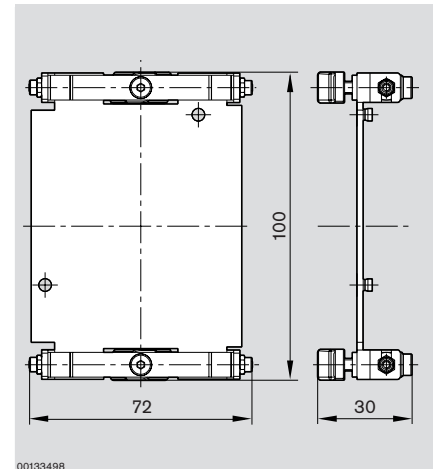


Mounting kit

No.

ID 40 3 842 538 784\*

\* Availability and price upon request.



RFID system ID 40

# Accessories – software, cable



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**Configuration and diagnosis software package** for setting the device parameters (e. g. field bus node number) and for interpreting system diagnostic data.

**System requirements**  
Win NT 4.0/Win 2000/Win XP  
diagnostic cable RS232  
(M12 plug on 9-pin, D-SUB)

Configuration and diagnosis software package

No.
<b>3 842 406 119</b>

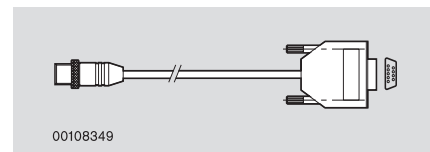
**Diagnostic cable RS232**

The diagnostic cable aids:

- efficient data exchange to direct serial connection at workstations via web browser function.
- adjustment of the ID 40/SLK bus address to read out internal diagnosis memory

Diagnostic cable RS232

l (m)	No.
2	<b>3 842 406 117</b>



00108349

**Function components**

contain all the basic functions for reading and writing data blocks on the MDT. They can be parameterized.

- For Siemens S7 controls from CPU 315 onward
- For Rexroth IndraLogic on request

Function components

No.
<b>Siemens S7 controls</b>
<b>3 842 406 190</b>

Field bus connection cable

		l (m)	PROFIBUS DP*) No.
M12 plug straight, open end		3	<b>3 842 410 030</b>
M12 socket straight, open end		3	<b>3 842 410 031</b>
M12 plug angled, open end		3	<b>3 842 410 032</b>
M12 socket angled, open end		3	<b>3 842 410 033</b>
M12 plug angled, M12 socket angled		3	<b>3 842 410 034</b>
Field bus terminating resistor		–	<b>3 842 406 156</b>

\*) No GND at pin 5, shield on housing

RFID system ID 15

# RFID system ID 15

Operating principle	4-2
Read/write head	4-3
Mobile data tag	4-4
Diagnostic set	4-5
Mounting kits	4-6
Protective cover	4-7
Mounting options	4-8
Addressing device and AS-i accessories	4-10

RFID system ID 15

# Identification system ID 15



The ID15 identification system enables the reliable and fast identification of workpieces. The data tags can not only be mounted on or below the workpiece pallet, they can also be fully integrated in the workpiece pallet. Short access times with a high level of immunity to interference and high availability are the main system features.

The read/write head (SLK) provides a direct connection to the actuator sensor level with AS-i via M12 connectors.

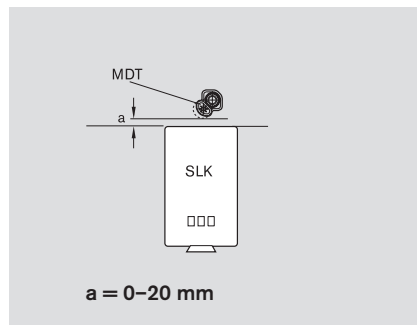
The ID 15 enables dynamic data transmission: when passing at a distance of "a" and at a transport speed of up to 20 m/min.

A separate antenna with a USB connection, in conjunction with the ID15 diagnosis software, makes it possible to easily and quickly initialize the data tag.

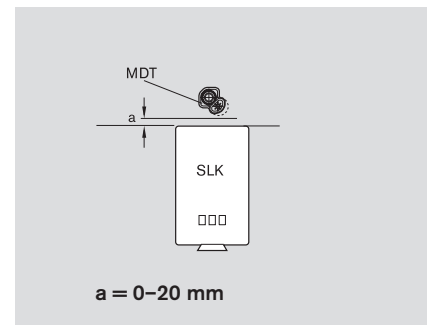
A user manual, current information and software can be downloaded at [www.boschrexroth.com/RFID](http://www.boschrexroth.com/RFID)



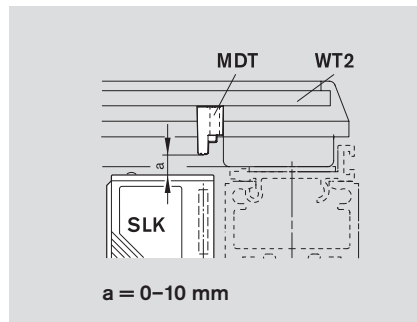
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Front transmission area



Side transmission area



Top transmission range

RFID system ID 15

## Read/write head ID 15/SLK



The read/write head (ID 15/SLK) is used to transfer workpiece data between the MDT.../28-L and an AS-i bus master for controlling workpiece pallets in Rexroth transfer systems.

Max. 15 bit user data can be written on or read from an MDT.../28-L using ID 15/SLK.

The SLK can be easily installed in the Rexroth TS 1, TS 2*plus*, TS 4*plus* transfer system as well as the VarioFlow chain conveyor system using standard mounting kits. Direct connection to AS-i via M12 connectors (can be swiveled by 270°).

Three LEDs indicate

- Operational readiness (green)
- Presence of a data tag in the field (yellow)
- Malfunction (red)

Scope of delivery: Read/write head

Required accessories:

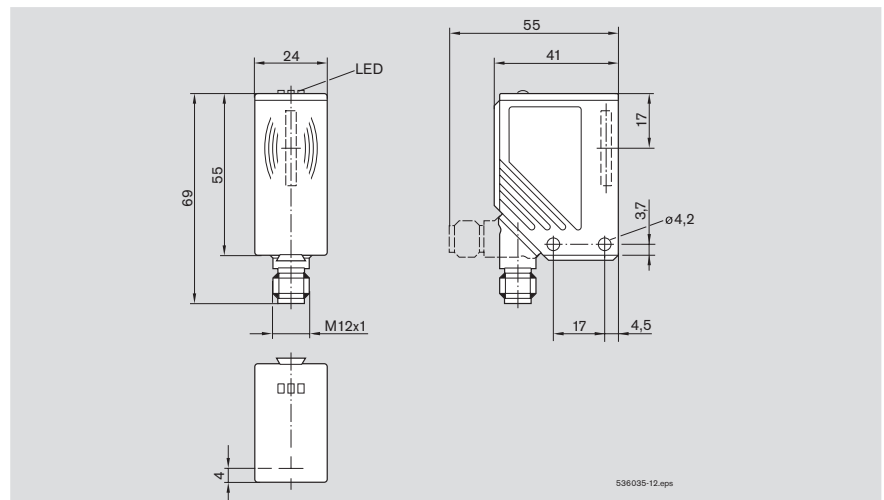
Mounting kit corresponding to application case 4-6

