

DESCRIPTION

MAP is a single axis electronic joystick with PWM outputs, able to directly control a couple of solenoid valves with PWM outputs proportional to handle movements.

Joystick commands are derived from the measurement of the magnetic field produced by permanent magnets; the measurement is taken through Hall effect probes. This kind of probes are not subject to wear and tear.

Main characteristics:

- one proportional section (A+B) direct control (2 PWM outputs);
- adjustable minimum/maximum current for each directions (A+B);
- adjustable rise/fall timeramp from 0.1 to 5 seconds;
- adjustable PWM frequency to 70 to 350 Hz;
- "position hold" hand-grip available;
- rocker switch (unstable) on the hand-grip available;
- "in progress manoeuvre" on/off output;
- extractable connector with screw.



TECHNICAL SPECIFICATIONS

Power Supply Voltage	10 ÷ 28 Vcc
Working Temperature Range	-20 ÷ +50 °C
PWM Output Minimum Current	from 100 to 2500 mA (200 mA preset)
PWM Output Maximum Current	from 100 to 2500 mA (800 mA preset)
PWM Frequencies	from 70 to 350 Hz (120 Hz preset)
ON/OFF Output Maximum Current	500 mA
Connections	Extractable conn. with screw (1.5 mm ² max section)
Working Angle	± 26 degrees
Force on handle at stroke end	20 N
Ingress Protection Rating	IP55 (mounting screws must be sealed apart)
Ingress Protection Rating (over mounting flange)	IP66 / IP65 (simple knob / handgrip with rocker switch)

WORKING MODE

MAP magnetic joystick is designed to directly control two proportional solenoid valves (one section of an electrically controlled hydraulic distributor). The PWM command of the coils is feedback controlled, in order to guarantee the current stability independently to external factors (power supply voltage, coil temperature, ...).

The frequency of the PWM outputs is preset to 120 Hz and is adjustable from 50Hz to 350 Hz.

The electronic card inside the joystick is protected against power supply inversion and output short-circuits.

The MAP joystick is preset for a 24 V power supply voltage, with 200 mA minimum current and 800 mA maximum current. Fall and rise timeramps are preset to zero.

It can be necessary to modify the original preset values, in order to achieve better performances of the joystick in various applications (with different supply voltages or with different kind of proportional solenoid valves).

Trimming potentiometers for regulation of currents, ramps and PWM frequency are placed on the bottom panel and are reachable through the holes in the panel. The regulation of the PWM frequency has to be done only by expert users by proper tools.

CONFIGURATION

Through the internal jumpers it is possible to change the output configuration:

SR version (standard)

When joystick is in neutral position, both coils are off. When the joystick is pushed forward, the "A" coil is controlled; when it is pulled backward, the "B" coil is controlled. Coil not controlled remains off.

AR version

When joystick is in neutral position, the two coils are polarized with their minimum current. When one of the coils is controlled, the other coil is switched off.

SA version

When joystick is in neutral position, the two coils are polarized with their minimum current. When one of the coils is controlled, the other coil remains polarized with its minimum current.

SIGNALLING

Two LED are visible from the bottom panel.

When the joystick is moved, the LED corresponding to the activated direction is switched on.

CURRENT REGULATION

To obtain the best performances from the solenoid valve it is necessary to adjust the minimum current through the trimming potentiometers, in order to have the valve on its aperture edge as soon as the red LED switches on.

The maximum current trimming potentiometer has to be adjusted in order to have the valve completely open only when the joystick is at the end of its mechanical stroke.

