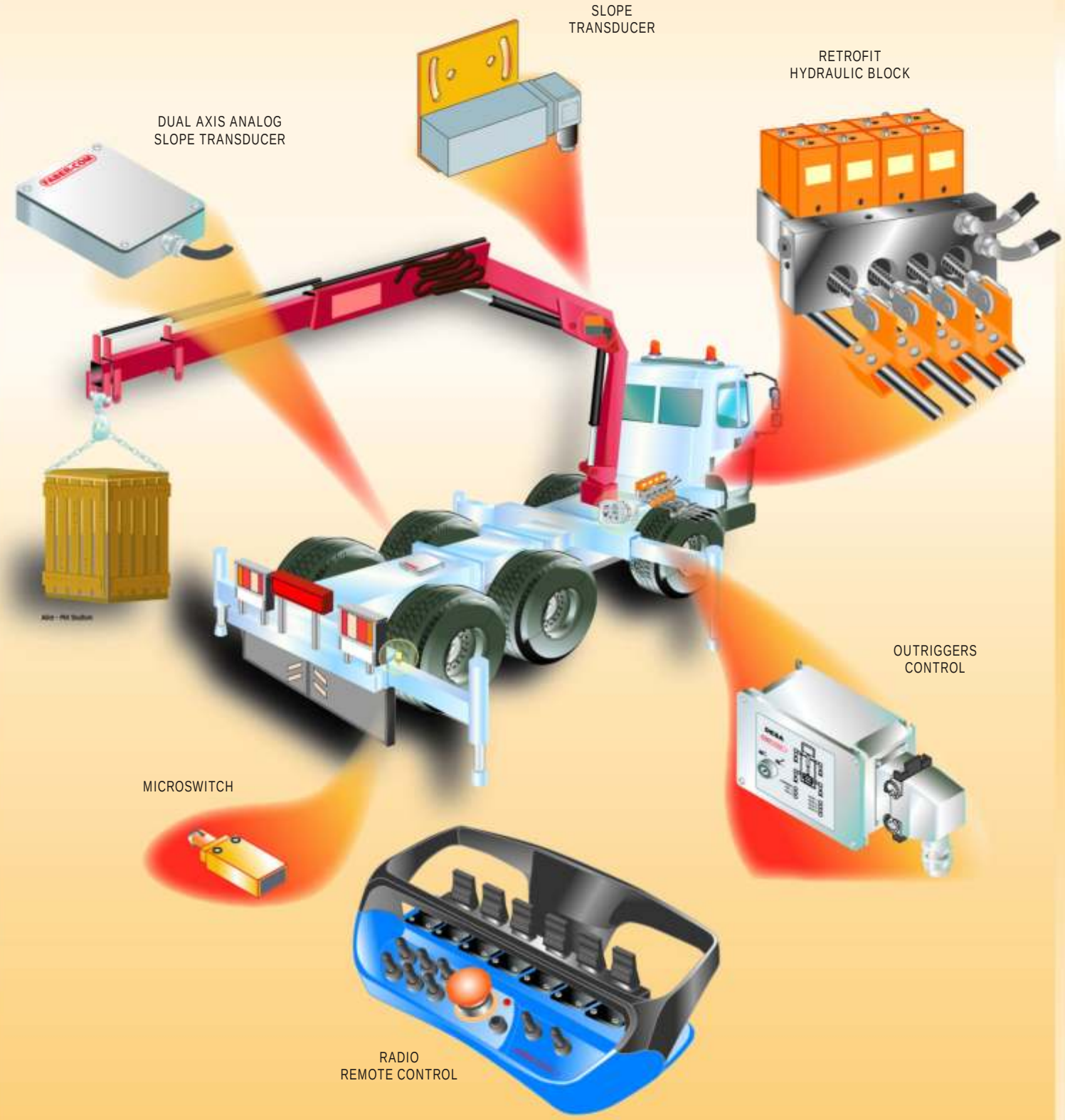
FABERCOM

L'ELETTRONICA AI VOSTRI COMANDI
ELECTRONICS IN YOUR HANDS



About us

FABER-COM s.r.l. is born in the 1989 with the name of Faber Elettronica s.n.c. from the will of the two founding associates. Then it has been transformed in limited liability company in February 1995 assuming the current name.

With beyond 17 years of experience, we are reference point in the field of the electronics applied to the hydraulics.

The main activities of the company can be summarized in:

1) production and sale of cable remote controls and radio remote controls for hydraulic systems, in particular for crane mounted on truck;

2) production and sale of the electronic and hydraulic accessories for the above systems;

3) planning and production of customized electronic and hydraulic control systems for general machines.

The company serves mainly the Italian market but its net of sale is always increasing also into European and Worldwide markets; the objective is to develop relationships of collaboration with customers for a long time.

Our products are characterized from the constant research of innovative solutions, from the use of high technologies and long life reliable materials, endure rigorous controls with continued tests under heavy conditions of stress, are built following the most recent European emergency standards and currently they are used by a lot of companies in the world.

