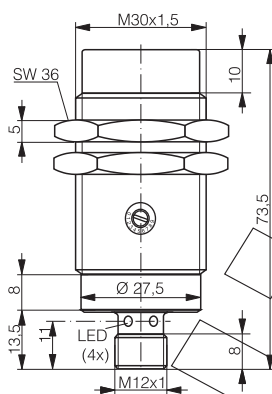


HF RFID SYSTEM READ/WRITE MODULES (RWM) RLS-1303-020

HOUSING	READ/WRITE DISTANCE	✓ M30 Metal threaded housing ✓ Sensing face of PBTP ✓ Insensitive to dirt ✓ ISO15693 compatible	✓ Networkable RWM using ContriNET protocol ✓ Cost optimized solution
M30	60 mm*		



* Please refer to table page 5

GENERAL DATA		INTERFACE	
Carrier frequency	13.56 MHz	RS-485 configuration	
Compatible standard	ISO 15693	Data transfer rate (default in bold)	115 200 / 38 400 / 19 200 baud
Maximum transmission speed	26.5 kbit/s	Number of bits 7 / stop bits / parity	8 / 1 / None
Read-write distance max.	60 mm with RTP-0501-020	RWM configuration	
		LED yellow on	RWM live
		LED yellow blinking	Transponder detected
		Contrinet protocol	✓

ELECTRICAL DATA		MECHANICAL DATA	
Supply voltage range (U _b)	14...32 VDC	Protection degree	IP67
No-load supply current (field off)	20 mA	Ambient temperature range TA**	-25...+80 °C
Max. current consumption (no load)	60 mA	Storage temperature range TS***	-25...+80 °C
Polling current	30 mA	Sensing face material	PBTP
Short-circuit protection	✓	Housing material	Stainless steel
Voltage reversal protection	✓	Connector type	M12 4-pin
Max. output current		Weight (incl. nuts)	95 g

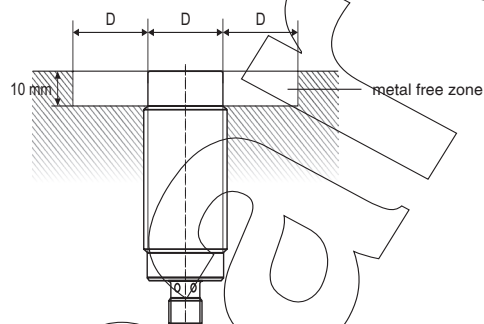
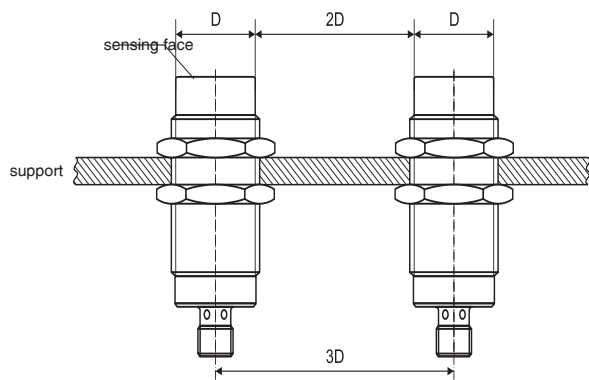
** Read/write operations possible

*** Data retention and mechanical stability limit

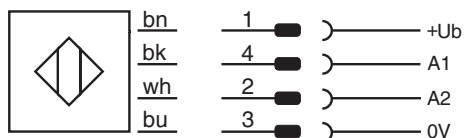
MOUNTING RECOMMENDATIONS

CLEARANCE

Read/write modules must not mutually influence each other. For this reason, a minimum distance of $2 \times D$ between the devices must be observed.

