

# Expansion module of the train protection system MIREL VZ1

## Type **STB**

illustrative picture

Functional interface MIREL STB is an equipment of the MIREL modular system. Basic function of the MIREL STB is to provide an interface between the train protection MIREL VZ1 central unit and the onboard unit ETCS (function shown in the table below as STM). This basic function is realized either by binary or serial interface.

Optionally there is an interface between the train protection MIREL VZ1 central unit and the vigilance control system (function shown in the table below as STB). This optional function is realized either by binary or serial interface.

The basic functions of the MIREL STB is to control the transitions between the active and passive modes of the train protection MIREL VZ1 based on the commands from on board unit ETCS and from vigilance control system.

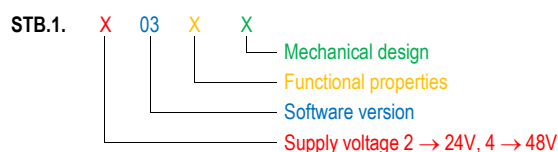


Overview and description of MIREL STB functions:

STM	Basic	function of controlling STM modes
STB	Optional	function of controlling vigilance modes
REC	Auxiliary	function of communication with recording devices
SPD	Auxiliary	function of transfer of data between DMI and MIREL VZ1 and MIREL RM1

These functions are available as a serial bus interface only.

### Nomenclature



### Modifications – mechanical design

Designation	Dimension W x H x D [mm]	Construction system	Assembly	IP rating <sup>1)</sup>	Weight (Max) [kg]	Holder ARMBBL
L	130 x 105 x 228	BOXTUG	left	IP40	1,7	no
P	130 x 105 x 228	BOXTUG	right	IP40	1,7	no
LN	130 x 105 x 228	BOXTUG	left	IP40	2,3	yes
PN	130 x 105 x 228	BOXTUG	right	IP40	2,3	yes
A	198 x 132 x 268	BOXU	not embedded	IP20 <sup>2)</sup>	2,2	no
B	198 x 132 x 303	BOXU	embedded	IP20 <sup>2)</sup>	2,4	no
U	129 x 132 x 227	BOXKOG	-	IP40	1,9	-

<sup>1)</sup> IP rating when connectors are assembled

<sup>2)</sup> possibility of increasing IP rating to IP30 according to document 1975M

## Modifications – functional properties

Designation	Binary interface functions	Option of binary interface <sup>2)</sup>	Serial interface functions			
			MVB	RS422	RS485	CAN
A <sup>3)</sup>	STM,STB	A	-	-	-	-
A1 <sup>3)</sup>	STM,STB	A	REC	-	-	-
B <sup>1)</sup>	STM,STB	B	-	-	-	-
C	STB	A	STM	-	-	-
D <sup>1)</sup>	STM,STB	B	-	SPD	SPD	-
E <sup>3)</sup>	-	-	STM,STB,REC	-	-	-
F <sup>3)</sup>	-	-	-	STM,STB	-	REC
G	STM	A	STB	-	-	-
H	STB	B	STM	-	-	-
J	STM	B	STB	-	-	-

<sup>1)</sup> modifications B and D are not available as BOXU

<sup>2)</sup> described in technical conditions doc. 1357VZ1

<sup>3)</sup> modification A, A1, E and F are also available in the BOXKOG construction system, see detail in prepared modification for new applications

## Modifications

Designation	Supply voltage [VDC] <sup>4)</sup>	Construction system	Assembly	Binary interface functions	Serial interface functions			
					MVB	RS422	RS485	CAN
STB.1.203AL	24	BOXTUG	left	STM,STB	-	-	-	-
STB.1.203ALN	24	BOXTUG	left	STM,STB	-	-	-	-
STB.1.203AP	24	BOXTUG	right	STM,STB	-	-	-	-
STB.1.203APN	24	BOXTUG	right	STM,STB	-	-	-	-
STB.1.203A1L	24	BOXTUG	left	STM,STB	REC	-	-	-
STB.1.203A1P	24	BOXTUG	right	STM,STB	REC	-	-	-
STB.1.203BL	24	BOXTUG	left	STM,STB	-	-	-	-
STB.1.203BP	24	BOXTUG	right	STM,STB	-	-	-	-
STB.1.203CL	24	BOXTUG	left	STB	STM	-	-	-
STB.1.203CLN	24	BOXTUG	left	STB	STM	-	-	-
STB.1.203CP	24	BOXTUG	right	STB	STM	-	-	-
STB.1.203CPN	24	BOXTUG	right	STB	STM	-	-	-
STB.1.203DL	24	BOXTUG	left	STM,STB	-	SPD	SPD	-
STB.1.203DP	24	BOXTUG	right	STM,STB	-	SPD	SPD	-
STB.1.203EL	24	BOXTUG	left	-	STM,STB,REC	-	-	-
STB.1.203EP	24	BOXTUG	right	-	STM,STB,REC	-	-	-
STB.1.203FL	24	BOXTUG	left	-	-	STM,STB	-	REC
STB.1.203FP	24	BOXTUG	right	-	-	STM,STB	-	REC
STB.1.203GL	24	BOXTUG	left	STM	STB	-	-	-
STB.1.203GP	24	BOXTUG	right	STM	STB	-	-	-
STB.1.203HL	24	BOXTUG	left	STB	STM	-	-	-
STB.1.203HP	24	BOXTUG	right	STB	STM	-	-	-
STB.1.203JL	24	BOXTUG	left	STM	STB	-	-	-
STB.1.203JP	24	BOXTUG	right	STM	STB	-	-	-
STB.1.403A1L	48	BOXTUG	left	STM,STB	REC	-	-	-
STB.1.403A1P	48	BOXTUG	right	STM,STB	REC	-	-	-
STB.1.403BL	48	BOXTUG	left	STM,STB	-	-	-	-
STB.1.403BP	48	BOXTUG	right	STM,STB	-	-	-	-