FABER-COM offers to the customer a qualified, efficient and express service, from the telephone support to the direct visit to the customer. The customer satisfaction is considered one of the priority factors of our company policy and for this a lot of energies become invested in order to increase continuously the competence of our staff.

FABERCOM

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Where we are

The company is located in a big building of Poviglio, town of Reggio Emilia (Italy).

Index

RC400 Scanreco radio remote control

RC400 is a radio remote control system, produced by SCANRECO AB and distributed by FABER-COM s.r.l., used to control hydraulic machines.

Extremely easy to use, safe, fast and precise; its electronic core, based on advanced microprocessor technology, is highly configurable.

All parts are protected against electro-magnetic and radio frequency radiation and can be used in the most demanding and roughest environments, for cranes, platforms, power stations, oil platforms and also specific applications.

SAFETY:

Each radio remote control use an unique ID code (identity code). This means that only the correct portable unit can activate and control the matching receiver.

For maximum safety the receiver has double processors to enable comparison and checking of data signals. The receiver includes an automatic emergency stop system that deactivate all crane functions when received data signals are not verified.

INCLUDED PARTS:

- Central unit (CU) with proportional outputs, dump valve, blinking light and pump unit cables;
- Receiver (RX);
- Portable control unit (PCU);
- Battery charger with 2 Ni-Cd batteries;
- Serial cable for no-radio use and programming;
- EX cable for ON/OFF outputs;
- Emergency stop button;
- Belt;
- User manual and certificates.

MAIN FEATURES:

- works with most of proportional solenoid valves of the market (Hawe, Danfoss, etc.);
- enable only the outputs selected by the operator (high reliability of service, less system wear and prevention of unwanted manoeuvres);
- outputs drove by power transistors;
- customized control box configuration;
- independent and distinguished programming of the speeds for CRANE mode and PLATFORM mode;
- available with linear or cross joysticks;
- available with display panel for additional informations.

Technical specifications			
Power supply	*12Vdc - 24Vdc*	PCU dimensions (mm)	*360 x 210 x 150*
Available commands	*Up to 8 functions*	Protection class	*IP65 (CU and RX), IP55 (PCU)*
Outputs type	*Transistor*	Available blocks	*MOD06, IT028*

MOD06 Proportional hydraulic PWM module

The MOD06 is a bank of modular hydraulic pistons electrically driven (by a couple of proportional solenoids) with mechanical feedback.

A high reliability is obtained because of the high technology production process and sophisticated design.

Allows to the user to transform an hydraulic mechanical distributor to a cable or radio remote controlled distributor. It can be coupled with any type of hydraulic mechanical distributor.

Main features:

- CURRENT commanded (PWM);
- designed in modular form;
- easy change of number of functions;
- faster maintenance operations;
- easy to install;
- mechanic feedback.

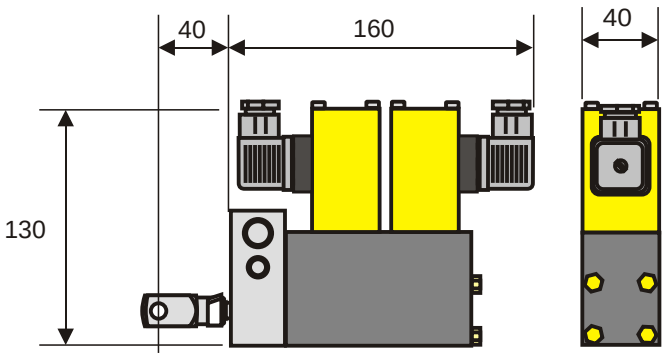
TECHNICAL DATA SHEET (single module)

ELECTRICAL SPECIFICATIONS

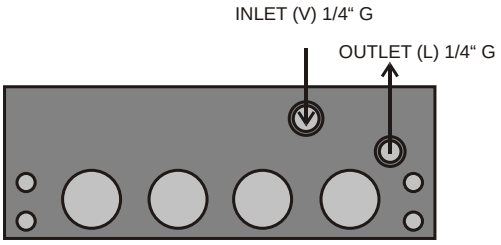
Power supply voltage:	12 or 24Vdc
Working current range:	0.6 ÷ 1.9 A (at 12V)
Working current range:	0.3 ÷ 0.85 A (at 24V)
Working room temperature:	-20 ÷ +60 ºC

MECHANICAL AND HYDRAULIC SPECIFICATIONS

Max working pressure:	30 bar
Fluid type:	Mineral oil
Max. thrust:	1300 N (at 30 bar)
Weight (single module):	1.6 kg (approx.)
Mechanical stroke:	± 13 mm standard
	± 20 mm with leverage system
Overall dimensions:	see picture



One section
overall dimensions (mm)



Available manifolds :

Functions	*Interaxis*		
4	40	46	50
6	40	46	50
8	40	46	50

IT028

Proportional block for servo-controlled hydraulic machines

The proportional block **IT028** can be used with a remote control to drive servo controlled hydraulic machines.