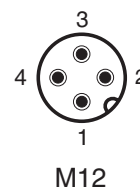


WIRING DIAGRAM



PIN ASSIGNMENT

Pin	Signal	Function
1	Ub	+24 V
2	A2	RS-485 - A
3	GND	0V
4	A1	RS-485 - B



COMMUNICATION SETTINGS

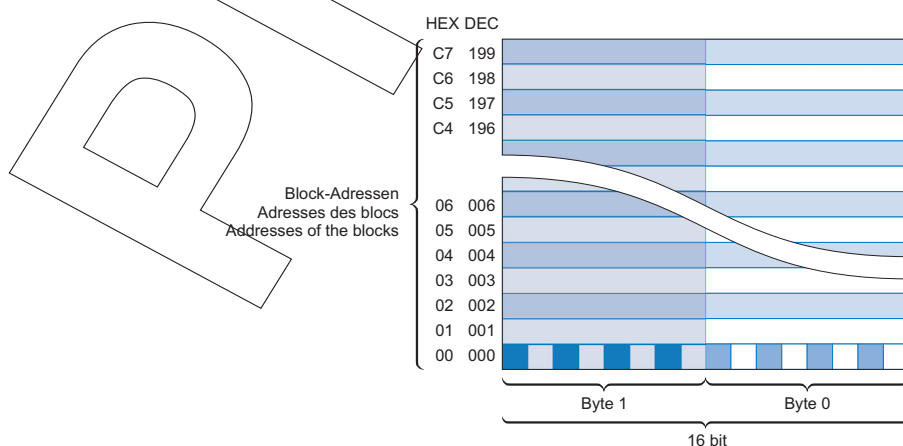
RS-485 characteristics

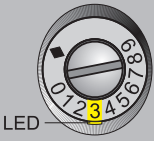
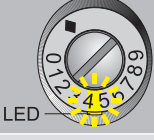
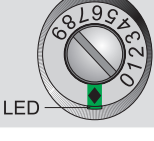
Value for RLS-1183-020

Data transfer rate (default in bold)	115 200 / 38 400 / 19 200 baud
Number of bits	8
Number of stop bits	1
Parity	No

MEMORY STRUCTURE OF THE READ/WRITE MODULE

The Read/Write Module has a user memory of 3200 bits organized in 200 blocks of 16 bits. Each block is addressable separately by means of the commands Write RWM and Read RWM.

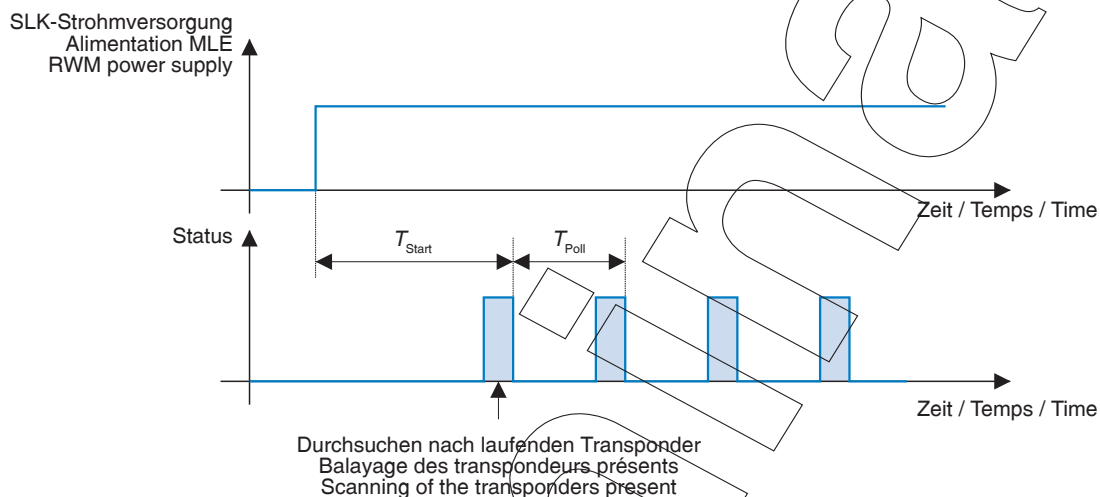


	Value for RLS-1183-020
 LED	Yellow LED on mode: physical addressing physical address recognized
 LED	LED off Mode: physical addressing physical address not recognized
 LED	Yellow LED blinks mode: logical addressing Logical address recognized
 LED	Green LED on mode: bootload loading the firmware of the FWM. All the other functions are deactivated

TYPICAL TIMES

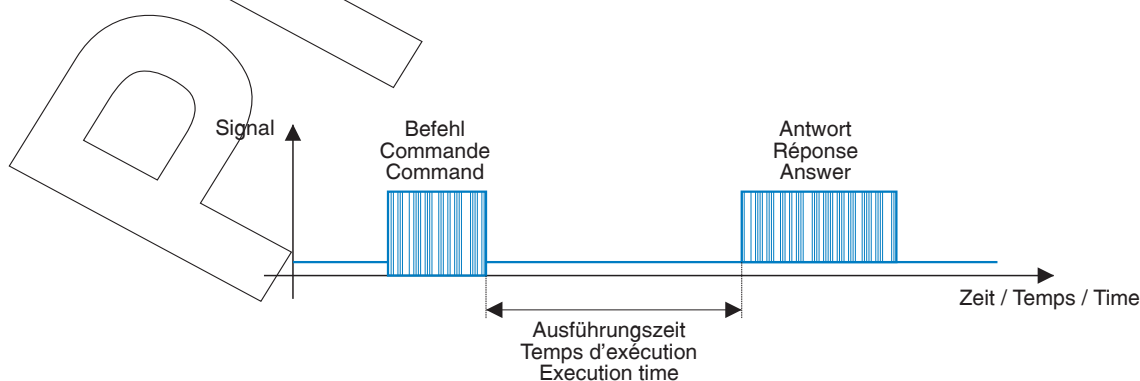
Time name	Description	Value
Starting times	Time between the powering of the RWM and the end of the first scanning of the transponders present	300 ms
Polling time	Time for actualization of the list of the transponders present. This time depends on the number of collisions.	70* ms
Execution time of the commands	The execution time is defined as the time between the end of the sending of the command and the beginning of the answer	Command dependent