Read/write head ID 15/SLK

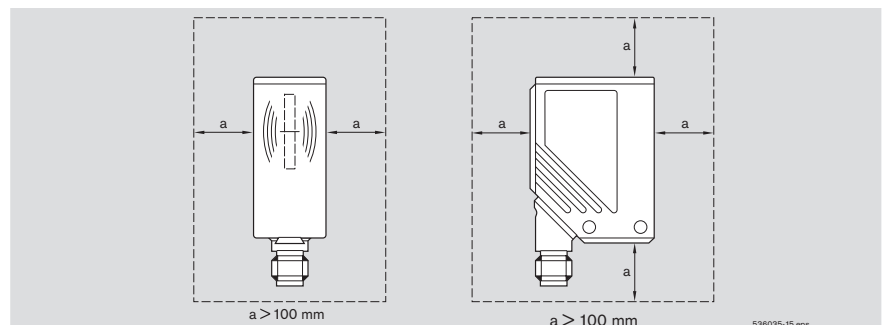
	No.
ID 15/SLK	3 842 406 960



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536035-12.eps



536035-15.eps

<b>Operating voltage (via AS-i power supply)</b>	26.5 to 31.6 V
<b>Power consumption</b>	Max. 0.1 A
<b>Field bus connections</b>	AS-i, profile 7.4
<b>Status displays</b>	3 LEDs
<b>Protection class</b>	IP67
<b>Housing material</b>	PA
<b>Ambient temperature</b>	-20 to +60°C
<b>Storage temperature</b>	-25 to +80°C
<b>Humidity</b>	95%
<b>Vibration resistance EN 60068-2-6</b>	20 g (10 to 2000 Hz)
<b>Shock and impact resistance EN 60068-2-29</b>	40 g/6 ms
<b>Shock and impact resistance EN 60068-2-27</b>	50 g/11 ms
<b>Approvals</b>	EN 300330, EN 61326, CE, FCC
<b>Mass</b>	0.1 kg
<b>Max. write/read distance</b>	
– Static	20 mm
– Dynamic (v = 20 m/min)	15 mm
<b>Min. distance between two write/read heads</b>	
	400 mm (read and write)
	200 mm (read only)

RFID system ID 15

# Mobile data tag MDT...L (125 kHz)



The mobile data tag MDT.../28-L is located directly on the workpiece pallet and stores the identification assigned by the user during initialization. The compact MDT has a non-volatile EEPROM (battery buffers are not necessary) and a storage capacity of 5 bytes (useful data).

MDT.../28-L can be read from all sides (front, left/right side, top and bottom) with unlimited frequency.

In addition to numerous installation positions on the workpiece pallet, the data tag can also be seamlessly integrated in the workpiece pallet 4-8, 4-9.

ID 15 data tags from production date FD986 onward can be initialized with the aid of the DPS/L diagnostic set for use with ID 200. However, simultaneous operation on ID 15 and ID 200 is not possible.

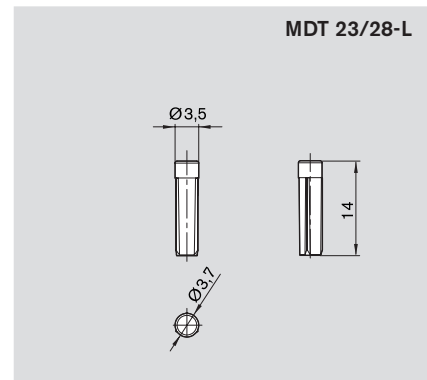
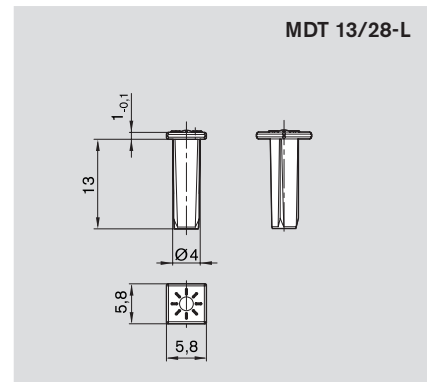
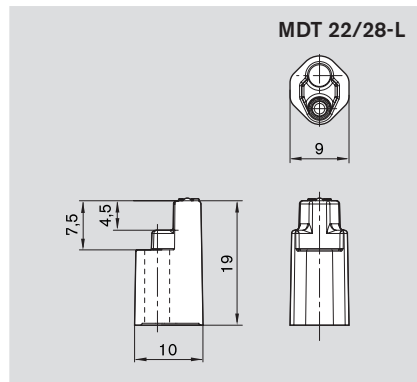
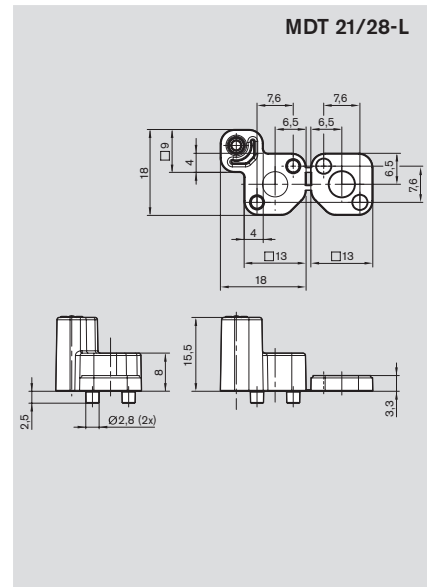
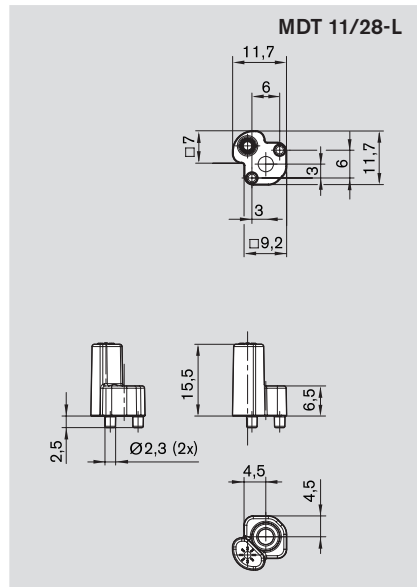
## MDT...L

		No.
MDT 11/28-L	5	3 842 535 916
MDT 21/28-L	5	3 842 535 919
MDT 22/28-L	5	3 842 535 443
MDT 13/28-L	5	3 842 535 911
MDT 23/28-L	5	3 842 535 442

<b>Type</b>	MDT.../28-L
<b>Frequency</b>	125 kHz
<b>Conformity with standards</b>	–
<b>Storage capacity</b>	5 bytes
<b>Memory type</b>	EEPROM
<b>Number of write cycles</b>	≥ 100,000
<b>Number of read cycles</b>	Unlimited
<b>Transfer distance</b>	
– Static	18 mm
– Dynamic	16 mm
<b>Ambient temperature during operation</b>	–40 to +85°C
<b>Housing material</b>	PA66



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RFID system ID 15

## Diagnostic set DPS/L

**Application:**

Test and initial description of the mobile data tags MDT.../28-L (125 kHz) via a PC outside the system.

**Software functions:**

- Reading the MDT.../28-L
- Writing the MDT.../28-L
- Import prepared lists (csv format)
- Writing the MDT.../28-L according to a list

**Scope of delivery:**

- Manual antenna with data cable for connection to a USB port
- Software on CD-ROM