Look at it as a good alternative to add to the control system currently installed on the machine (ex. hydraulic joysticks on the driver's cab).

A variation of the command current (PWM) of the coils of the block changes proportionally its flow, moving the machine hydraulic distributor.

Since the driver's cab joysticks of the machine are no more, the driver can move himself near the machine working field (ex. to verify that the work is done correctly) or far from it increasing his safety.

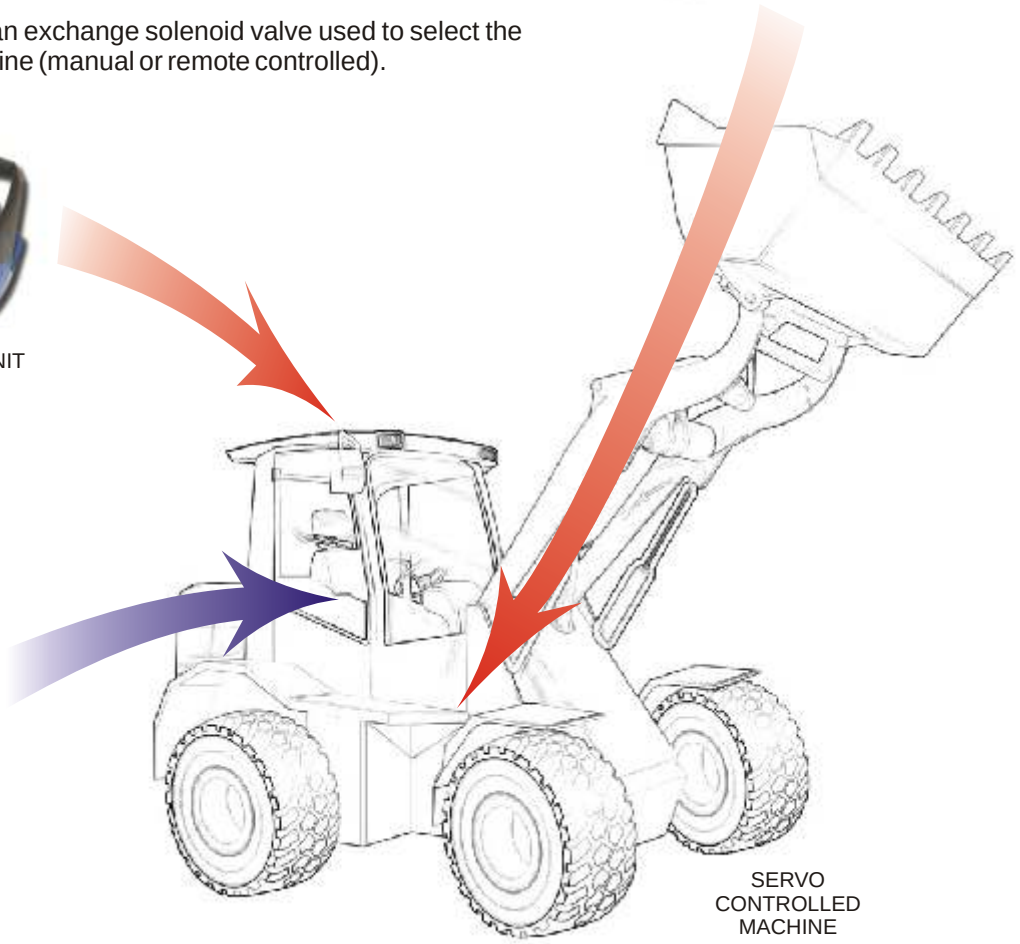
It has been designed in modular form allowing the assembly of sections up to 8 functions.

On request it is available an exchange solenoid valve used to select the working mode of the machine (manual or remote controlled).

HYDRAULIC BLOCK
(to remote control)

PORTABLE CONTROLLER UNIT
(to remote control)

HYDRAULIC JOYSTICKS
(to control from driver's cab)



SERVO CONTROLLED MACHINE

Technical specifications			
Power supply	*12V or 24V DC (+/- 10%)*	Coils resistance	*12V=5.1Ohm 24V=20.4Ohm*
Max pressure	*38 bar*	Hysteresis	*5%*
Max flow	*2 L/min*	Protection class	*IP65*
Max current	*12V=1.4A 24V=0.7A*	Weight	*2,5 Kg (single section)*
Frequency	*120 Hz*	Dimensions (mm)	*40 x 150 x 150*

