

The panel is designed to control operation of 24V Direct Current motor in automatic gate installation in which opposite motor rotation (gate movement) is achieved by reverse of power supply polarity. Below listed are features of the STB24VM1 panel:

- **highest security KEELOQ® dynamic code** with the use of key-fob hand transmitters,
- superheterodyne receiver allowing better signal selectivity as well as better operation range with up to 112 Elmes electronic made hand transmitters,
- **motor soft start and stop function** guaranteeing protection against mechanical overload thus extending operation life of the gate,
- mechanical tension reduction by short pulsing the motor in reverse direction,
- motor sensitivity to overload level adjustable in both movement directions of the gate,
- parking mode of operation with hand transmitter command opening gate only,
- terminals for installation of NC (normally closed) type photo cell,
- terminals for connection of end of line (EOL) contacts type NC (normally closed) or NO (normally opened),
- terminals for installation of flashing warning lamp or courtesy lamp,
- **functions extending operation security of automatic gate.**

**Operation modes and functions** of the control panel are selected by jumpers JP1...JP11, where CLOSE meaning jumper shorted.

**JP1 – gate’s lamp functioning:**

CLOSE – warning lamp, flashing at gate’s movement – slower in opening direction and faster in closing direction,  
 OPEN – courtesy lamp lighting continuously at gate’s movement;

Functioning of the gate’s lamp depends on selection made by JP1 and JP2:

Gate’s auto closing	Warning lamp: JP1 – CLOSE	Courtesy lamp: JP1 – OPEN
Set ON: JP2 – OPEN	opening-slow flashing, PAUSE-lights cont., end of PAUSE –slow flashing, gate’s closing–flashing fast, gate’s closed–lamp off	Lamp lights at gate movement, at PAUSE and 60s after gate stop
Set OFF: JP2 – CLOSE	opening – slow flashing, closing – flashing fast, on gate’s stop lights for programmed time span	Lamp lights at gate’s movement and after gate’s stop at time equal to PAUSE time

**JP2 – automatic gate closure.** After gate opening PAUSE time starts and the gate will automatically close on pause time lapse. Functioning of the control panel in PAUSE time depends on settings made with jumpers JP3 and JP4.

CLOSE - auto closure off – after opening the gate’s panel is awaiting signal command to close from hand transmitter or WR switch,  
 OPEN - auto closure on – after gate opening PAUSE time starts and the gate will automatically close on pause time lapse.

**JP3 – parking mode of operation.**

CLOSE - standard mode: hand transmitter or WR switch commands consecutive open-stop-close-stop-open... operation of gate;  
 OPEN - parking mode: hand transmitter or WR switch commands opening of gate only. Command made at gate closed will start opening. Command made at gate opening would have no reaction. Command made at PAUSE would repeat the pause time. Command made at gate’s closing would stop the gate and start opening. This mode requires gate’s auto close function set off (JP2 – OPEN).

**JP4 – response mode to photo cell signaling at PAUSE.** Photo cell signaling at gate’s opening would have no response from control panel while signaling at gate’s closing would reverse movement and open the gate. At PAUSE time (with auto close function on) signal from photo cell would stop pause time count. With photo cell signal disappearance, the control unit response would depend on JP4 settings:

CLOSE – PAUSE time count will restart,  
 OPEN – the gate will close after 5 seconds.

**JP5 - define EOL contacts type:**

CLOSE - EOL contacts NO (normally open) type,  
 OPEN - EOL contacts NC (normally closed) type.



**JP6 – gate’s soft stop.** Gate’s stop commanded by EOL contact, hand transmitter or photo cell is preceded by motor’s 1-2s slowdown movement. See also JP-11 for gate movement dependence on type of used EOL contacts.

CLOSE – function set OFF  
 OPEN – function set ON

**JP7 – slowdown rotation timing at EOL.**

CLOSE - ca 1 second; OPEN - ca 2 seconds.

**JP8 – soft start.** With this function set on gate’s start is accelerated in one second time span protecting against violent pull out.

CLOSE - soft start off; OPEN – soft start on.

**JP9 – mechanical tension loosening** - is obtained by applied short pulse command in opening direction, after closing the gate.

