

HF RFID SYSTEM TRANSPONDER RTP-0263-020

HOUSING	MEMORY SIZE	MOUNTING ✓ Very high temperature HF transponder		✓ Insensitive to dirt ✓ User memory	
Ø26 mm	256 Bytes	Embeddable	✓ Housing with hole for fixing screw	✓ OTP protection block✓ EEPROM technology	

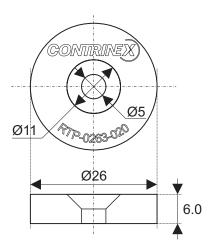












GENERAL DATA

Type of integrated circuit	NXP ICODE SLI-S
Carrier frequency	13.56 MHz
Compatible standard	ISO 15693
Maximum transmission speed	53 kbit/s if fast custom commands is used, 26.5 kbit/s otherwise
Memory type	EEPROM
Memory size	256 Bytes
Read-write distance max.	31 mm with RLS-1303-020

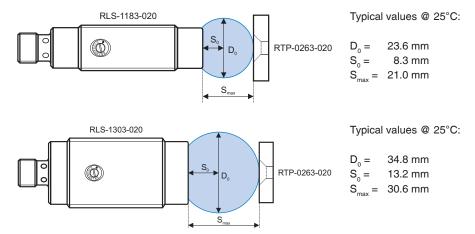
MEMORY INFORMATION		MECHANICAL DATA	MECHANICAL DATA		
Organization	64 blocks x 4 Bytes	Protection degree	IP68 & IP69K		
User memory (R/W)	40 blocks, 160 Bytes	Ambient temperature range TA*	-25+180 °C		
Configuration memory 24 blocks, 96 Bytes		Storage temperature range TS**	-40+180 °C		
Unique identifier	8 Bytes	Thermal cycling reliability @ 180 °C	1000 cycles / 1000 hours		
Data retention period (< 55 °C)	> 10 years	Housing material	PPS (Polyphenylene Sulfide)		
Number of "write" cycles	10 ⁵	Weight	3.3 g		
Number of "read" cycles	unlimited	Tightening torque	max. 1 Nm		

^{*} Read/write operations possible

^{**} Data retention and mechanical stability limit

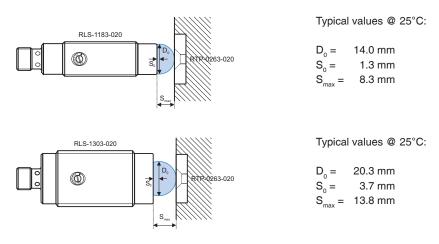
OPERATING ZONE

The operating area is highly dependent on the environment.



THE OPERATING AREA WHEN EMBEDDED IN METAL

The operating area is highly dependent on the environment.



MEMORY OF TRANSPONDERS

The EEPROM has a memory capacity of 2048 bits and is divided in two areas. One user area of 40 blocks and one system area of 24 blocks, that means a total of 64 blocks of 4 bytes each. The block is the smallest unit used to read and write the EEPROM memory.

EEPROM memory configuration

Area	Page No.	Block No.	Details	Read Access	Write Access
User memory (160 bytes)	00 _h to 09 _h	00 _h to 27 _h	User memory	✓	✓
System memory (96 bytes)	F0 _h to FE _h	E8 _h to FE _h	UID (64 bits), EPC Data, Access Control Info. Passwords AFI, DSFID, EAS Block security status	Inv. Cmd Get System Info Cmd EAS Cmd Get Multiple Block Security Status Cmd	Write AFI Cmd Write DSFID Cmd Write EAS Cmd Lock Block Cmd Lock DSFID Cmd Lock AFI Cmd (OTP)

User memory Direct read access to blocks of this memory is always possible. Direct write access to blocks of this memory is possible depending on the value of its corresponding block security status bit.

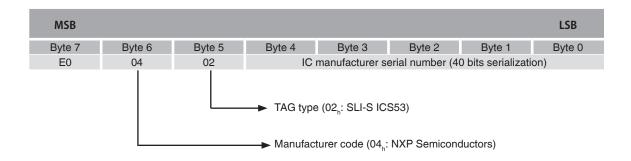
Sytem memory Direct read or write access to blocks of this memory area is not possible

Structure of a single user memory block

MSB			LSB
Byte 3	Byte 2	Byte 1	Byte 0

UNIQUE IDENTIFICATION NUMBER (UID)

The 64-bits unique identification number (UID) is programmed during the production process according to ISO/IEC 15693-3 and cannot be changed afterwards. The type of TAG and manufacturer code are part of the UID: bytes 5 and 6 respectively.