MANP One axis potentiometric joystick

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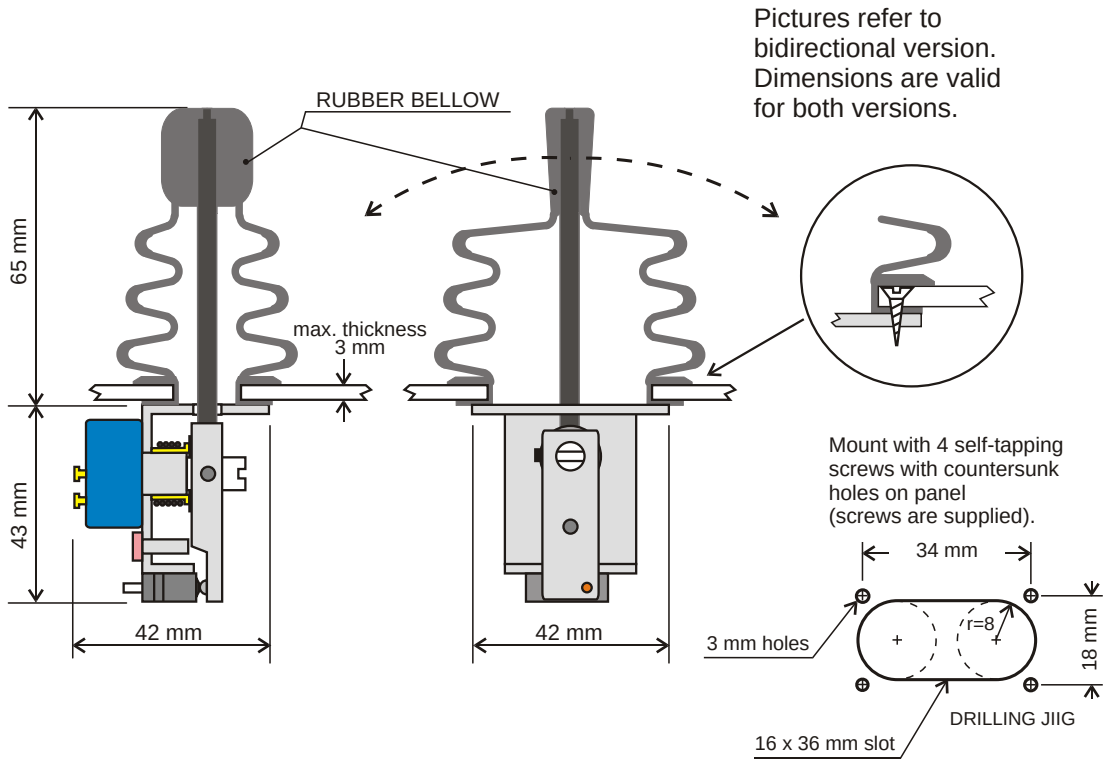


TECHNICAL SPECIFICATIONS

Min. starting thrust: 9N
Max. applicable thrust: 80N
Max contact switch current (microswitch): 1A (28V DC)

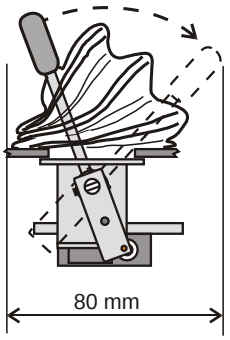
POTENTIOMETER
Resistance:10 Kohm
Life: 10 million cycles
Electrical angle (reduced): 100°
Max output current (central terminal): 1mA
Max. power: 1W
Insulating resistance (500V DC): >1000 Mohm

BIDIRECTIONAL VERSION
Mechanical angle: 40° + 40° approx.
Vout = 80% Vin (40% + 40%)

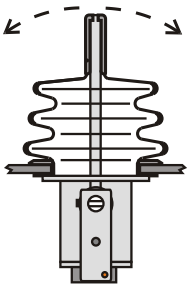
UNIDIRECTIONAL VERSION
Mechanical angle: 60° approx.
Vout = 60% Vin

BELLOW:
Protection level: IP54

UNIDIRECTIONAL VERSION "MAN-PU"



BIDIRECTIONAL VERSION "MAN-PB"



Wired version available
(12V or 24V power supply):
- with resistance and 10V Zener diode
- UNIDIRECTIONAL version: 1.8V - 7V standard output
- BIDIRECTIONAL version: 5V ± 3.5V output
- supplied with three wires (50 cm lenght)

MANP2 Two axis potentiometric joystick

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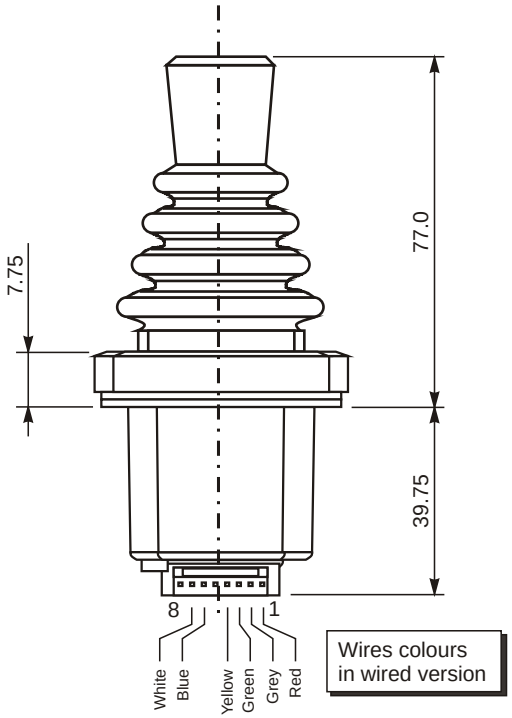