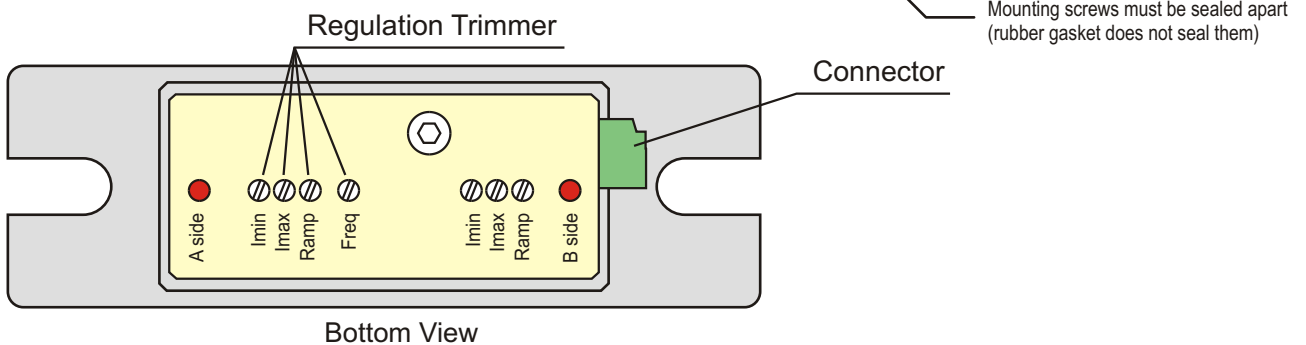
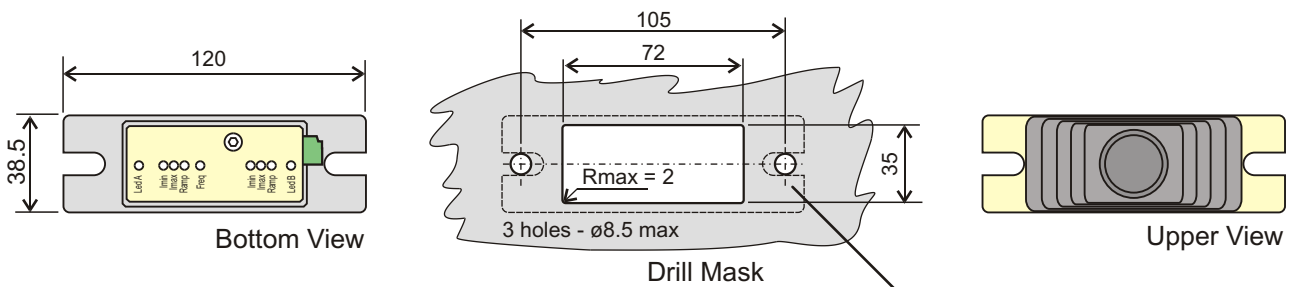
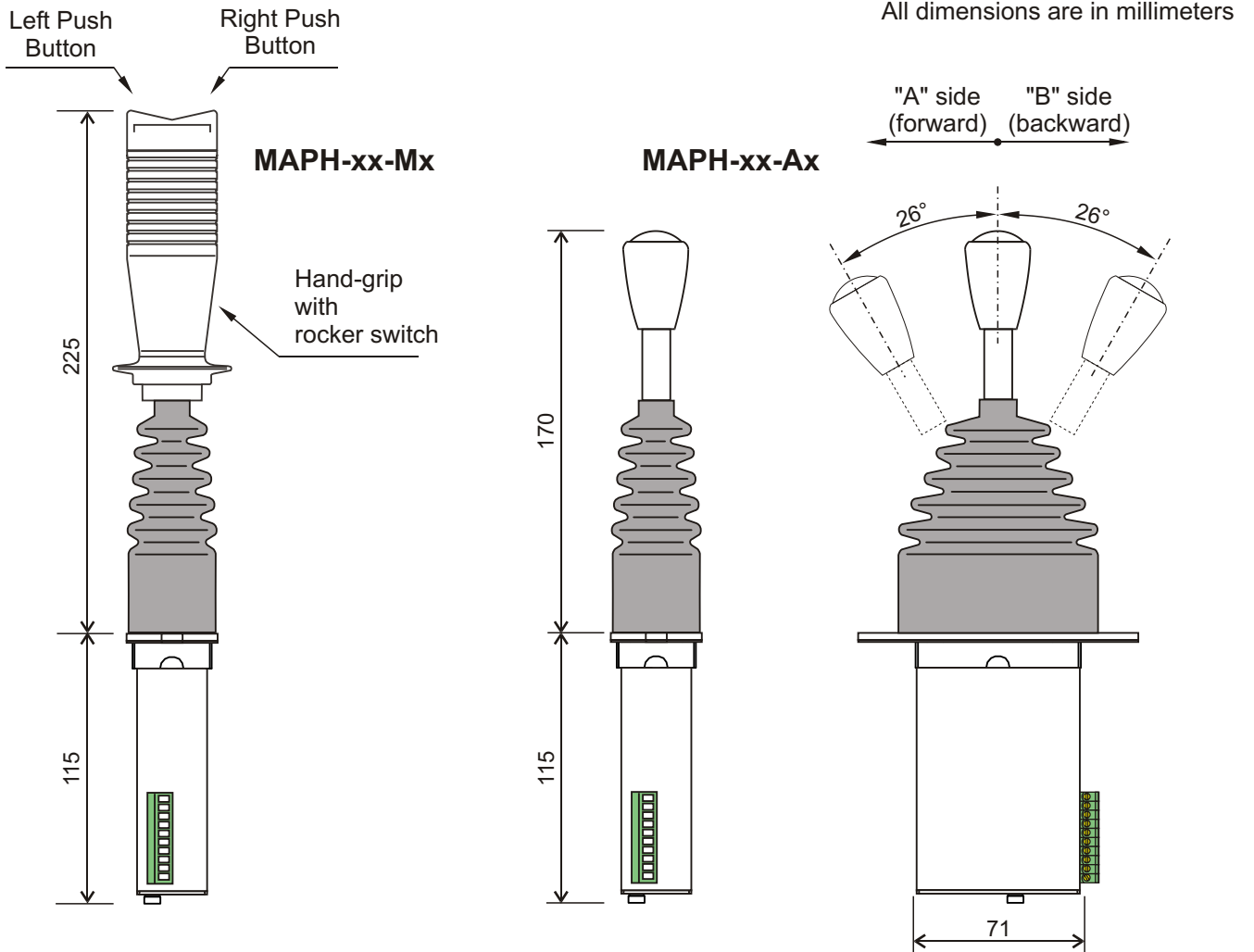
ATTENTION: *I_{min}* and *I_{max}* regulations are interdependent; after the regulation of the *I_{min}*, it can be necessary to adjust the *I_{max}* and vice versa.