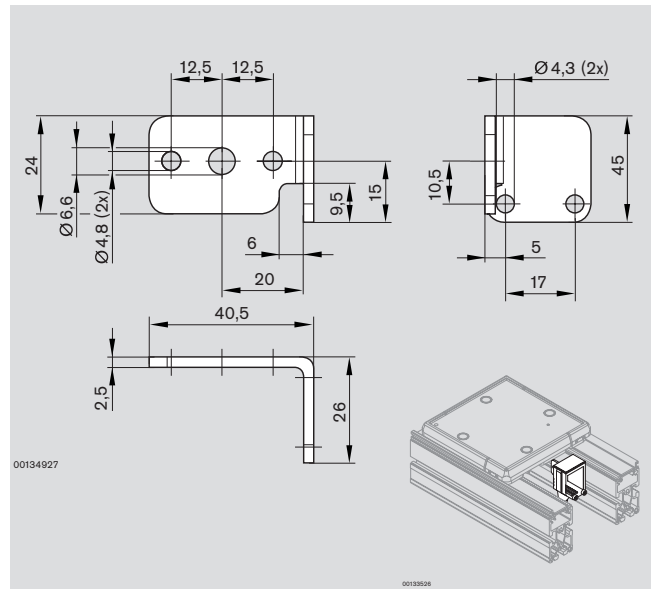
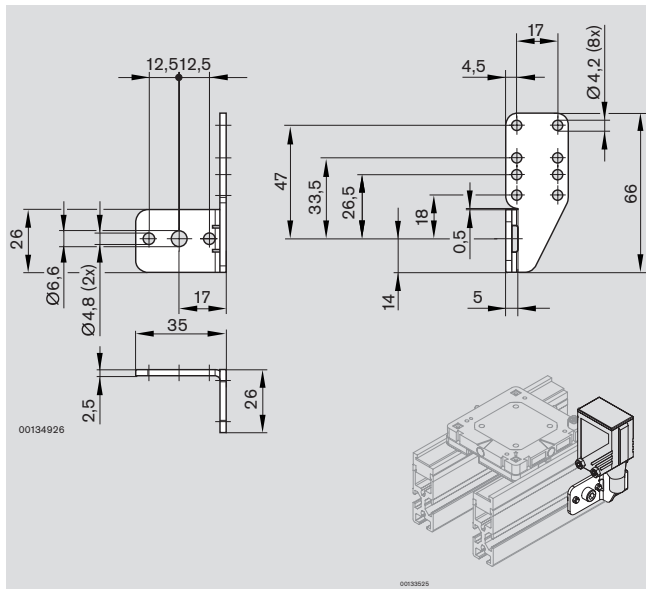
00123856

Diagnostic set DPS/L

	No.
DPS/L	3 842 406 959

RFID system ID 15

# Mounting kits for read/write head, ID 15/SLK

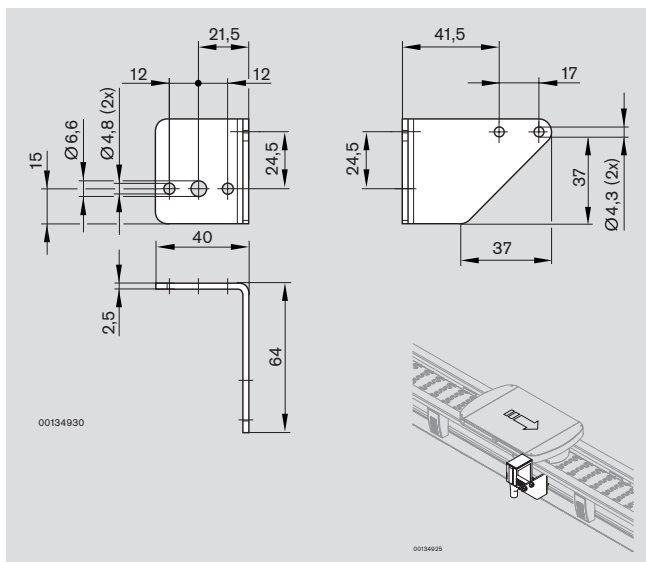


Mounting kit ID 15/MS-1

	No.
ID 15/MS-1	<b>3 842 535 920</b>

Mounting kit ID 15/MS-2

	No.
ID 15/MS-2	<b>3 842 535 917</b>



Mounting kit ID 15/MS-5

	No.
ID 15/MS-5	<b>3 842 535 918</b>

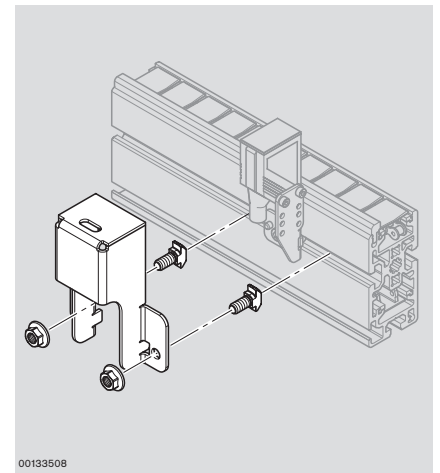
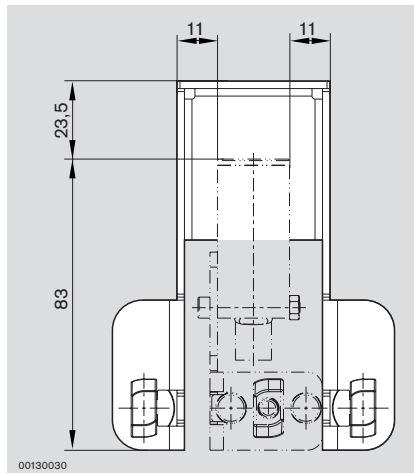


RFID system ID 15

# Protective cover for ID 15/SLK

Protective cover for ID 15/SLK

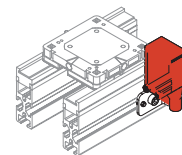
	No.
ID 15/SLK	<b>3 842 537 885</b>



RFID system ID 15

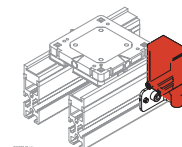
# ID 15 mounting options

## Mounting to the top of a TS 1, TS 2plus or TS 4plus workpiece pallet



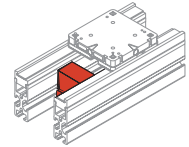
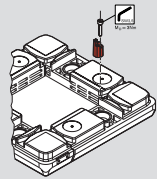
	TS 1	TS 2plus	TS 4plus
	No.	No.	No.
Mobile data tag			
MDT 11/28-L	<b>3 842 535 916</b>		
MDT 21/28-L		<b>3 842 535 919</b>	<b>3 842 535 919</b>
Mounting kit for read/write head ID 15/MS-1	<b>3 842 535 920</b>	<b>3 842 535 920</b>	<b>3 842 535 920</b>

## Integration in the frame module on the TS 1, TS 2plus or TS 4plus workpiece pallets



	TS1	TS 2plus	TS 4plus
	No.	No.	No.
Mobile data tag			
MDT 23/28-L	<b>3 842 535 442</b>	<b>3 842 535 442</b>	<b>3 842 535 442</b>
MDT 13/28-L	<b>3 842 535 911</b>		
Mounting kit for read/write head ID 15/MS-1	<b>3 842 535 920</b>	<b>3 842 535 920</b>	<b>3 842 535 920</b>

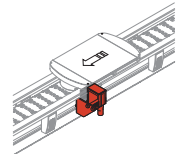
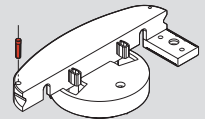
RFID system ID 15

**Mounting to the bottom of a TS2plus workpiece pallet****TS 2plus****No.**

Mobile data tag  
MDT 22/28-L

**3 842 535 443**

Mounting kit for read/write head ID 15/MS-2

**3 842 535 917****Integration in the VarioFlow workpiece pallet****VarioFlow****No.**

Mobile data tag  
MDT 23/28-L

**3 842 535 442**

Mounting kit for read/write head ID 15/MS-5

**3 842 535 918**

RFID system ID 15

# Addressing device DPS/AS-i and AS-i accessories



## Addressing device AS-i

### Application:

The sturdy and handy addressing and diagnosis tool for initial operation, maintenance and service of AS-i systems provides the following:

### Functions:

- Reads out slave addresses 0 to 31, A, B without scrolling with a clear and complete LCD display
- Reads out slave IO and ID codes (including extended ID codes 1 and 2)

- Standard addressing mode, and extended addressing mode from AS-i version 2.1.
- Programming of ID code 1
- Slave function test, also for analog slaves with profile 7.1 to 7.4
- Recognition of all system components
- Memory, diagnosis and PC gateway functions
- Data transmission, data management and documentation of system parameters with optional software
- Connection via M12 plug (A-coded)
- Infrared interface



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Scope of delivery: AS-i- addressing and testing appliance DPS/AS-i with batteries (4 x 1.5 V Mignon (AA) LR6).

