

# Rail-Mil rmRailProtector4.0®



Rail-Mil Q7 product family designed to meet the requirements of the ERTMS | ETCS.

Balise products Programming tools LEU Coders Software Diagnostic tools

Technology customized to client's needs.

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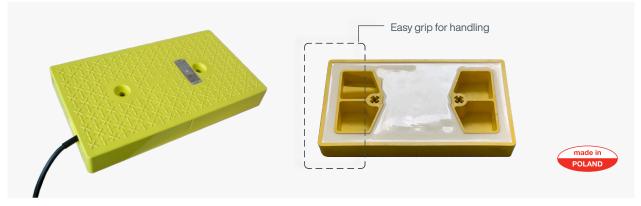
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# Q7-BL-FX – Fixed Eurobalise

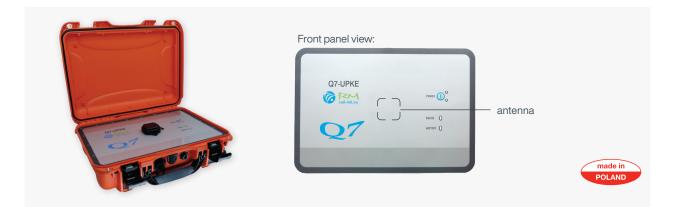
SUBSET-036 compliant					
Balise type	Reduced size Eurobalise				
Debris	ass A				
Programming	Via the air gap				
Addition features	Electronically switching ON/OFF by the programming tool				
	not needed metal cover to deactivate the balise				
Mounting	Two holes at 200mm distance, screws M12 (steel A4 or A2) recommended				
Size	440 x 250 x 55mm				
Color	Balise can be painted to any color (in the picture RAL 1016)				
Eurobalise 5 key elements	Q7-BL-ALL - the Eurobalise electronic with antenna				
	Q7-BL-ANT - programming tele-powering				
	Q7-BL-ENC - enclosure of the Eurobalise				
	Filling and bonding resin				
	Information label				



## Q7-BL-TR – Controlled Eurobalise

SUBSET-036 compliant				
Balise type	Reduced size Eurobalise			
Debris	Class A			
Programming	Via the air gap			
Addition features	Electronically switching ON/OFF by the programming tool			
	not needed metal cover to deactivate the balise			
Mounting	Two holes at 200mm distance, screws M12 (steel A4 or A2) recommended			
Size	440 x 250 x 55mm, 5 or 9m fixed cable (no connector)			
Color	Balise can be painted to any color (in the picture RAL 1016)			
Interface	C1, C6, no interface C4			





# Q7-UPKE – Programming Tool

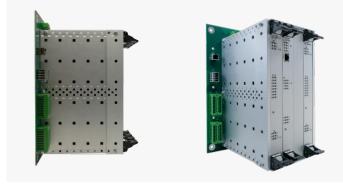
Basic parameters	Interface A, for Eurobalise reading
	Programming via the air gap
	Cable free
	Fully hand-held
	With rechargeable batteries
	Minimum 20h working battery time
	IP65 enclosure
	Mono board inside
	Wi-Fi host for PC programming
	Silted ethernet connector for cable programming (option)
	GPS, for data collection and time synchronization



# Q7-UPKE-HAND – Simple Programming Tool

Basic parameters	Unique feature to LOCK and UNLOCK the Eurobalise		
	Programming via the air gap		
	Cable free		
	Fully hand-held		
	With rechargeable batteries		
	Minimum 20h working battery time		
	IP65 enclosure		
	Mono board inside		
	Wi-Fi host for PC diagnostic and data reading		
	Silted ethernet connector for cable programming (option)		
	GPS, for data collection and time synchronization		







# Q7-LU1-BOX-7U – LEU Encoder LU1

Interface	C1, C4, C6				
LEU Coders	1 LEU Coder				
Telegram to Eurobalise	Based on uploaded decision table				
Distance to Eurobalise	Up to 2000m				
LEU box size	6U 24TE				
Whole LEU size	I0x310mm (7U height)				
Mounting	Four holes in square 185x280mm. screws M6				
Light inputs	Up to 16 (read in both wires)				
Input Voltage	24V DC				





## Q7-LU2-BOX-7U – LEU Encoder LU2

Interface	C1, C4, C6
LEU Coders	2 LEU Coders
Telegram to Eurobalise	Based on uploaded decision table
Distance to Eurobalise	Up to 2000m
LEU box size	6U 24TE
Whole LEU size	210x310mm (7U height)
Mounting	Four holes in square 185x280mm. screws M6
Light inputs	Up to 8 (read in both wires)
Input Voltage	24V DC