CLOSE - set off; OPEN – set on.

**JP10 – Reaction to overload.** Potentiometers marked „OTWIER.” (OPEN) and „ZAMYK.” (CLOSE) installed on controller’s board adjust overload detection sensitivity level in both directions of gate’s movement. The sensitivity should be practically adjusted at gate’s installation to level protecting humans or objects that may collide with moving gate against personal injury or damage. Too sensitive level may stop and reverse gate’s movement even at slightest obstruction on gate’s way such as snow. Jumper JP10 defines the way panel reacts to overload:

CLOSE – detected overload at closing would fully open the gate while at opening would reverse to close direction for 1 second.  
 OPEN – detected overload stops the moving gate only.

**JP11 – type of used EOL contacts.** If gate’s soft stop function is selected (JP6 - OPEN) then, after EOL is detected, gate starts slow down movement lasting 1-2 seconds with possible situations, as described below.

**If magnetic type EOL contacts are used** then gate may move beyond EOL detector (see next page figure) or, even move to or bypass reverse movement EOL contact. The controller memorises last position of gate even on power supply cutoff (opened, partly opened or closed). In the case of no power supply, the user must remember to manually close manually opened gate or, at least, leave it mid-opened allowing minimum 4 seconds motor movement on power return. Otherwise, if the gate is manually left opened, the gate remembers its last closed position and starting open movement on transmitter command after power supply return may cause power overload or mechanical failure. **IMPORTANT!** Position gate in mid-way on first movement after controller installation.

**If mechanical type EOL contacts are used** then the problem with bypassed EOL contacts does not occur. Contacts state precisely define gate’s current position so, if on power supply cut-off, the gate is manually opened and left opened, then it will close on transmitter’s command after power supply return.

CLOSE - EOL mechanical contacts.  
 OPEN - EOL magnetic contacts.

## PROGRAMMING PROCEDURES

### 1. Learning transmitter(s) to controller's memory – maximum 112:

- a) press control unit **PRG** switch for less than 2 seconds (PRG LED lights on),
- b) press transmitter button - LED in controller switches off,
- c) press again the same transmitter's button – blinking controller LED confirms end of procedure.

### 2. Programming motor rotation time and PAUSE time: this procedure can be performed with transmitter learned to controller's memory or using wall switch connected to WR input.

- a) press control unit **PRG** switch for more than 2 and less than 8 seconds (PRG LED lights on). Releasing the switch PRG LED sets off,
- b) press any hand transmitter button or wired wall switch ( LED lights on) to start motor rotation,
- c) after required motor rotation time has lapsed (max. 60 minutes) press the transmitter button or WR switch again - motor stops, courtesy lamp will switch on,
- d) after required PAUSE time has lapsed press transmitter button or WR switch again - the lamp switches off and the controller's LED starts blinking confirming end of the procedure.