DPS/AS-i addressing device

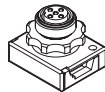
	No.
DPS/AS-i	<b>3 842 406 173</b>

## AS-i accessories

### AS-i branch terminal

to connect M12 plugs to an AS-i signal cable

AS-i branch terminal



	No.
	<b>3 842 406 176</b>

### Connection cables

	M12	M12	I (m)	No.
M12 plug straight, M12 socket straight			0.5	<b>3 842 406 193</b>
			1.0	<b>3 842 406 194</b>
M12 plug straight, M12 socket angled			0.5	<b>3 842 406 166</b>
			1.0	<b>3 842 406 171</b>

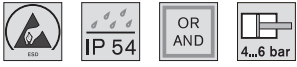
Identification system ID 10

## Identification system ID 10

Operating principle	5-2
Data storage	5-3
Write head	5-4
Read head	5-5

Identification system ID 10

# Identification and data storage system ID 10



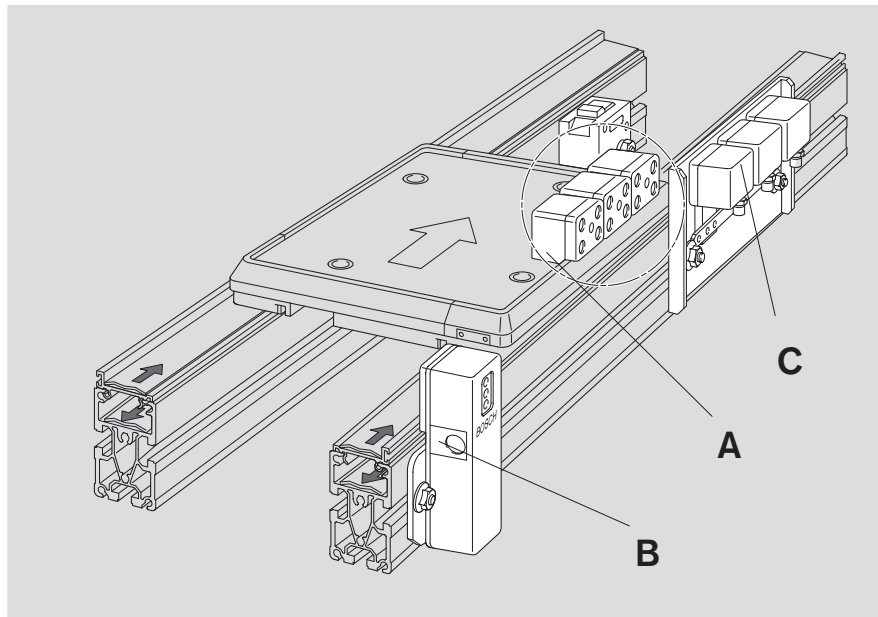
In the ID 10 identification and data storage system, encoding is carried out mechanically with encoding pins in the ID 10/D data storage.

The ID 10/D data storage is carried on the workpiece pallet during the assembly process. 2 information bits can be encoded per data storage. Data storage units can be positioned adjacently to deal with larger quantities of data.

The ID 10/S write head sets the encoding pins; the ID 10/L read head ascertains their position using proximity switches. The information obtained is passed on to a governing control unit or compared with preset required values in the read head.



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- A Data storage ID 10/D on the workpiece pallet
- B Read head ID 10/L
- C Write head ID 10/S

Identification system ID 10

# Data storage ID 10/D



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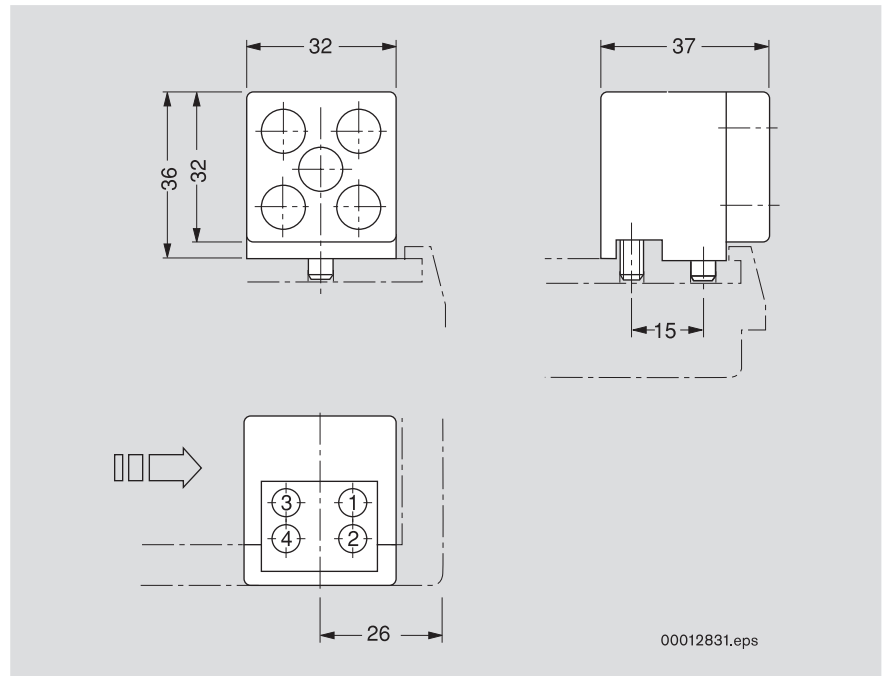


The ID 10/D carries information about the workpiece; several ID 10/Ds can be attached onto the workpiece pallet. Every ID 10/D has 4 encoding pins; they are coupled in pairs (1 and 2; 3 and 4). When an encoding pin is pushed in, the other pin of the pair is pushed forward automatically. Reading and writing is carried out on the same side.

Scope of delivery: incl. mounting material

### Data storage ID 10/D

	Nr.
ID 10/D	10 <b>3 842 508 038</b>



5

### Memory capacity and space required

Data storage ID 10/D quantity	1	2	3	4
Memory capacity in bits	2	4	6	8
Number of possible codes	$2^2 = 4$	$2^4 = 16$	$2^6 = 64$	$2^8 = 256$
Space required on the workpiece pallet (mm)	32 x 27	64 x 27	96 x 27	128 x 27



Identification system ID 10

## Write head ID 10/S



The ID 10/S sets the encoding pins in the ID 10/D with four pneumatically operated setting pins. In order to write information, the workpiece pallet has to be stopped. The presence of the workpiece pallet in relation to the write head can be ascertained with a proximity switch.

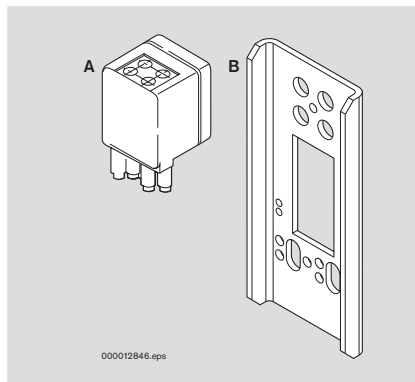
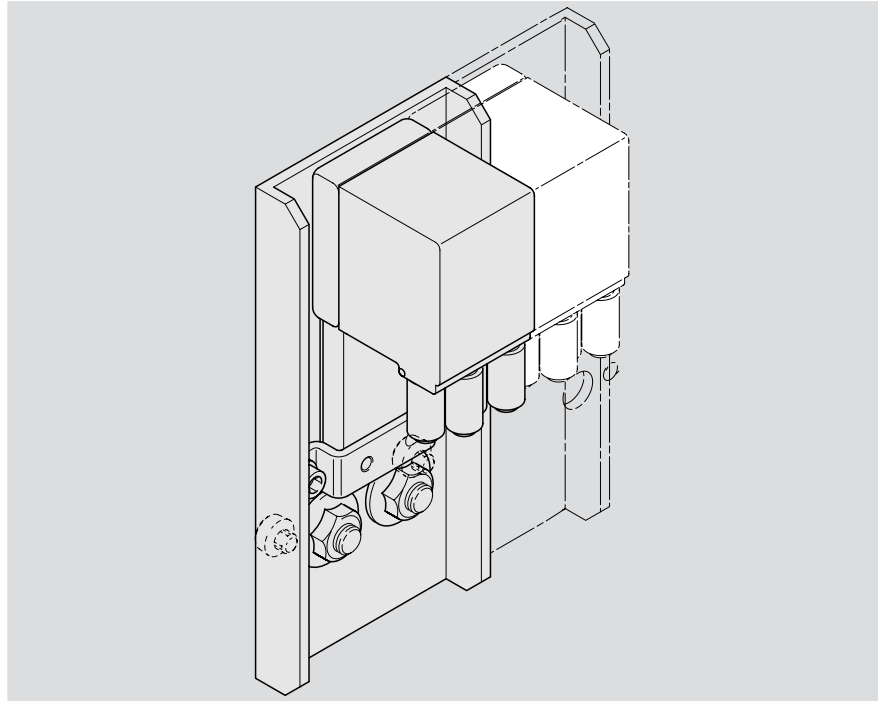
One ID 10/S is required for every ID 10/D to be written on.

