

Functional interface MIREL STB of the train protection system MIREL VZ1

Type **STB**

Illustrative picture

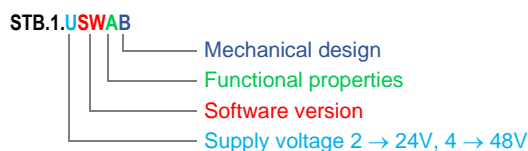
Functional interface MIREL STB is an equipment of the MIREL modular system. Basic function of the MIREL STB is to provide an interface between the train protection MIREL VZ1 central unit and the onboard unit ETCS (function STM). This basic function is realized either by binary or serial interface.

Optionally there is an interface between the train protection MIREL VZ1 central unit and the vigilance control system (function 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 national train protection MIREL VZ1 based on the commands from on board unit ETCS and from vigilance control system.



Nomenclature



Modifications

| Designation | Supply voltage [VDC] | Functional properties | Mechanical design | Notes |
|--------------|----------------------|-----------------------|-------------------|----------------|
| STB.1.203AL | 24 | A | L | 1), 2), 3), 4) |
| STB.1.203ALN | 24 | A | LN | 1), 2), 3), 4) |
| STB.1.203AP | 24 | A | P | 1), 2), 3), 4) |
| STB.1.203APN | 24 | A | PN | 1), 2), 3), 4) |
| STB.1.203BP | 24 | B | P | 1), 2), 3), 4) |
| STB.1.203CA | 24 | C | A | 4) |
| STB.1.203CL | 24 | C | L | 4) |
| STB.1.203CP | 24 | C | P | 4) |
| STB.1.203C1P | 24 | C1 | P | 4) |
| STB.1.203C2P | 24 | C2 | P | 4) |
| STB.1.203EL | 24 | E | L | 1), 2) |
| STB.1.403CP | 48 | C | P | 4) |

1) with software version v03, compilation 10 homologated in Hungary

2) with software version v03, compilation 12 homologated in Hungary

3) with software version v03, compilation 12 homologated in Slovakia and Czech Republic

4) with software version v03, compilation 13.13.12.13 homologated in Slovakia, Czech Republic and Hungary

Modifications prepared for new applications

| Designations | Supply voltage [VDC] | Functional properties | Mechanical design | Notes |
|--------------|----------------------|-----------------------|-------------------|-------|
| STB.1.203C0L | 24 | C0 | L | WF943 |
| STB.1.203C0P | 24 | C0 | P | WF994 |
| STB.1.203C1L | 24 | C1 | L | WF892 |
| STB.1.203C1U | 24 | C1 | U | WF892 |
| STB.1.203C2L | 24 | C2 | L | WF892 |
| STB.1.203C2U | 24 | C2 | U | WF892 |

| Designations | Supply voltage [VDC] | Functional properties | Mechanical design | Notes |
|---------------------|----------------------|-----------------------|-------------------|--------|
| STB.1.203FP | 24 | F | P | WF1016 |
| STB.1.203F1P | 24 | F1 | P | WF1016 |
| STB.1.403C1P | 48 | C1 | P | WF892 |

Mechanical design

| Designation | Dimensions [mm] W x H x D | Construction system | Assembly | IP rating ¹⁾ | Weight (Max) [kg] | Holder ARMBBL |
|-------------|------------------------------|---------------------|--------------|-------------------------|-------------------|---------------|
| L | 130 x 105 x 228 | BOXTUG | left | IP40 | 1,7 | – |
| P | 130 x 105 x 228 | BOXTUG | right | IP40 | 1,7 | – |
| LN | 130 x 105 x 228 | BOXTUG | left | IP40 | 2,3 | ✓ |
| PN | 130 x 105 x 228 | BOXTUG | right | IP40 | 2,3 | ✓ |
| A | 198 x 132 x 268 | BOXU ³⁾ | Not embedded | IP20 ²⁾ | 2,2 | – |
| B | 198 x 132 x 303 | BOXU ³⁾ | embedded | IP20 ²⁾ | 2,4 | – |
| U | 129 x 132 x 227 | BOXKOG | – | IP40 | 1,9 | – |

¹⁾ IP rating when connectors are assembled

²⁾ possibility of increasing IP to IP30 according to document 1975M

³⁾ modifications with functional properties **B** and **D** are not available in this construction system

Functional properties

| Designation | Binary interface version | Type of serial interface | Principal functions | Additional functions | Extending functions | Scope of use | | |
|-------------|--------------------------|--------------------------|---------------------|----------------------|---------------------|--------------|-----|-----|
| | | | | | | LS | EVM | SHP |
| A | A | – | ✓ | – | – | ✓ | ✓ | – |
| A1 | A | MVB | ✓ | ✓ | – | ✓ | ✓ | – |
| B | B | – | ✓ | – | – | ✓ | ✓ | – |
| C | C | MVB | ✓ | ✓ | – | ✓ | ✓ | ✓ |
| C0 | C | – | ✓ | – | – | ✓ | ✓ | ✓ |
| C1 | C | MVB ¹⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| C2 | C | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| C3 | C | MVB | ✓ | – | – | ✓ | ✓ | ✓ |
| D | B | RS422 / RS485 | ✓ | ✓ | – | ✓ | ✓ | – |
| E | – | MVB | ✓ | ✓ | – | ✓ | ✓ | ✓ |
| F | C | RS422 / CAN | ✓ | ✓ | – | ✓ | ✓ | ✓ |
| F1 | C | RS422 / CAN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

¹⁾ interface version 02 and higher

Overview of functions

| Group | ID functions | Description |
|------------------------------------|--------------|--|
| Principal functions | f_STM | Function of STM mode control |
| | f_STB | Function of vigilance supervision mode control |
| Additional functions ¹⁾ | f_COM-JRU | Function of communication with recording device |
| | f_COM-SPD | Function of data transfer between on-board terminal and/or MIREL systems |
| Extending functions ¹⁾ | f_MS | Interconnection of 2 MIREL STB ports in master / slave mode |

¹⁾ functions can be implemented solely by means of a serial interface

Binary interface version

| Version | Connector quantity and type | Ability to carry out functions | Permitted range of use |
|---------|-----------------------------|--------------------------------|------------------------|
| A | 1x D-SUB37 | f_STM and f_STB | LS, EVM |
| B | 2x D-SUB37 | f_STM and f_STB | LS, EVM |
| C | 1x D-SUB37 | f_STM and f_STB | LS, EVM, SHP |

Specification

Catalogue sheet was prepared based on the following specifications:

| Number | Version | Title |
|---------|---------|--------------------------------|
| 257VZ1 | 211203 | MIREL VZ1 Technical conditions |
| 1357VZ1 | 230316 | MIREL STB Technical conditions |
| 1068M | 170516 | BOXTUG Installation conditions |
| 1975M | 161208 | BOXU.2 Installation conditions |
| 2468M | 221122 | BOXKOG Installation conditions |

Usage

MIREL VZ1 – train protection

Modifications not recommended for new applications

| Designation | Supply voltage [VDC] | Functional properties | Mechanical design | Notes | Replacement |
|----------------------|----------------------|-----------------------|-------------------|-------|---------------------|
| STB.1. 203A1A | 24 | A1 | A | 3) | STB.1.203CA |
| STB.1. 203DP | 24 | D | P | 2) | without replacement |
| STB.1. 403DP | 48 | D | P | 1) | without replacement |

¹⁾ homologated in Slovakia

²⁾ only for the laboratory

³⁾ homologated in Hungary, homologation in process in Czech Republic and Slovakia