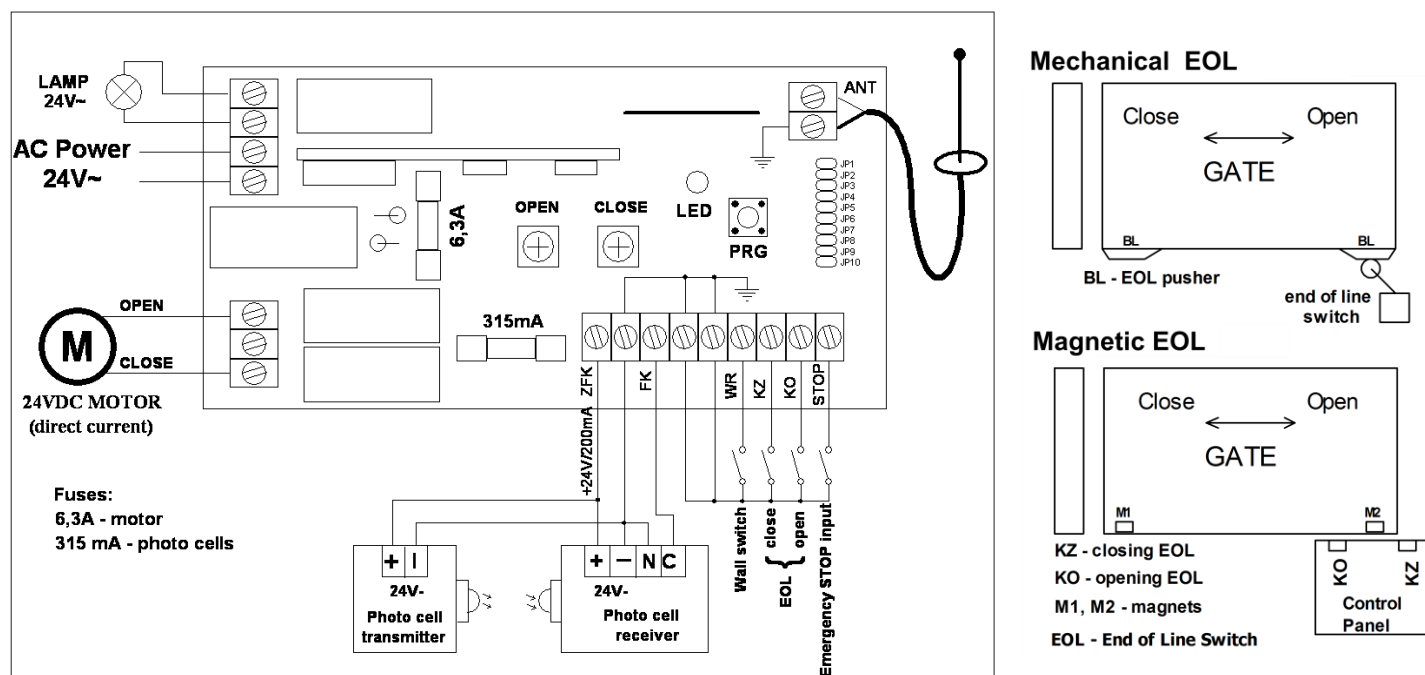
### 3. Deleting all transmitters from control unit memory (procedure performed when transmitter is stolen or lost):

press controller's **PRG** switch (PRG LED lights on) and hold pressed for more than 8 seconds, until the LED starts blinking confirming end of the procedure. Transmitter memory in the controller is cleared while programmed timings remain unchanged.

**Installation:** The control panel should be installed inside protective case to avoid direct exposure to harsh environmental conditions and electric interference. Connection of wires should be conducted from downwards of the case to avoid possible water flow to the controller board. External antenna may be connected to the controller by coaxial cable as shown on connection diagram below. Simple wire antenna, as delivered with the controller, can also be used, however practical operating range of hand transmitters may be reduced.

**Installation of the controller should be made with power supply OFF and according to schematic diagram below.**

If photo cells are not used, connection terminals 2 and 3 (counted from the left) must be shorted.



### Specification

- control panel supply 24VAC with max. 100 mA idle current draw, motor 6,3A fused,
- courtesy/warning lamp 40W max., photo cell supply output 24VDC 240mA max., motor operating time 1s...60min.,
- regulated overload sensitivity level 2...7,5A, PAUSE time or lamp ON after motor stops programmable 1...255 seconds,
- external dimensions (l/w/h) 140/75/30 mm, operating temperature range: from -20°C to +55°Celsius.

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Elmes Electronic declares that the product has been manufactured and tested to comply with the following standards:  
 EN 60950-1 :2001 electric safety, EN 301 489-1 V1.4.1 (2002-08) EMC for radio equipment, EN 301 489-3 V1.2.1 (2002-08) EMC for Short Range Devices, EN 300 220-3 V1.1.1 (2000-09) EMC and Radio Spectrum Matters.

### Manufacturer's Limited Warranty

Elmes Electronic remote control sets carry one-year manufacturer's warranty as from date of purchase. The warranty is limited to the replacement of faulty original parts or repair defects of improper manufacture. Damage, faulty use or improper handling by the user or installer as well as any changes in product's hardware or software caused by the user viodates the warranty and all due repair costs will be charged. Elmes Electronic shall not be responsible for any direct or indirect personal or material damage caused by its products failure to operate correctly.

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