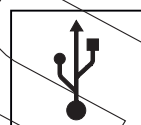


HF RFID SYSTEM READ/WRITE MODULES (RWM) RLS-1181-220

HOUSING	READ/WRITE DISTANCE	✓ M18 Metal threaded housing ✓ Sensing face of PBTP ✓ Insensitive to dirt ✓ ISO15693 compatible
M18	38 mm*	✓ USB RWM using ContriNET protocol ✓ Cost optimized solution



* Please refer to table page 4

GENERAL DATA		INTERFACE	
Carrier frequency	13.56 MHz	USB/VCP configuration	
Compatible standard	ISO 15693	Data transfer rate	115 200 baud
Maximum transmission speed	26.5 kbit/s	Number of bits 7 / stop bits / parity	8 / 1 / None
Read-write distance max.	38 mm with RTP-0502-022	RWM configuration	
		LED yellow on	RWM live
		LED yellow blinking	Transponder detected
		ContriNET protocol	✓

ELECTRICAL DATA		MECHANICAL DATA	
Supply voltage range (U _b)	5 VDC (USB powered)	Protection degree	IP67
No-load supply current (field off)	100 mA	Ambient temperature range TA**	-25...+70 °C
Max. current consumption (no load)	200 mA	Storage temperature range TS***	-25...+70 °C
Polling current	120 mA	Sensing face material	PBTP
Short-circuit protection	✓	Housing material	Stainless steel
Voltage reversal protection	✓	Connector type / Cable length	USB A male / 2 m
Max. output current		Weight (incl. nuts)	107 g

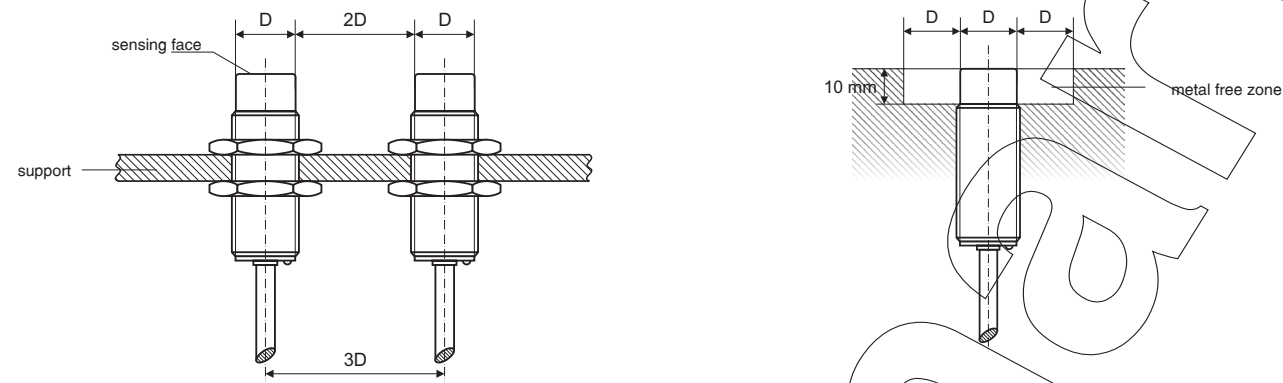
** Read/write operations possible

*** 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 x D between the devices must be observed.

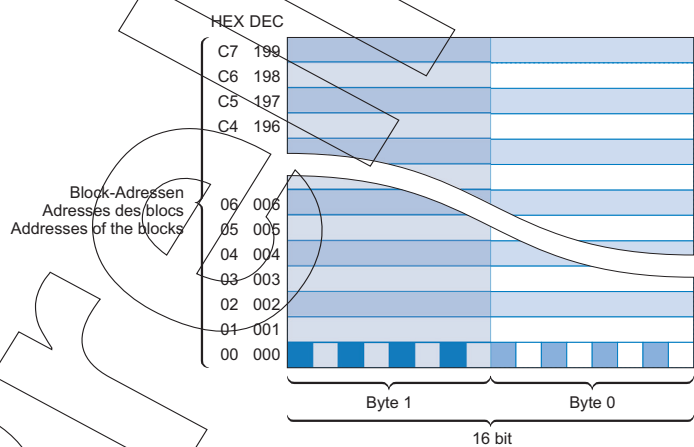


COMMUNICATION SETTINGS

USB/VCP characteristics	Value for RLS-1181-220
Data transfer rate (default in bold)	115 200
Number of bits	8
Number of stop bits	1
Parity	No