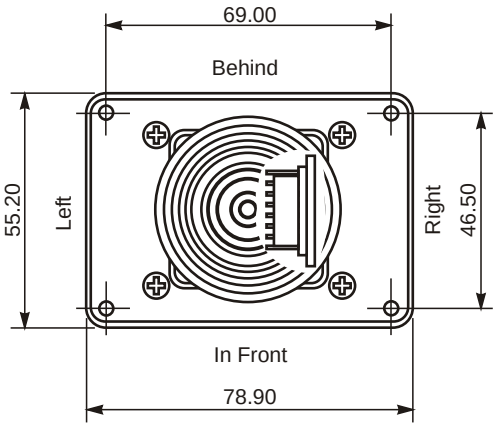

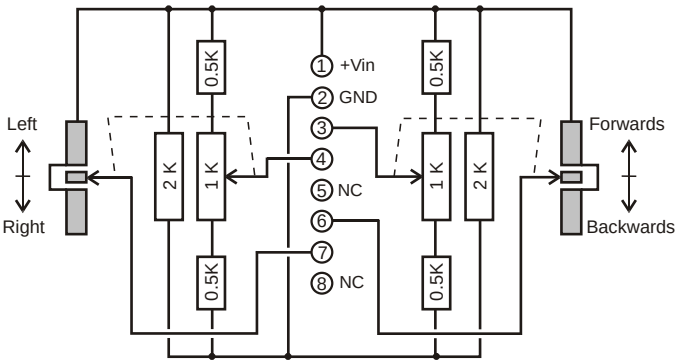

Potentiometers electrical features

Overall resistance: 0.5 kOhm (between pins 1 and 2)
Max power supply (Vin): 30 V_{DC}
Middle output voltage (Vout): 50% Vin (± 1%)
Min output voltage (Vout) = 27% Vin (± 1%)*
Max output voltage (Vout) = 73% Vin (± 1%)*
*Values achieved with a load of 7.5K towards Vin/2

NO contact electrical features

Max current: 200mA (resistive load)
ON/OFF contact activation angle: 2° (in each direction)
Life: 10^6 cycles (with a 200 mA current)
$5x10^6$ cycles (with a 10 mA current)

Physical features

Breakout force: 2.3N
Maximum operating force: 6 N
Mechanical operating angle: ±18°
Insulation resistance at 50 V_{DC}: > 50 MOhm
Weight: 120g
Operating temperature range: -40 °C ÷ +70 °C
Environmental rating: IP65
Connector: Panduit Mascon 2.54mm 8p

Order code:

A1000380401 (without wires)
A1000380404 (with 50 cm wires)

MANP3 Three axis potentiometric joystick

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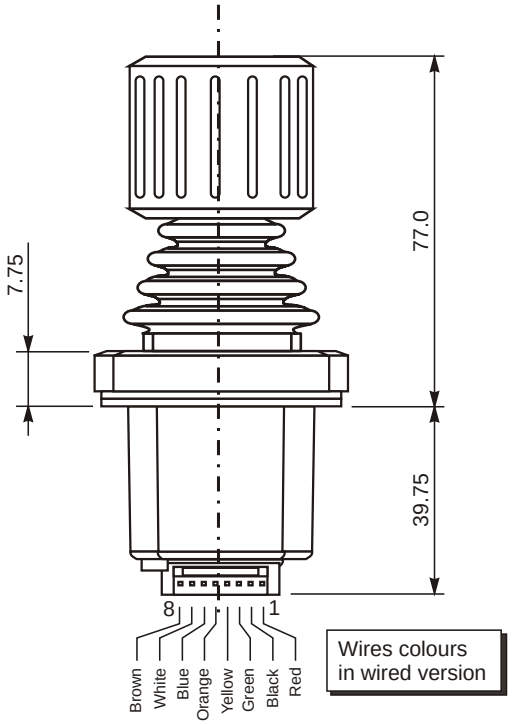
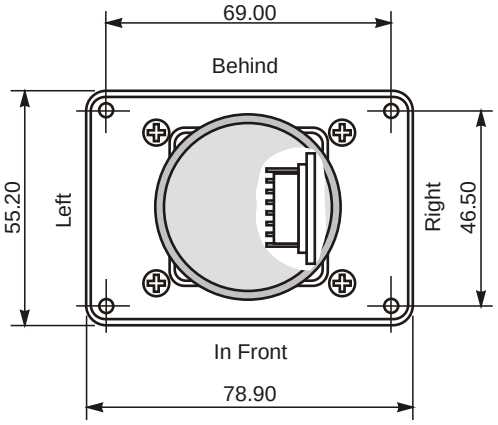
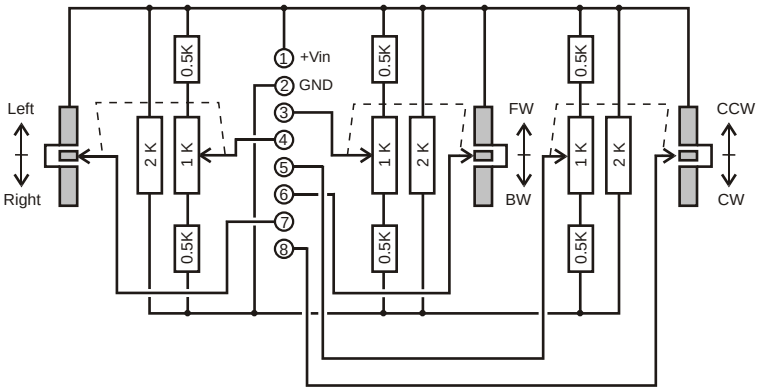