**Note:** If WT travel "gaps" are too large, use a workpiece pallet inner guide.

To write to ID 10/D that are next to each other, you will receive kits with 1 to 4 write heads (A), including fixing plate (B) and fastening elements. You can also order single write heads and mounting kits for writing to ID 10/D which are not positioned adjacently.



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## ID 10/S write head

	No.
A	3 842 168 610

## Mounting kit for n ID 10/S write heads

n	No.
B 1	3 842 525 241
B 2	3 842 525 242





Identification system ID 10

# Read head ID 10/L



Four proximity switches in the ID 10/L recognize the position of the encoding pins in the ID 10/D. The signals read are either transmitted directly to a control unit, which takes over the evaluation, or they are compared to preset information in the read head. The result of this comparison will be issued at an output of the ID 10/LA read head. Light-emitting diodes on the back of the housing permit a visual check of information which has been read.

**Note:** In case of unwanted guide play with the WT use a workpiece pallet guide.

The following types of operation are supported:

- Read code: Recognizes the ID 10/D coding and forwards the signal to a control unit.
- Compare code: Recognizes the ID 10/D coding and compares it with a preset code; the results of the comparison (yes/no) are then supplied in signal format.
- Both types of operation can be used simultaneously.

**Two read head designs are currently available:**

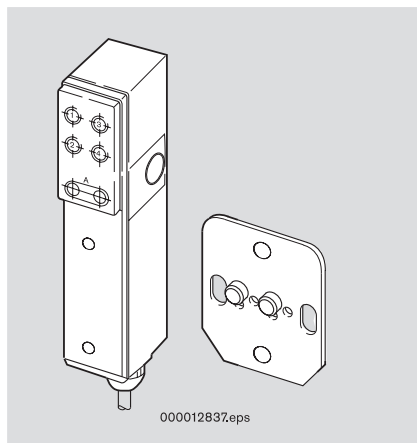
- ID 10/LA: Recognizes the workpiece pallet in the read position as well as the ID 10/D coding; outputs the signals for coding, "WT in position", and comparison results (yes/no).
- ID 10/LB: Recognizes the ID 10/D coding and outputs the signals. Forwards the internal comparison result to the ID 10/LA.

An ID 10/L is required for every ID 10/D to be read from.

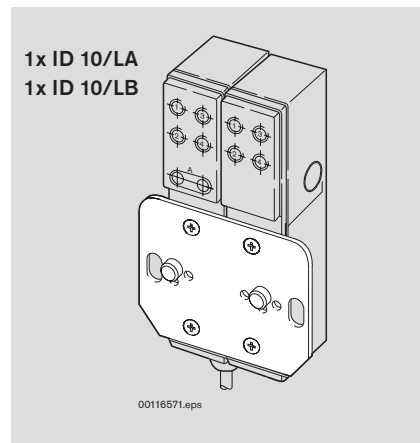
The ID 10/LA read head is used once in each read station. Additional ID 10/LB read heads follow directly after the ID 10/LA.



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Read head ID 10/L

	No.
ID 10/LA	3 842 174 350
ID 10/LB	3 842 174 360

Mounting kit for n ID 10/L... read heads

n	No.
1	3 842 525 261
2	3 842 525 262

Type	ID 10/LA	ID 10/LB
<b>Operating voltage</b>	10 to 30 V	10 to 30 V
<b>Ripple</b>	≤ 5%	≤ 5%
<b>Power consumption</b>	Max. 0.65 A	Max. 0.45 A
<b>Parallel interface</b>	6 outputs	4 outputs
<b>Status displays</b>	3 LEDs	2 LEDs
<b>Protection class</b>	IP67	IP67
<b>Housing material</b>	Crastin	Crastin
<b>Ambient temperature</b>	+5 to +40°C	+5 to +40°C
<b>Storage temperature</b>	-25 to +70°C	-25 to +70°C
<b>Mass</b>	0.2 kg	0.2 kg
<b>Max. write/read distance</b>		
- Static	2.5 mm	2.5 mm
- Dynamic (v = 20 m/min)	-	-