SPECIAL FEATURES

Name	Description		
EAS*	Electronic Article Surveillance		
AFI	Application Family Identifier		
DSFID	Data Storage Format Identifier		
EPC*	Electronic Product Code		
Destroy SLI-S	The datas of the transponder are complety destroyed if the B9 command is preceded by the destroy password. The ransponder will not answer any commands any more		
Privacy Mode	In private mode, the transponder does not answer any more except to the command Get Random Number and Set Password		

^{*} features not available with Contrinex RWMs (RLS-1xxx-xxx)

SECURITY AND PROTECTIONS

Description				
Unique identifier (UID) for each transponder				
Lock mechanism for each user memory block (read and / or write protection)				
Lock mechanism for DSFID, AFI and EAS*				
Password (32-bits) protected memory management for Read access				
Password (32-bits) protected memory management for Write access				
Password (32-bits) protected transponder Destroy command				
Password (32-bits) protected Privacy Mode				
Password (32-bits) protected EAS functionality*				
Initial state of the passwords 00000000 _h				

^{*} features not available with Contrinex RWMs (RLS-1xxx-x2x)

LIST OF COMMANDS

	C	6	2	RLS-1xxx-	
	Command Name	Command Code	Description	x20	320
Mandatory	Inventory	01 _h	Execute the anti-collision sequence and return UID		✓
ISO 15693	Stay Quiet	02 _h	Enter the Quiet state	✓	×
	Read Single Block	20 _h	Read the requested 1 block data in the user/system memory	✓	✓
	Write Single Block	21 _h	Write the requested 1 block data in the user memory	✓	✓
	Lock Block	22 _h	Lock permanently the requested 1 block in the user memory		×
	Select	25 _h	Enter the Select state	√	×
Optional	Reset to ready	26 _h			×
ISO 15693	Write AFI	27 _h	Write AFI (Application Family Identifier) value into EEPROM	✓	×
	Lock AFI	28 _h	Lock permanently AFI value		×
	Write DSFID	29 _h	Write DSFID (Data Storage Format Identifier) value into EEPROM	✓	×
	Lock DSFID	2A _h	Lock permanently DSFID value	✓	×
	Get System Information	2B _h	Read the system information value (UID, DSFID, AFI, number of bytes per block, etc)	✓	×
	Set EAS	A2 _h	Set EAS bit to "1"	×	×
	Reset EAS	A3 _h	Set EAS bit to "0"	×	×
	Lock EAS	A4 _h	Lock permanently the EAS bit to its current value		×
	EAS Alarm	A5 _h	When EAS bit is "1", reply 13 bytes of data (Flags, EAS, IC Mfg. code, UID and CRC16)		×
	Password Protect EAS	A6 _h	EAS Password has to be transmitted before with a Set Password command	×	×
	Write EAS ID	A7 _h	Write a new EAS identifier	×	×
	Read EPC	A8 _h	Read the EPC data stored into the system memory	×	×
	Inventory Page Read	B0 _h	Execute the anti-collision sequence and return the requested n page data in the user memory	×	×
	Fast Inventory Page Read	B1 _h	Fast response Inventory Page Read command	×	×
	Get Random Number	B2 _h	Get a random number calculated in the transponder	✓	×
Custom	Set Password	B3 _h	Get access to the different protected functionalities in function of the password identifier used		×
ISO 15693	Write Password	B4 _h	Write a new password into the transponder system memory in function of the password identifier used		×
	Lock Password	B5 _h	Lock permanently one password in function of the password identifier used		×
	Protect Page	B6 _h	Set the read and write access condition pagewise	✓	×
	Lock Page Protection	B7 _h	Lock permanently the read and write access condition pagewise		×
	Get Multiple Block Protection Status	B8 _h	Read the block security status stored of the requested n blocks		×
	Destroy SLI-S	B9 _h	Destroy permanently the transponder ISO15693 air interface		×
	Enable Privacy	BA _h	Enable the SLI-S privacy mode	×	×
	64 Bit Password Protection	BB _h	If 64-Bit Pasword Protection is enabled both read + write passwords are required to access read and write protected blocks (pages)	✓	×
	Begin Round	30 _h	Execute the anti-collision sequence and return EPC	×	×
Custom	Write Block	01 _h	Write new EPC data into the transponder memory	×	×
ISO EPC HF*	Destroy	02 _h	Destroy permanently the transponder EPC HF air interface	×	×

^{*}refer to "13.56MHz ISM Band Class 1 Radio Frequency (RF) Identification Tag Interface Specification" for more details

AVAILABLE TYPES					
Part number	Part reference	Ø	Mounting		
720-000-137	RTP-0263-020	26 mm	Embeddable		