

## Basic unit of the train protection MIREL VZ1

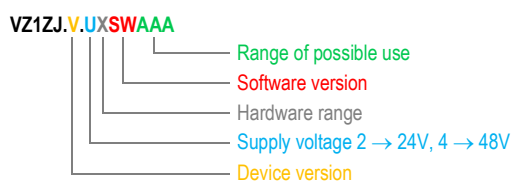
### Type **VZ1ZJ**

Illustrative picture

Basic unit represents the core of the automatic train protection system MIREL VZ1. It is designed as a dual-channel safety device that realizes most of all operational functions of the train protection. Basic unit runs the calculation of the safety algorithm, filtration and decoding of transmitted information from the track infrastructure, measurement of speed, passed track and moving direction, pressure scan in the main brake pipe, scanning and filtration of input binary signals, displaying the output signals of the train protection, self-diagnostics and diagnostic test.



#### Nomenclature



#### Modifications

| Designations      | Device version | Supply voltage [VDC] | Software version | Range of possible use | Hardware range | Notes          |
|-------------------|----------------|----------------------|------------------|-----------------------|----------------|----------------|
| VZ1ZJ.0.204CS     | 0              | 24                   | 04               | C,S                   | –              | 1), 2)         |
| VZ1ZJ.0.204H      | 0              | 24                   | 04               | H                     | –              | 3)             |
| VZ1ZJ.0.204H6     | 0              | 24                   | 04               | H6                    | –              | 3)             |
| VZ1ZJ.0.204CHS    | 0              | 24                   | 04               | C,H,S                 | –              | 1), 2), 3)     |
| VZ1ZJ.0.204CH6S   | 0              | 24                   | 04               | C,H6,S                | –              | 1), 2), 3)     |
| VZ1ZJ.0.204CPS    | 0              | 24                   | 04               | C,P,S                 | –              | 1), 2), 4)     |
| VZ1ZJ.0.204CES    | 0              | 24                   | 04               | C,E,S                 | –              | 1), 2)         |
| VZ1ZJ.0.204EH6    | 0              | 24                   | 04               | E,H6                  | –              | 3)             |
| VZ1ZJ.0.204CHPS   | 0              | 24                   | 04               | C,H,P,S               | –              | 1), 2), 3), 4) |
| VZ1ZJ.0.204CEHS   | 0              | 24                   | 04               | C,E,H,S               | –              | 1), 2), 3)     |
| VZ1ZJ.0.204CEH6S  | 0              | 24                   | 04               | C,E,H6,S              | –              | 1), 2), 3)     |
| VZ1ZJ.0.204CEPS   | 0              | 24                   | 04               | C,E,P,S               | –              | 1), 2), 4)     |
| VZ1ZJ.0.204CEH6PS | 0              | 24                   | 04               | C,E,H6,P,S            | –              | 1), 2), 3), 4) |
| VZ1ZJ.0.2S04CS    | 0              | 24                   | 04               | C,S                   | S              | 1)             |
| VZ1ZJ.0.404CS     | 0              | 48                   | 04               | C,S                   | –              | 1), 2)         |
| VZ1ZJ.0.404CHS    | 0              | 48                   | 04               | C,H,S                 | –              | 1), 2), 3)     |
| VZ1ZJ.0.404CPS    | 0              | 48                   | 04               | C,P,S                 | –              | 1), 2), 4)     |
| VZ1ZJ.0.404CHPS   | 0              | 48                   | 04               | C,H,P,S               | –              | 1), 2), 3), 4) |
| VZ1ZJ.0.404CEHS   | 0              | 48                   | 04               | C,E,H,S               | –              | 1), 2), 3)     |
| VZ1ZJ.0.4S04CS    | 0              | 48                   | 04               | C,S                   | S              | 1)             |

<sup>1)</sup> homologated in Slovakia

<sup>2)</sup> homologated in Czech Republic

<sup>3)</sup> homologated in Hungary

<sup>4)</sup> homologated in Poland

## Modifications prepared for new applications

| Designation         | Device version | Supply voltage [VDC] | Software version | Range of possible use | Hardware range | Notes  |
|---------------------|----------------|----------------------|------------------|-----------------------|----------------|--------|
| VZ1ZJ.1U.2R04CEH6S  | 1U             | 24                   | 04               | C,E,H6,S              | R              | WF892  |
| VZ1ZJ.1U.2R04CEH6PS | 1U             | 24                   | 04               | C,E,H6,P,S            | R              | WF892  |
| VZ1ZJ.1U.2R04CES    | 1U             | 24                   | 04               | C,E,S                 | R              | WF1018 |
| VZ1ZJ.1U.4R04CS     | 1U             | 48                   | 04               | C,S                   | R              | WF1000 |
| VZ1ZJ.1U.4R04CHS    | 1U             | 48                   | 04               | C,H,S                 | R              | WF1001 |
| VZ1ZJ.1U.4R04CES    | 1U             | 48                   | 04               | C,E,S                 | R              | WF959  |