Identification system ID 10



Technical data

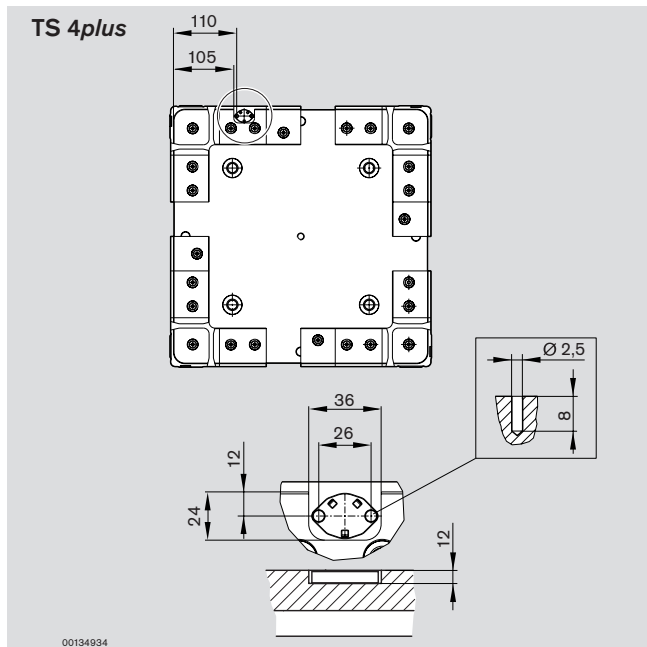
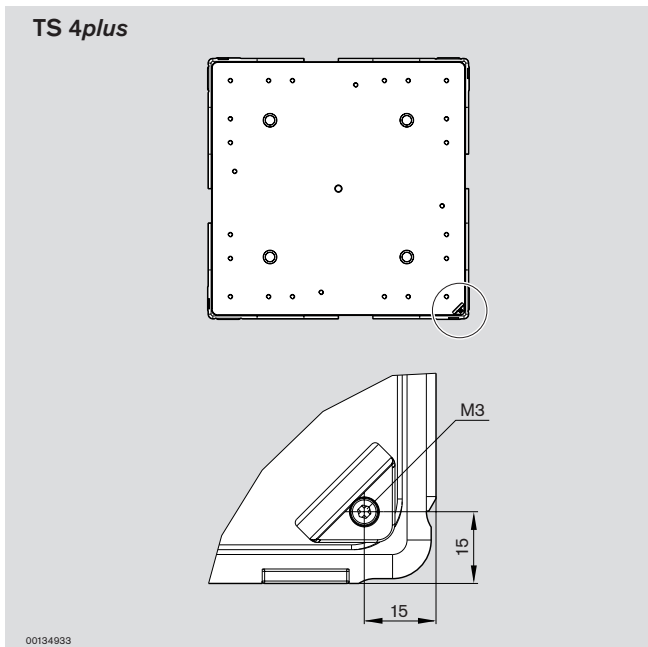
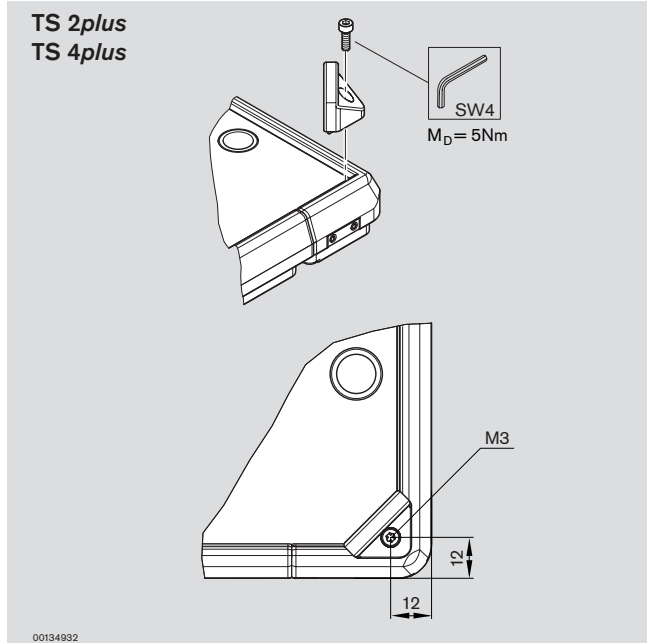
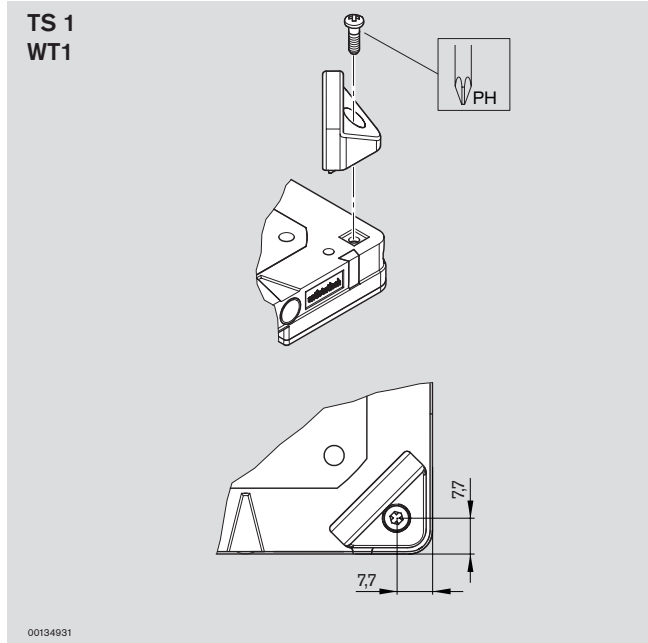
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Technical data

# RFID system ID 200

## Drilling plans for workpiece pallets

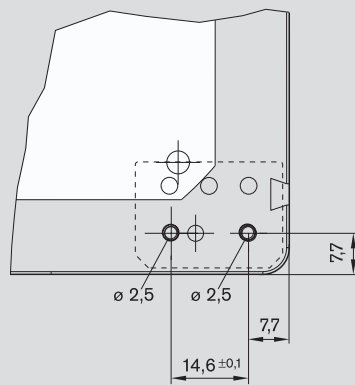


Technical data

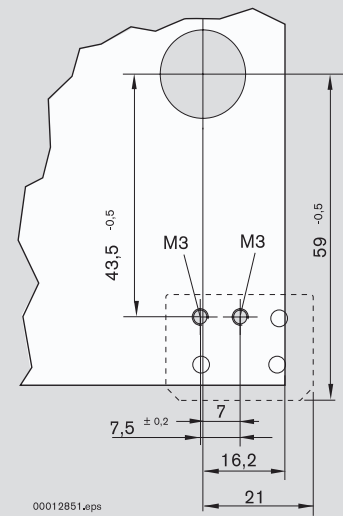
## RFID system ID 40

## Drilling plans for workpiece pallets

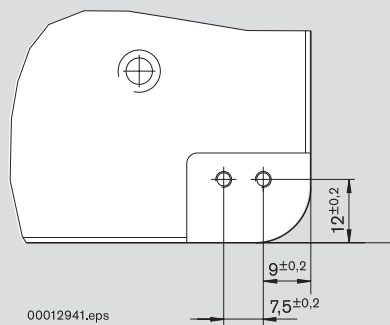
TS 1



TS 2plus



TS 4plus

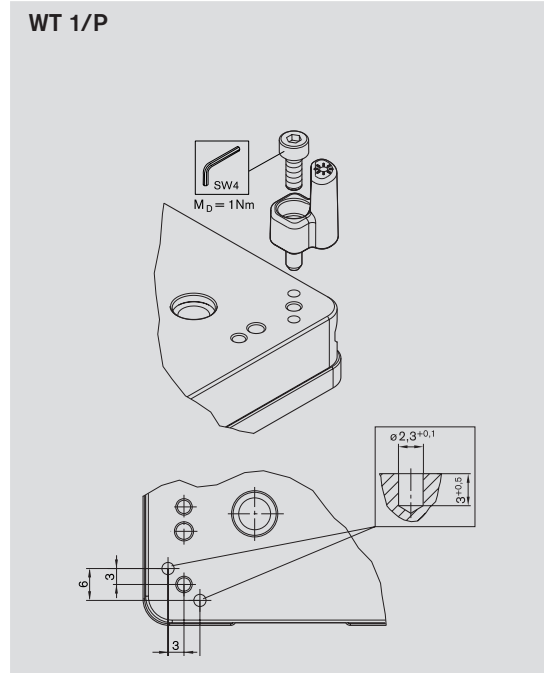
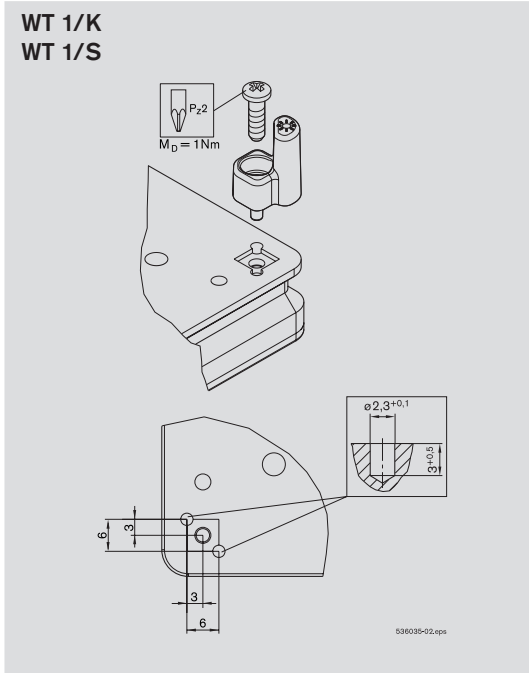


