



Connecting Technologies

GEAR SELECTOR



Description

The selector is intended for use on vehicles with various types of transmission control systems: mechanical, hydromechanical, hydrostatic, electro-mechanical. Depending on the type of transmission and customer requirements, the selector can have a different number of lever positions (up to 7), additional buttons and indicators on the front panel.

The selector can be used as an independent device to control over the transmission (it combines the functions of a direct operating mode selector and an electronic transmission control unit). Also, the selector can be used as a part of additional electronic transmission control unit expanding its functionality.

The number of electrical signals (inputs) processed and generated by the selector can be adapted to the tasks and requirements of the customer (the selector can have one or two electrical connectors with 18 and 21 contacts, respectively). The maximum number of outputs, intended to control over various devices is 12. Counter inputs for rotational speed sensors – 4. Inputs for current output sensors – 2. Inputs for voltage output sensors (analog or discrete) – 5. Inputs for resistive temperature sensors – 1). To connect an additional electronic transmission control unit and other electronic units of the vehicle, the selector supports CAN interface (J1939 protocol).

Usually, the selector lever includes four main positions: "F" (or D) - forward movement, "N" - neutral, "R" - reverse, "P" - parking brake. Also, positions "+" and "-" can be added, intended to change the current gear when an automatic transmission is operating in manual mode.

All lever position indicators are two-color backlit with controllable brightness levels. The position in which the selector lever is located is highlighted in specific color and brightness level, when the rest of the positions are backlit in a different color.

It is possible to install up to four control buttons at the front panel. Usually, the "MODE" button is used to select a transmission mode of operation. Also, control buttons can be used for disabling the transmission and/or the cruise control function, limiting the upper gear, etc. If necessary, LED indicators can be added on the front panel (the requirement to press the service brake to move the lever from the "P" position, selected transmission modes automatic/manual, etc.), as well as a symbolic or LCD display.

Key features

- The lever position control is based on Hall sensors, which ensure high reliability of the selector.
- Possibility to lock the selector lever in certain positions. In this case, to move the lever to other positions, it is necessary to perform certain actions (press the brake pedal, the button on the selector handle, etc.).
- Design of the selector provides a custom number of lever positions suitable for different transmissions, number of connected electrical signals and devices, as well as indicators and buttons on the front panel.

Selector operation

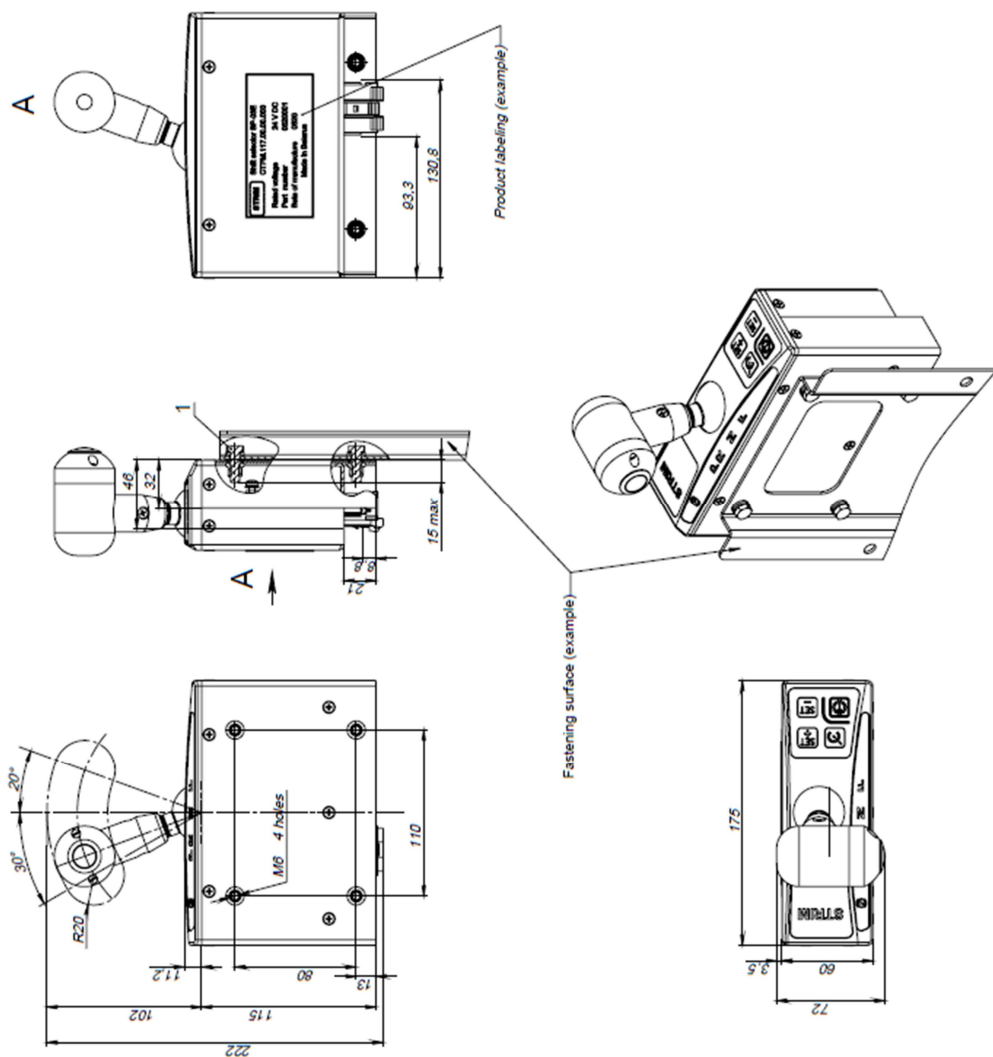
Commonly, the following order of operation of the selector is implemented. With the selector lever in the "P" position, device activates the electrically controlled transmission brake to hold the vehicle in place. In this position, the selector lever is locked to prevent accidental movement. To disengage the transmission brake and start driving, the driver must first press the main brake pedal, then release the parking brake and press the button on the selector handle. The selector microcontroller, having received signals about the fulfillment of the requirements, unlocks the lever and allows the driver to move it to the "F" (D) or "R" position. In these positions, the selector generates a signal, turning on the necessary transmission controls to ensure forward or reverse movement, or transmits via CAN (J1939) a message to other electronic units indicating the need to engage the required gear. Switch from the positions "F" (D), "R" and "N" can be performed both with the requirement to press the main brake pedal and / or the button on the selector lever handle, or without it, depending on the wishes of the customer.

Specifications and operating conditions

Parameter name	Value
General	
Operating supply voltage range, V	18- 32
Number of CAN (CAN 2.0B according to ISO11898)	1
CAN Protocol	SAE J1939
Input	
Total number of inputs	12
Number of discrete/counter inputs	4
Maximum frequency of counter inputs, kHz	10

Parameter name	Value
Number of analog current inputs	2
Measured current range, mA	0-20
Number of discrete inputs (voltage)	5
Maximum input voltage, V	50
Number of resistive sensors inputs	1
Measured resistance range, kOhm	0.1-5
Power output	
Number of power outputs designed to control external devices	12
Maximum continuous current of power outputs, A	2
Selector operating conditions	
Ambient temperature, °C	-40...+65
High relative humidity at 35 °C, %	80
Atmospheric pressure, mmHg	630...800

Dimensions



Device connector