## Device version

| Designation | Dimensions W x D x H [mm] | Construction system | Modification of construction system | Assembly | Coverage           | Weight [kg] |
|-------------|---------------------------|---------------------|-------------------------------------|----------|--------------------|-------------|
| 0           | 483 x 262 x 133           | BOX3U               | –                                   | –        | IP20 <sup>1)</sup> | 5,3         |
| 1U          | 132 x 227 x 129           | BOXKOG              | 17                                  | –        | IP40               | 1,9         |
| 1L          | 130 x 231 x 105           | BOXTUG              | 17A                                 | left     | IP40               | 1,6         |
| 1P          | 130 x 231 x 105           | BOXTUG              | 17A                                 | right    | IP40               | 1,6         |

<sup>1)</sup> possibility to increase protection to IP30 according to document 1975M

## Hardware range

| Designation | Description  |
|-------------|--|
| –           | basic design with infrastructure transmission without recording module   |
| D           | design with transmission from the infrastructure and a recording module with a removable storage medium            |
| J           | design with transmission from the infrastructure and a recording module within the scope of the legislative record |
| R           | version with transmission from infrastructure and recording module without removable storage medium                |
| S           | without transmission from the infrastructure   |

## Range of possible use

| Designation | Description                          |
|-------------|--------------------------------------|
| C           | national regime LS, Czech Republic   |
| E           | STM module of ETCS system            |
| H           | national regime EVM, Hungary         |
| H6          | national regime EVM 160km/h, Hungary |
| P           | national regime SHP+ČUVAK, Poland    |
| P1          | national regime SHP, Poland          |
| S           | national regime LS, Slovakia         |

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## Specifications

The Catalogue sheet was prepared on the basis of the following specifications:

| Number  | Version | Name                            |
|---------|---------|---------------------------------|
| 257VZ1  | 230721  | Technical conditions            |
| 1122VZ1 | 230802  | Installation manual             |
| 481M    | 230322  | Installation conditions         |
| 1068M   | 170516  | BOXTUG Installation conditions  |
| 2468M   | 230222  | BOXKOG Installation conditions  |
| 153VZ1  | 230726  | Operating manual                |
| 154VZ1  | 230726  | Maintenance manual, diagnostics |

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## Usage

MIREL VZ1 – train protection

## Modifications not recommend for new applications

| Designation     | Supply voltage [VDC] | Software version | Range of possible use | Hardware range | Notes          | Replacement                   |
|-----------------|----------------------|------------------|-----------------------|----------------|----------------|-------------------------------|
| VZ1ZJ.0.202CS   | 24                   | 02               | C,S                   | –              | 1), 2)         | VZ1ZJ.0.204CS <sup>5)</sup>   |
| VZ1ZJ.0.2S02CS  | 24                   | 02               | C,S                   | S              | 1)             | VZ1ZJ.0.2S04CS <sup>5)</sup>  |
| VZ1ZJ.0.402CS   | 48                   | 02               | C,S                   | –              | 1)             | VZ1ZJ.0.404CS <sup>5)</sup>   |
| VZ1ZJ.0.4S02CS  | 48                   | 02               | C,S                   | S              | 1)             | VZ1ZJ.0.2S04CS <sup>5)</sup>  |
| VZ1ZJ.0.203CS   | 24                   | 03               | C,S                   | –              | 1), 2)         | VZ1ZJ.0.204CS <sup>5)</sup>   |
| VZ1ZJ.0.203CPS  | 24                   | 03               | C,P,S                 | –              | 1), 2), 4)     | VZ1ZJ.0.204CPS <sup>5)</sup>  |
| VZ1ZJ.0.203H    | 24                   | 03               | H                     | –              | 3)             | VZ1ZJ.0.204H <sup>5)</sup>    |
| VZ1ZJ.0.203CHS  | 24                   | 03               | C,H,S                 | –              | 1), 2), 3)     | VZ1ZJ.0.204CHS <sup>5)</sup>  |
| VZ1ZJ.0.203CH6S | 24                   | 03               | C,H6,S                | –              | 1), 2), 3)     | VZ1ZJ.0.204CH6S <sup>5)</sup> |
| VZ1ZJ.0.203CHPS | 24                   | 03               | C,H,P,S               | –              | 1), 2), 3), 4) | VZ1ZJ.0.204CHPS <sup>5)</sup> |
| VZ1ZJ.0.2S03CS  | 24                   | 03               | C,S                   | S              | 1)             | VZ1ZJ.0.2S04CS <sup>5)</sup>  |
| VZ1ZJ.0.403CS   | 48                   | 03               | C,S                   | –              | 1), 2)         | VZ1ZJ.0.404CS <sup>5)</sup>   |
| VZ1ZJ.0.403CPS  | 48                   | 03               | C,P,S                 | –              | 1), 2), 4)     | VZ1ZJ.0.404CPS <sup>5)</sup>  |
| VZ1ZJ.0.403CHS  | 48                   | 03               | C,H,S                 | –              | 1), 2), 3)     | VZ1ZJ.0.404CHS <sup>5)</sup>  |
| VZ1ZJ.0.4S03CS  | 48                   | 03               | C,S                   | S              | 1)             | VZ1ZJ.0.4S04CS <sup>5)</sup>  |

<sup>1)</sup> homologated in Slovakia

<sup>2)</sup> homologated in Czech Republic

<sup>3)</sup> homologated in Hungary

<sup>4)</sup> homologated in Poland

<sup>5)</sup> replacement with limitation