MEMORY STRUCTURE OF THE READ/WRITE MODULE

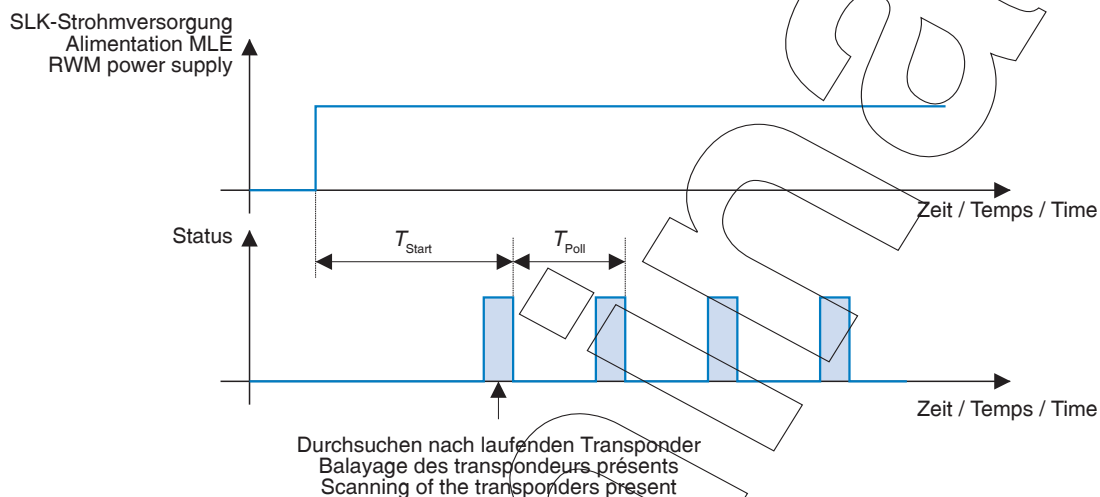
The Read/Write Module has a user memory of 3200 bits organized in 200 blocks of 16 bits. Each block is addressable separately by means of the commands Write RWM and Read RWM.



TYPICAL TIMES

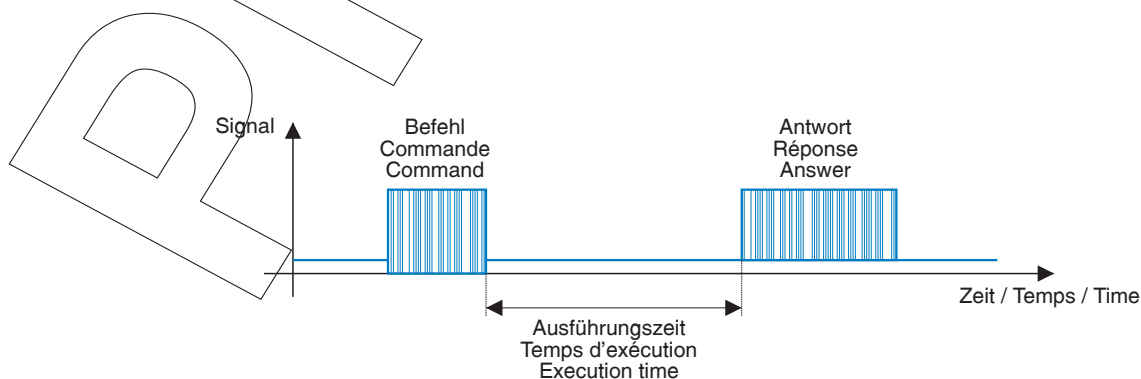
Time name	Description	Value
Starting times	Time between the powering of the RWM and the end of the first scanning of the transponders present	300 ms
Polling time	Time for actualization of the list of the transponders present. This time depends on the number of collisions.	70* ms
Execution time of the 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: $T_R = T_0 + N \cdot T_{R0}$	Duration for decoding the command - T_0 12.0 ms
	Typical write duration: $T_W = T_0 + N \cdot T_{W0}$	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 (e.g. Get System-Info, Write AFI, Lock AFI, Write DSFID, Lock DSFID, and so on)	Typical execution time	30 ms



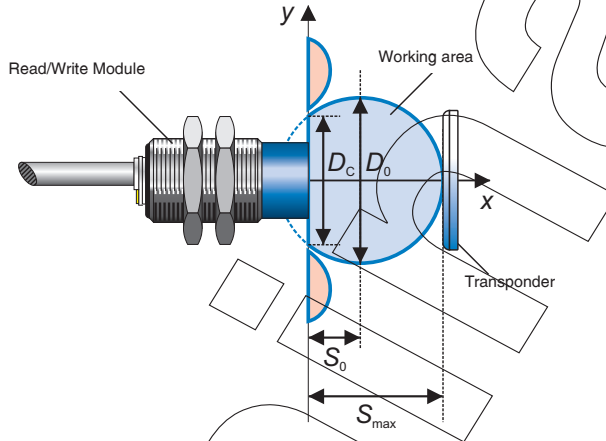
POSSIBLE COMBINATION AND TYPICAL DISTANCE - RLS-1181-020

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	5	18	90	75
Ø 16 RTP-0160-020	17				
Ø 20 RTP-0201-020	14	4	20	100	83.3
Ø 26 RTP-0263-020	21	8	25	125	104.2
Ø 30 RTP-0301-020	26	10	32	160	133.3
Ø 50 RTP-0501-020	31	8	46	230	191.7
Ø 50 RTP-0502-022	38	14.5	47	235	195.8
Ø 50 RTP-0502-062	21.5	0.5	42	210	175
Ø 50 RTP-0502-082	33	11	44	220	183.3

*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 / Cable length
720 100 108	RLS-1181-220	M18	Non-embeddable	USB A male / 2 m

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.