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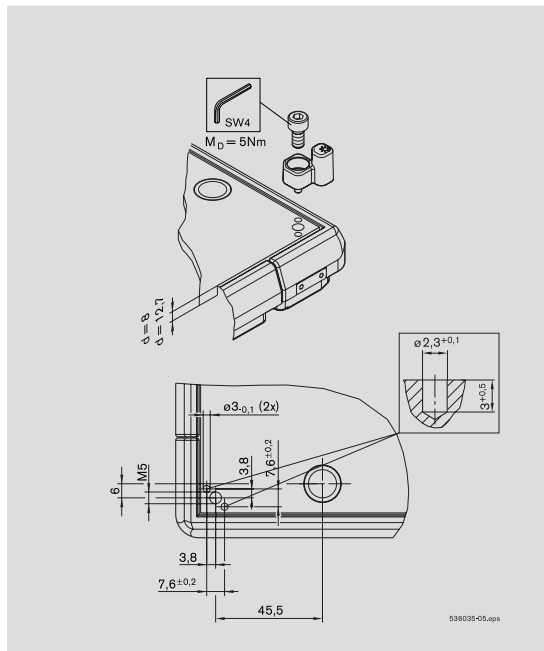
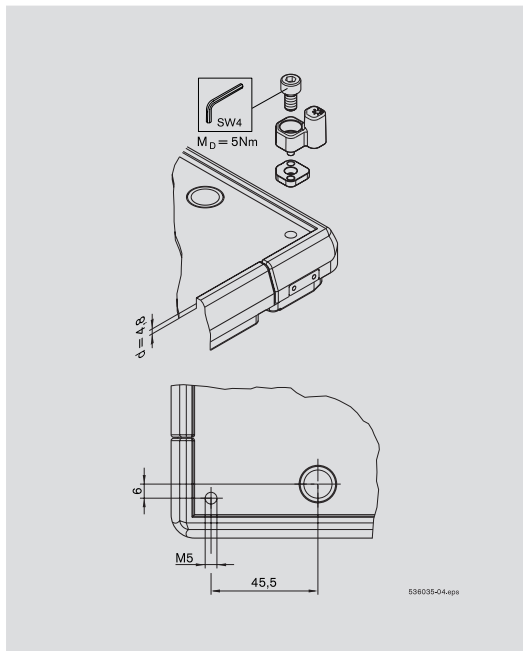
# RFID system ID 15

## Drilling plans for workpiece pallets

TS 1

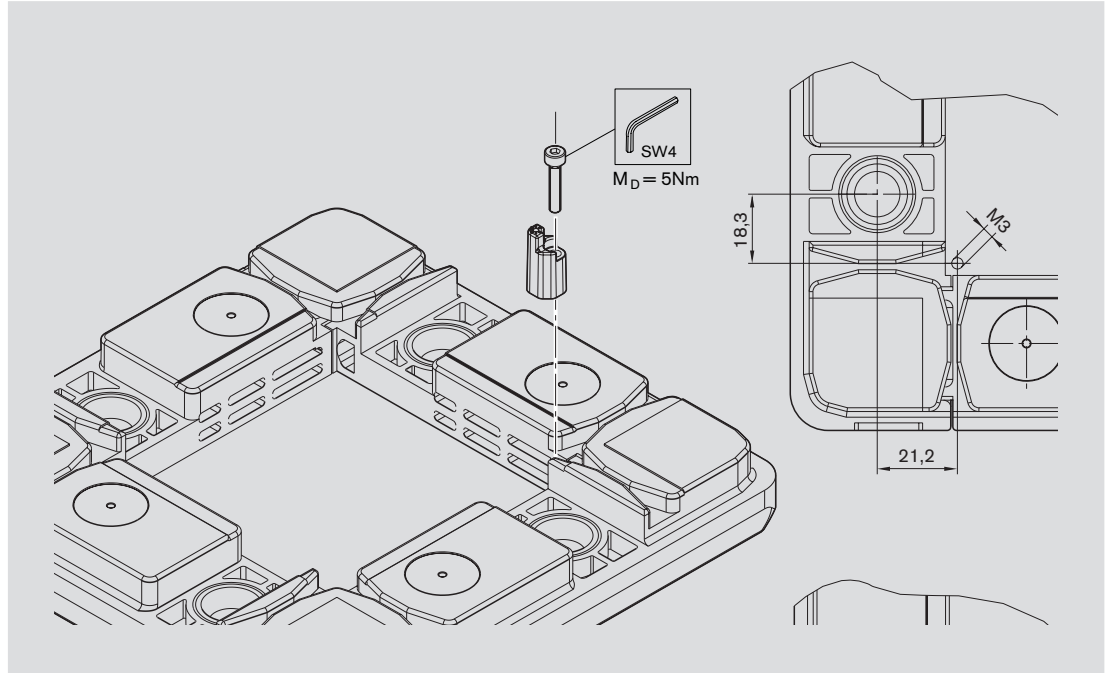


TS 2plus

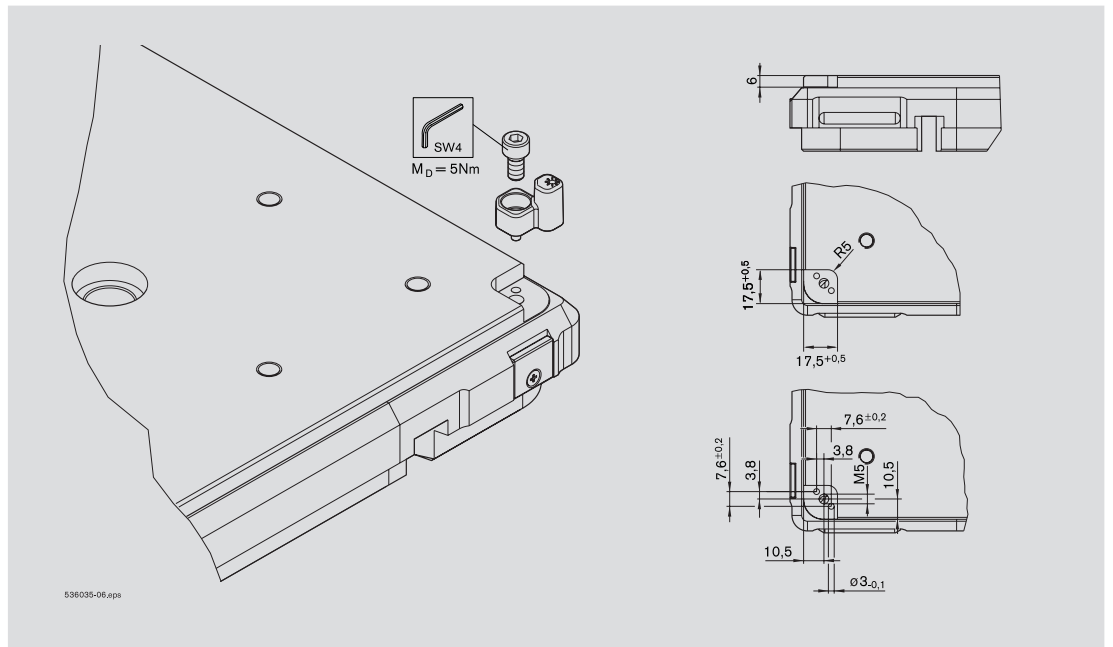


Technical data

TS 2plus



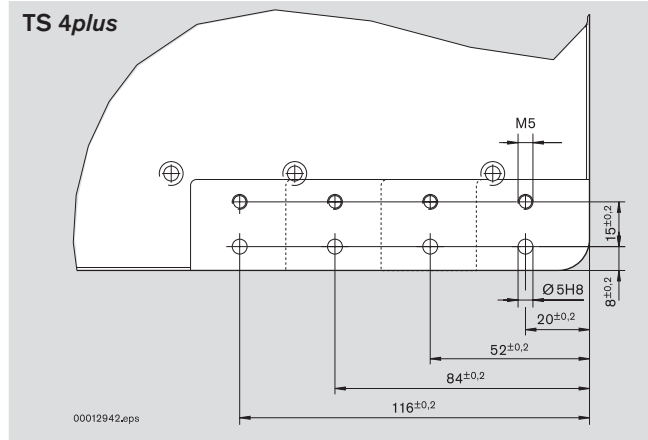
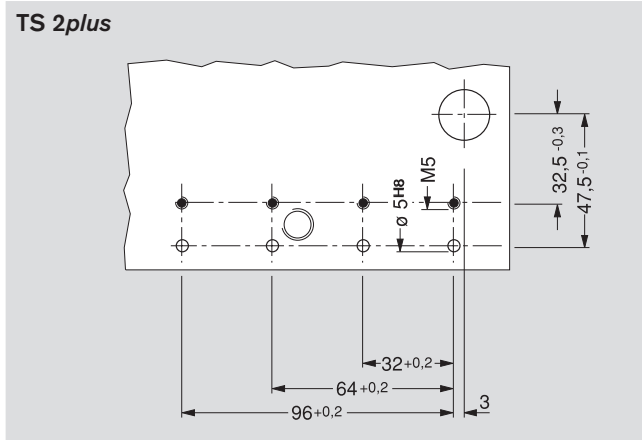
TS 4plus