TIMERAMP REGULATION

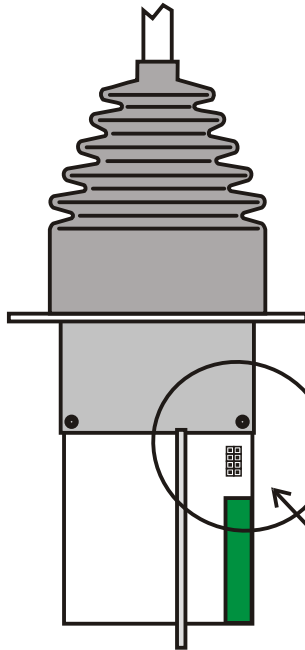
MAP joystick have just one trimming potentiometer for rise and fall timeramps regulation. The ramp is adjustable from 0.1 a to 5 seconds.

ATTENTION: the fall timeramp is always cut off when the joystick returns in neutral position or is moved in the opposite direction. To avoid this behaviour, it is necessary to configure the MAP joystick as SA version.

DIMENSIONS



OUTPUT CONFIGURATION



The choice of the right output configuration is a duty of the joystick user who has to know the consequences of its choices on the actual application.

The only manufacturer advice is about the ramp use: every time a coil is switched off, the related ramp is cut off. For a complete use of the rise/fall ramps, the SA configuration is recommended.

Configuration Jumpers

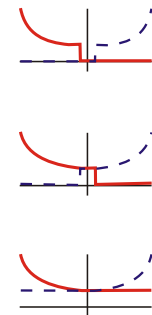


CODIFICATION

MAPH - xx - xx

- R = With spring return
- F = Position Hold
- A = Simple knob
- M = Hand-grip with rocker switch

- SR = Coils are OFF at neutral position (only the active coil is on)
- AR = Coils are ON at neutral position (only the active coil is off)
- SA = Coils are always ON (the non-active coil is polarized at minimum current)



CONNECTION OUTLINE