# Q7-PROG – Programming PC Software

Basic parameters	Compatibile with Q7-UPKE			
	Eurobalise programming			
	Eurobalise reading via air gap and by interface A			
	Telegram decoding to ETCS language			
	Final telegram generation for the Eurobalise from customer data			
	Telegram creation utilizing the ETCS language			
Unique features	Simple telegram copy from one Eurobalise to the other			
	Lock and unlock the Eurobalise via Q7-UPKE			
	Reading and storing diagnostic data			

ail-mil.eu	Q7-PR	OG	192.168.30.17 DP connection : 226, Rcv: 193
PROGRAMING COPY UPKE			
me: SHORT UDVG	Select the telegram to be programmed	A A <b>A A</b>	
1 Kopia	51% 2020-01-06 19:43:57	90027E9FB1918B1018034888BFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	<sub>F:</sub> ^ TABL
2 T1	60% 2020-01-06 19:43:57	8010011CD800004291D308594D179DD5881A3FFFFFFFFF	
3 T2	60% 2020-01-06 19:43:57	8020011c780000811c150D4D7FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	FI TT
4 T3	35% 2020-01-06 19:43:58	8010011D380000C4178C995E09CD8DDBD4171C54DC929CD	1:
5 T4	36% 2020-01-06 19:43:58	8020011CA8000101CAD8520B490DCAFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	FI 🔺
6 T5	49% 2020-01-06 19:43:58	8000011D380001440BCC8BCE109452D5480BD1574E9BDAC	91
7 т6	48% 2020-01-06 19:43:58	8000011D28000183DB9B889E9DDB5298D859900F519511F	and the second se
8 T7	52% 2020-01-06 19:43:58	8000011C680001C0D610547FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	FI
9 T8	47% 2020-01-06 19:43:58	8000011D180002039ACFD6D01A8FDE95959A90CB1E1C7FF	FI
10 T9	55% 2020-01-06 19:43:59	8010011CB80002421989DCCFD8111D193FFFFFFFFFFFFFFF	FI II
11 T10	55% 2020-01-06 19:43:59	8020011E04000287588BD6489CD89951D4558D495A1853D	41
Balise Balise		7/H8/122C38F22CDA3980/7/8	
1 120   1 PIG   SUBSET-005 1 1	FFFFFFCO .4.7?? A2.Tabele22 opis telegrami - SUBSETO26 A2.Tabele22 opis telegrami - SUBSETO26 - balise - SUBSETO26 clausule 7.5.1.63	clausule 7.5.???1	



#### Q7-TEL-ED – Telegram Editor

Basic parameters	Large portion of the headline is generated automatically		
	Telegram configuration is performed by providing a numerical value or descriptively as defined by Subset-26		
	Avaliable choice of telegram lenght format (LONG/SHORT)		
	Selection of packets is adopted for a choosen version of the baseline		
	Allows to control telegram file size		
	Generates telegrams to the database		
	Generates configuration files for LEU		

rail-mil.eu	Kami	onki to	or 1 [BG 501] [N_	PIG 1] FX		🗸 Sove & Exit	S Edt without sav
Telegram Options			[SUBSET-026 Chapter 7] packet	to add to the telegram (us	e Double Click)		
Last telegram generation: Not generatet yet				*			
JBEGET (11) bits)         Nite used: 133           Discort (12) bits)         Discort (12) bits)           Discort (12) bits)         Site underline (15)           off comment:         Site underline (15)	Packet Number 21 system Variob Packet Number 11 Naf Yong Value Variots Number 51 Linkfring Labora Antony Description of the Vacket Number 21 Internationa Packet Number 25: Internationa Packet Number 26: Incol Condit Packet Number 26: Service Number Packet Number 26: Service Number Packet Number 26: Service Number Packet Number 26: Service Numb	as <u>sont Authority</u> g information file 1 Static Speed ion Change of t ion Change of a tion Order gement	action power lowed current consumption				
ng comment: ugi komentarz balsy	Packet Number 45: Radio Networ Packet Number 46: Conditional Packet Number 47: Level Inhibi Packet Number 57: List of ball Packet Number 52: Permitted Br Packet Number 52: Permitted Br	k registration Level Transition tion Order ses for SH Area sed Profile	Order				
💫 Generate telegram	Show only Packets Show AL		Teleg	am Packets Edit	Add MA packets (12, 21, 27)	Add standard pa defined in	cket 3 (National Val "Project constants"
	0_UFDOM - 0_UFDOM	= 12 = 0 = 73 = 1 = 0 = 0	<pre>= up link telegram = 00 link telegram = 00 link telegram = 00 link teles 1, version 1.0, introdu = Balikes 1, version 2, versio</pre>			max val: 127 ( max val: 7 ( max val: 7 ( max val: 7 ( 10 ( max val: 7 ( 10 ( 10 ( max val: 255 ( 10 ( max val: 125 ( 10 ( max val: 125 ( 10 ( max val: 125 ( max val: 121 ( max val: 127 ( ma	1 bit) 3 bit) 3 bit) 2 bit) 2 bit) 1 bit) 4 bit) 4 bit) 3 bit) 2 bit) 3 bit) 2 bit) 3 bit) 5 bit)
	<ul> <li>Packet Number 255: End of In</li> <li>NID PACKET</li> </ul>	formation = 255	= 255			max val: 255 (	

#### rmDIAGdog – Diagnostic robot

Spot<sup>®</sup>, a robot manufactured by Boston Dynamics, can be used for automated Eurobalise maintenance, diagnostics, and programming. This capability is enabled once the Q7-UPKE Programming Tool has been mounted on the robot's "head". Moreover, Spot's<sup>®</sup> ability to learn allows it to recognize Eurobalise in a track, approach it and place its "head" accordingly so the Q7-UPKE can make a proper connection. As all our Eurobalises (Q7-BL-FX/Q7-BL-TR) have a GPS module buit inside them, Spot<sup>®</sup> can detect them and navigate from one Eurobalise to another without operator's help. If the situation requires it, multiple Spot<sup>®</sup> robots can be dispached in order to collect the data from longer sections of the railway faster.



#### Installed systems utilizing components produced by Rail-Mil:



Selected case studies of systems utilizing Rail-Mil components:







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