View from TOP



Potentiometers electrical features

Overall resistance: 0.330 kOhm (between pins 1 and 2)
Max power supply (Vin): 30 V_{DC}
Middle output voltage (Vout): 50% Vin (± 1%)
Min output voltage (Vout) = 27% Vin (± 1%)*
Max output voltage (Vout) = 73% Vin (± 1%)*
*Values achieved with a load of 7.5K towards Vin/2

NO contact electrical features

Max current: 200mA (resistive load)
ON/OFF contact activation angle: +/- 1° (X and Y axis)
ON/OFF contact activation angle: +/- 2° (rotating handle)

Life: 10^6 cycles (with a 200 mA current)
$5x10^6$ cycles (with a 10 mA current)

Physical features

Breakout force: 2.3N
Maximum operating force: 6 N
Mechanical lever operating angle: ±13°
Mechanical handle operating angle: ±27°
Insulation resistance at 50 V_{DC}: > 50 MOhm
Weight: 120g
Operating temperature range: -40 °C ÷ +70 °C
Environmental rating: IP65
Connector: Panduit Mascon 2.54mm 8p

Order code:

A1000380402 (without wires)
A1000380403 (with 50 cm length wires)

MAS One axis joystick with signal outputs

FABERCOM

DESCRIPTION

MAS is a single axis electronic joystick with signal outputs.

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:

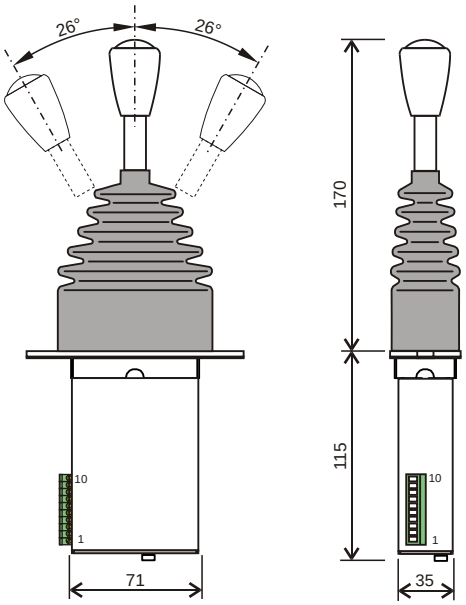
- sturdiness;
- parabolic output signal for a better sensitivity;
- output signal stroke customizable;
- available with uni directional output (5V-0-5V) or bidirectional output (0-5V-10V);
- "position hold" hand-grip available;
- rocker switch (unstable) on the hand-grip available;
- on/off directional outputs;
- supplied with extractable connector with screw;
- available version with two separate outputs 0-5V.

Available versions:

MASH - xxx - xx [- Cxx]

- xxx: Signal travel (in Volt tenths) compared to rest value. Default value - C50 (5.0 Volt)
- xx: R = Back to the center; F = Frictioned
- [- Cxx]: A = Simple rod; M = Handgrip with balanced buttons
- Cxx: 505 = output with 0V rest value; 5F5 = floating on rest - two 0-5V outputs on distinct wires; 010 = output with 5V rest value

Ex: MAS-010-AR-C35, with simple rod, not frictioned, centered to 5V and 3.5V travel



TECHNICAL SPECIFICATIONS

Power supply voltage	10 ÷ 28 Vdc
Working temperature range	-20 ÷ 50 °C
Proportional output	+5 ÷ 0 ÷ +5 Vdc or 0 ÷ 5V ÷ 10 Vdc (max 10 mA)
Maximum output voltage	Power supply - 2.5V
ON-OFF directional signal	Positive outputs of 500 mA (max)
Connector type	Extractable conn. with screw (1.5 mm^2 max section)
Mechanical stroke	± 26 degrees
Force on handle at stroke end	20 N

MAP One axis joystick with power outputs

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.