*Polling time for 16 transponders without collision



TYPICAL EXECUTION TIMES BY COMMAND TYPE

Command type	Description		Value
Commands related to RWM	Typical execution time		1.5 ms
Commands related to Transponder depending on number of blocks	Typical read duration: $T_R = T_0 + N \cdot T_{R0}$ Typical write duration: $T_W = T_0 + N \cdot T_{W0}$	Duration for decoding the command - T_0	12.0 ms
		Read duration for one block (32 bits) - T_{R0}	8.0 ms
		Write duration for one block (32 bits) - T_{W0}	12.0 ms
		Number of blocks concerned - N	
Commands related to Transponder not related to a number of blocks	Typical execution time (e.g. Get System-Info, Write AFI, Lock AFI, Write DSFID, Lock DSFID, and so on)		30 ms



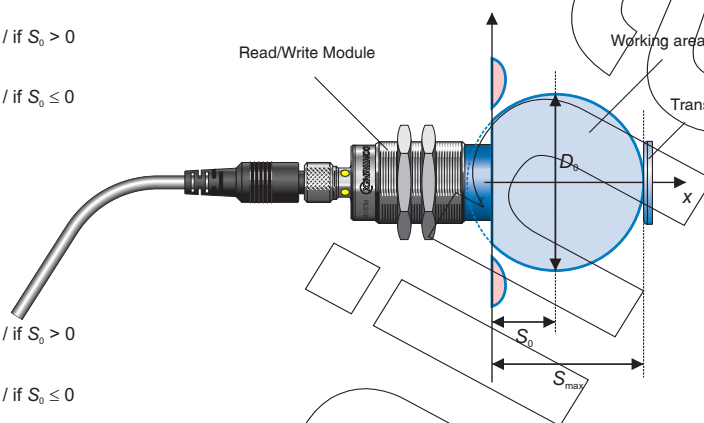
POSSIBLE COMBINATION AND TYPICAL DISTANCE - RLS-1303-020

Transponder type	S_{max} [mm]	S_0 [mm]	D_0 [mm]	V_{Rmax} [cm/s]*	V_{Wmax} [cm/s]*
Ø 9 RTP-0090-020	14	3	22	110	91.7
Ø 16 RTP-0160-020	30				
Ø 20 RTP-0201-020	25	10	30	150	125
Ø 26 RTP-0263-020	31	13	36	180	150
Ø 30 RTP-0301-020	45	21	48	240	200
Ø 50 RTP-0501-020	60	27	66	330	275
Ø 50 RTP-0502-022	50	22	56	280	233
Ø 50 RTP-0502-062	44.5	17.5	54	270	225
Ø 50 RTP-0502-082	42.5	17	51	255	212.5

*speed values for a distance between RWM and transponder set to S_0 and a 32 bits Read or Write operation

$$V_{Rmax} = \begin{cases} \frac{D_0}{T_R} = \frac{2 \cdot (S_{max} - S_0)}{T_0 + N \cdot T_{RD}} & \text{ob / si / if } S_0 > 0 \\ \frac{D_C}{T_R} = \frac{2 \cdot S_{max} \cdot \sqrt{1 - 2 \cdot S_0 / S_{max}}}{T_0 + N \cdot T_{RD}} & \text{ob / si / if } S_0 \leq 0 \end{cases}$$

$$V_{Wmax} = \begin{cases} \frac{D_0}{T_W} = \frac{2 \cdot (S_{max} - S_0)}{T_0 + N \cdot T_{WD}} & \text{ob / si / if } S_0 > 0 \\ \frac{D_C}{T_W} = \frac{2 \cdot S_{max} \cdot \sqrt{1 - 2 \cdot S_0 / S_{max}}}{T_0 + N \cdot T_{WD}} & \text{ob / si / if } S_0 \leq 0 \end{cases}$$



AVAILABLE TYPES

Part number	Part reference	Ø	Mounting	Connection
720 100 105	RLS-1303-020	M30	Non-embeddable	M12 4-pin

DISCLAIMERS

FCC information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Contrinex information

Operators of the products we supply are responsible for compliance with measures for the protection of persons. The use of our equipment in applications where the safety of persons might be at risk is only authorized if the operator observes and implements separate, appropriate and necessary measures for the protection of persons and machines. Terms of delivery and rights to change design reserved.