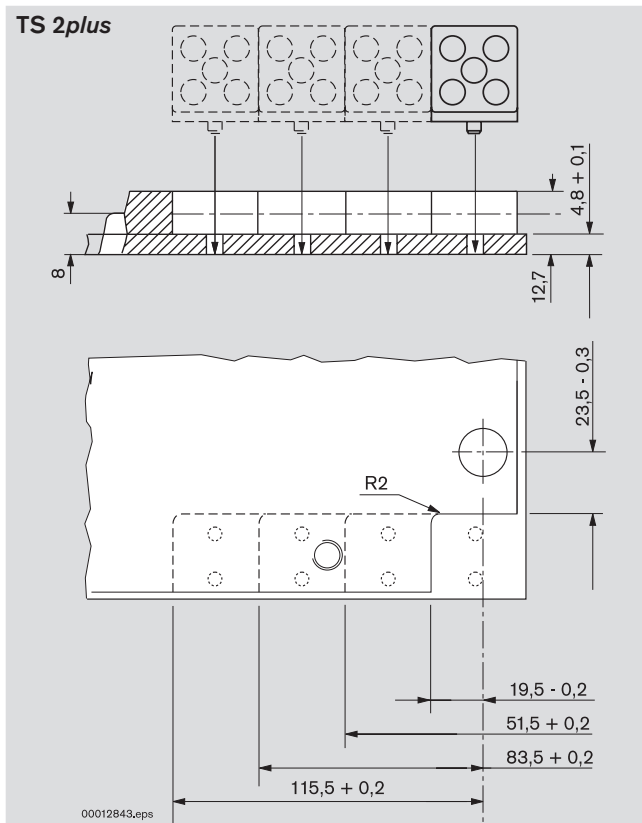
Technical data

# Identification and data storage system ID 10

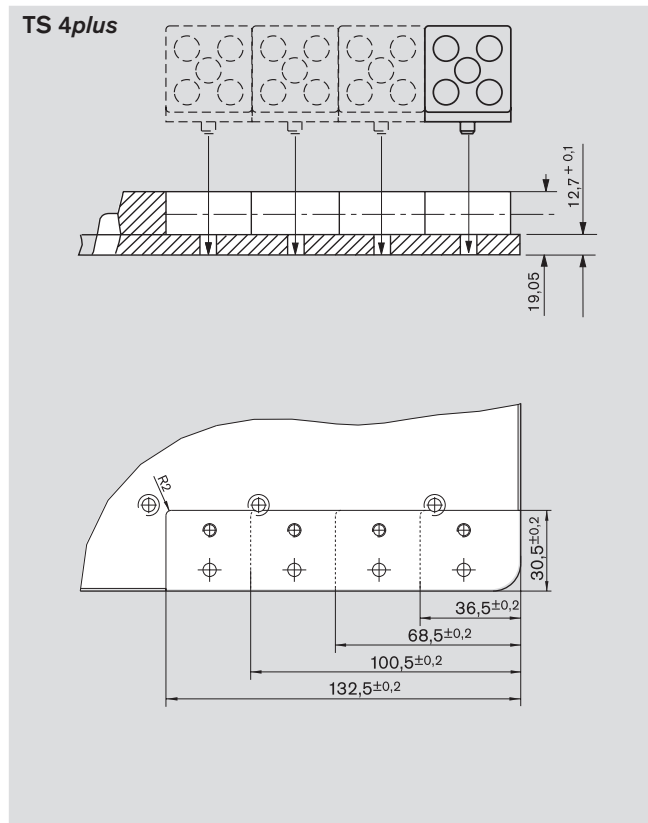
## Drilling plans for TS 2plus and TS 4plus workpiece pallets



## Milling plan for TS 2plus WP aluminum carrier plate



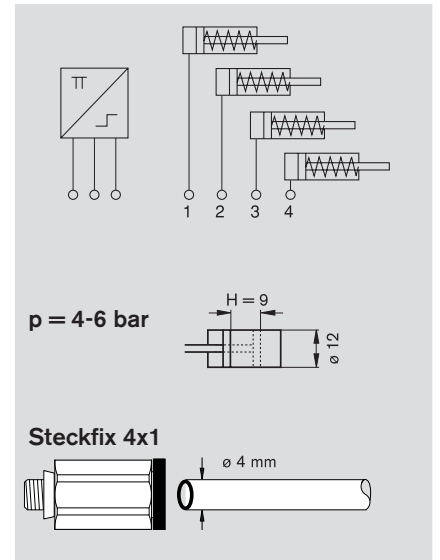
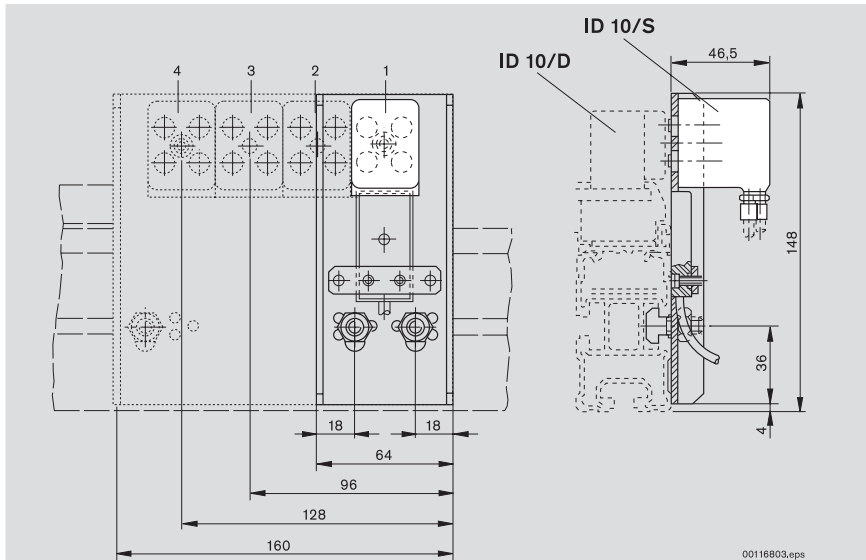
## Milling plan for TS 4plus WP aluminum carrier plate





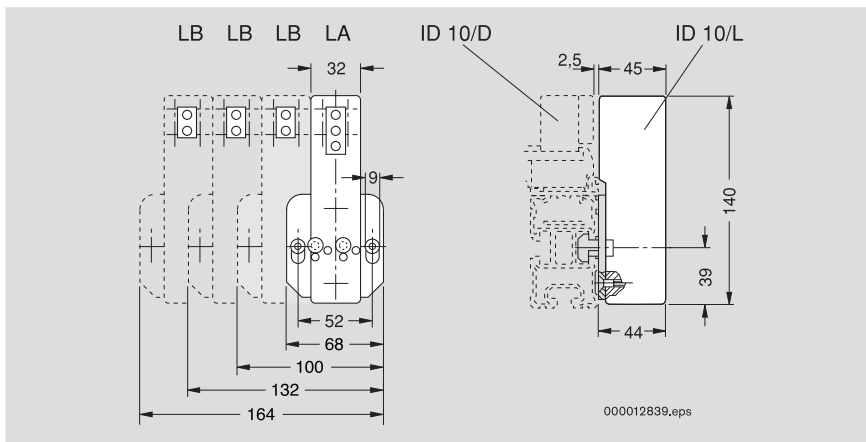
Technical data

Write head ID 10/S



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Read head ID 10/L



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# Overview of part numbers

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