Designation	Supply voltage [VDC] <sup>4)</sup>	Construction system	Assembly	Binary interface functions	Serial interface functions			
					MVB	RS422	RS485	CAN
STB.1.403DP	48	BOXTUG	right	STM,STB	-	SPD	SPD	-
STB.1.403GL	48	BOXTUG	left	STM	STB	-	-	-
STB.1.403GP	48	BOXTUG	right	STM	STB	-	-	-
STB.1.403HL	48	BOXTUG	left	STB	STM	-	-	-
STB.1.403HP	48	BOXTUG	right	STB	STM	-	-	-
STB.1.403JL	48	BOXTUG	left	STM	STB	-	-	-
STB.1.403JP	48	BOXTUG	right	STM	STB	-	-	-

<sup>4)</sup> supply voltage is selected according to the nominal voltage for the basic MIREL VZ1 unit

#### Modifications not recommended for new applications

Designation	Supply voltage [VDC] <sup>4)</sup>	Construction system	Assembly	Binary Interface functions	Serial interface functions			
					MVB	RS422	RS485	CAN
STB.1.203A1A	24	BOXU	not embedded	STM,STB	REC	-	-	-
STB.1.203AA	24	BOXU	not embedded	STM,STB	-	-	-	-
STB.1.203AB	24	BOXU	embedded	STM,STB	-	-	-	-
STB.1.203A1B	24	BOXU	embedded	STM,STB	REC	-	-	-
STB.1.203CA	24	BOXU	not embedded	STB	STM	-	-	-
STB.1.203CB	24	BOXU	embedded	STB	STM	-	-	-
STB.1.203EA	24	BOXU	not embedded	-	STM,STB,REC	-	-	-
STB.1.203EB	24	BOXU	embedded	-	STM,STB,REC	-	-	-
STB.1.203FA	24	BOXU	not embedded	-	-	STM,STB	-	REC
STB.1.203FB	24	BOXU	embedded	-	-	STM,STB	-	REC
STB.1.203GA	24	BOXU	not embedded	STM	STB	-	-	-
STB.1.203GB	24	BOXU	embedded	STM	STB	-	-	-
STB.1.203HA	24	BOXU	not embedded	STB	STM	-	-	-
STB.1.203HB	24	BOXU	embedded	STB	STM	-	-	-
STB.1.203JA	24	BOXU	not embedded	STM	STB	-	-	-
STB.1.203JB	24	BOXU	embedded	STM	STB	-	-	-
STB.1.403AA	48	BOXU	not embedded	STM,STB	-	-	-	-
STB.1.403AB	48	BOXU	embedded	STM,STB	-	-	-	-
STB.1.403A1A	48	BOXU	not embedded	STM,STB	REC	-	-	-
STB.1.403A1B	48	BOXU	embedded	STM,STB	REC	-	-	-
STB.1.403CA	48	BOXU	not embedded	STB	STM	-	-	-
STB.1.403CB	48	BOXU	embedded	STB	STM	-	-	-
STB.1.403EA	48	BOXU	not embedded	-	STM,STB,REC	-	-	-
STB.1.403EB	48	BOXU	embedded	-	STM,STB,REC	-	-	-
STB.1.403FA	48	BOXU	not embedded	-	-	STM,STB	-	REC
STB.1.403FB	48	BOXU	embedded	-	-	STM,STB	-	REC
STB.1.403GA	48	BOXU	not embedded	STM	STB	-	-	-
STB.1.403GB	48	BOXU	embedded	STM	STB	-	-	-
STB.1.403HA	48	BOXU	not embedded	STB	STM	-	-	-
STB.1.403HB	48	BOXU	embedded	STB	STM	-	-	-
STB.1.403JA	48	BOXU	not embedded	STM	STB	-	-	-
STB.1.403JB	48	BOXU	embedded	STM	STB	-	-	-

## Modifications prepared for new applications

Designation	Supply voltage [VDC] <sup>4)</sup>	Construction system	Assembly	Binary interface functions	Serial interface functions			
					MVB	RS422	RS485	CAN
STB.1.203AU	24	BOXKOG	-	STM,STB	-	-	-	-
STB.1.203A1U	24	BOXKOG	-	STM,STB	REC	-	-	-
STB.1.203EU	24	BOXKOG	-	-	STM,STB,REC	-	-	-
STB.1.203FU	24	BOXKOG	-	-	-	STM,STB	-	REC
STB.1.403AU	48	BOXKOG	-	STM,STB	-	-	-	-
STB.1.403EU	48	BOXKOG	-	-	STM,STB,REC	-	-	-
STB.1.403FU	48	BOXKOG	-	-	-	STM,STB	-	REC

## Specifications

Number	Version	Title
257VZ1	190121	Technical conditions
1068M	170516	BOXTUG Installation conditions
1357VZ1	171107	MIREL STB Technical conditions
1975M	161208	BOXU.2 Installation conditions
2468M	180604	BOXKOG Installation conditions

## Usage

MIREL VZ1 – Automatic Train Protection System