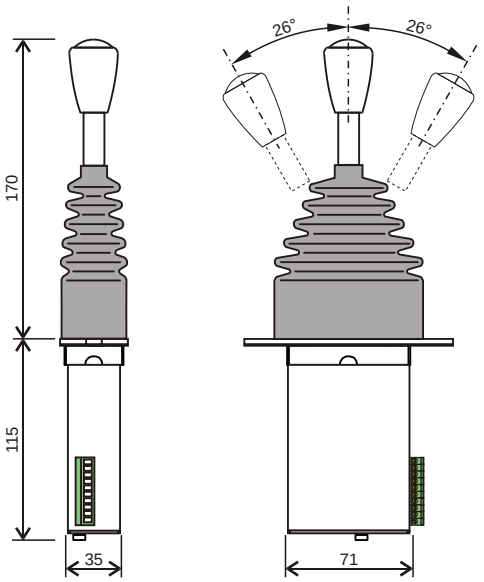
Main characteristics:

- one proportional section (A+B) direct control (2 PWM outputs);
- adjustable minimum/maximum current for each directions (A+B);
- adjustable rise/fall ramp time 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.

Available versions:

MAPH - xx - xx

- R = With spring return
- F = Position Hold
- A = Simple knob
- M = Hand-grip with rocker switch
- SR = Coils OFF at neutral position
- AR = Coils ON at neutral position
- SA = Coils always ON



TECHNICAL SPECIFICATIONS

Power Supply Voltage	10 ÷ 28 Vdc
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

JS/JP/JC

Two and three axis joystick with signal, power or CANbus outputs

FABERCOM

DESCRIPTION

Two and three axis FABER-COM proportional joysticks can be used in a large variety of applications where is necessary to have a simple and reliable user interface to control construction machinery.

JS (with signal outputs, available also in ratiometric version) can only be used together with a logic control unit (PLC) or a power control device (PWM driver).

JP (with PWM outputs) can directly control hydraulic devices (pumps, distributors, dump valve) becoming often the only control unit of the whole machine.

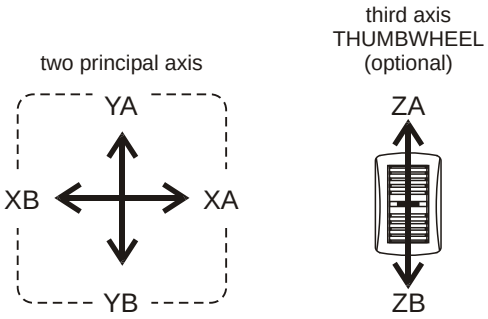
JC thanks to its inputs, can collect a large numbers of control signals and transmit them through a CANbus network.

Designed and specifically conceived to reduce the amount of installation work, FABER-COM joysticks are manufactured with top quality parts. The **control electronics** is located inside the housing and **completely sealed** to assure extreme tightness.

Joystick movements are derived from the measurement of the magnetic field produced by permanent ferro magnets; the measurement is taken through redundant Hall effect probes. This kind of probes are not subject to deterioration.

The configuration and calibration easiness makes these joysticks suitable for different applications.

The push button panel is completely customizable.



Joystick movements

Here are some of the **<u>available options</u>** for the three models:

- "virtual cross" to forbid diagonal movements.
- linear or parabolic output curve.
- standard or capacitive dead man switch.
- adjustable dead band, independently for each semi axis.
- THUMBWHEEL, to have third proportional axis.
- Outputs lock if the hand-grip is not in neutral position at joystick turn on.
- Dump valve output with delayed turn off, to avoid high pressure spikes in the hydraulic circuit.
- Offset to compensate the hydraulic distributor dead band.
- Auxiliary output activated with logic and command levels user defined (software configurable).
- Two or three speed sets allow to regulate speed according to the machine configuration.
- Combination with only one proportional PWM output with many directional ON/OFF outputs.
- Tracked machines driving function, to directly control two pumps of an hydraulic driven machine with the up/down and left/right joystick movements (virtual 45° axis rotation).
- Dead man switch functionality active only with joystick in neutral position.
- Auxiliary inputs/outputs can be active high or active low (software configurable).

All the joystick have a FAULT output which is driven low if a failure occurs. The LEDs on the bottom side helps the user to check the correct joystick functionality and connections.

Analog current outputs are feedback controlled. ON/OFF outputs are protected against short-circuits.

All the joysticks have a serial port to connect PRG2 serial programming keyboard (provided apart) to configure and calibrate the product.

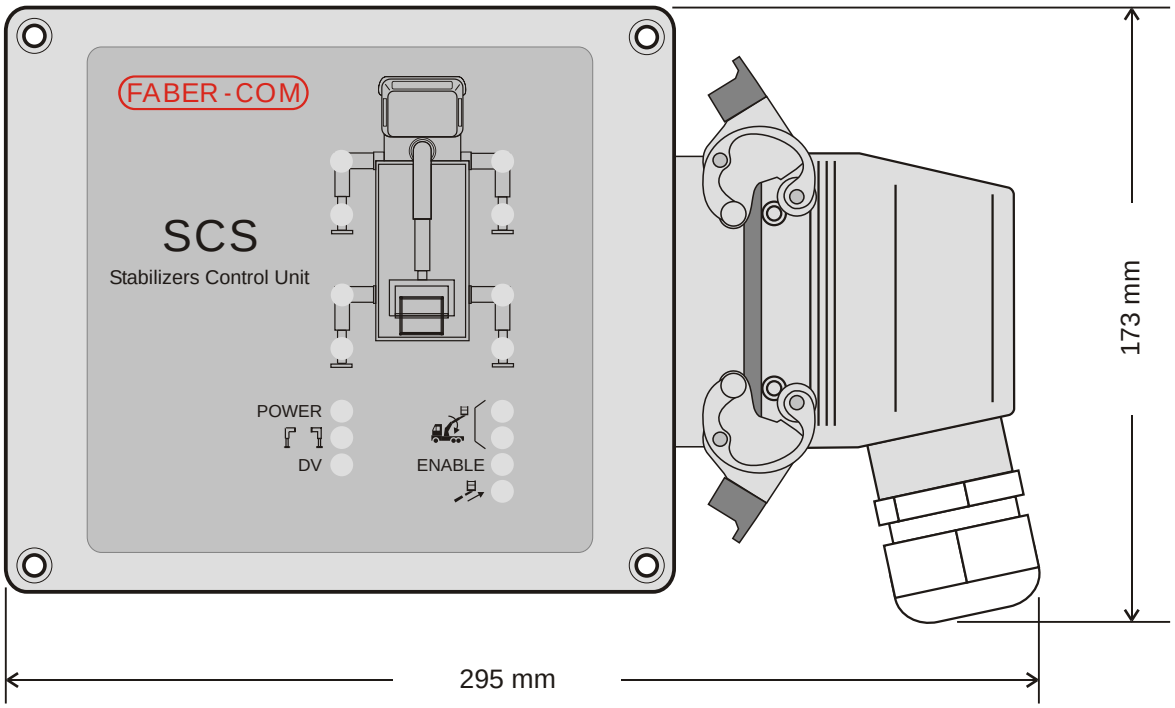
All the joysticks are provided by default with 50 cm unpluggable cable but it is possible to require a customized wiring.

JS/JP/JC

Two and three axis joystick with signal, power or CANbus outputs

FABERCOM

TECHNICAL SPECIFICATIONS	JS	JP	JC
Power Supply Voltage	10Vdc ÷ 30Vdc		
Max current absorption	60 mA + output load (max 2.5 A)	60 mA + output load (max 10A)	60 mA + ON/OFF output load (max 1.4A)
Working Temperature Range	-20 ÷ +60 °C		
Output Signals	3 analog signals range 0 ÷ 5V, 0 ÷ 10V, ratiometric (Danfoss) Imax: 10 mA 6 directional outputs 1 DUMP VALVE output 1 uscita di FAULT Imax: 300 mA (for each output)	8 2.5A power outputs usable as: 3 PWM pairs 1 BYPASS output 1 FAULT output - or - 1 PWM output 6 ON/OFF directional outputs 1 DUMP VALVE output PWM outputs: Imin: 100 ÷ 2500 mA Imax: 100 ÷ 2500 mA Freq: 50 ÷ 300 Hz	CANH - CANL CAN 2.0B up to 1 Mbps 1 ON/OFF output controllable via CAN 700 mA max 1 output for push button power supply voltage (5 Vdc stabilized) Imax: 30 mA (usable also as 700 mA ON/OFF output)
Input Signals	1 ON/OFF input usable as: - speed selection input - movement enable (dead man switch) - X or Y axis commutation to the Z axis If not used, FAULT and BYPASS outputs can be used as ON/OFF inputs (they are bidirectional signals).		Via CAN transmittable: - 2 ON/OFF inputs (one usable as pickup input) - 5 analog inputs, range: 0V ÷ 4.5V, 2.5V centered, usable to read 5 push button or 10 bilateral buttons (two usable as 4-20mA analog inputs)
Thumbwheel Input Signal	Range: 0.5V ÷ 4.5V		
Analog Inputs Impedance	-	-	11 kOhm towards 2.5V
Connections	Molex minifit Jr. 14 poles with 50 cm cable		Molex minifit Jr. 4 poles with 50 cm cable (CAN and power supply) Molex minifit Jr. 10 poles with 50 cm cable for optional inputs/outputs
Under Panel Size	diameter 80 mm - depth 90 mm		
Working Angle	+/- 18°		
Max force on handle	800 N		
Electromagnetic Compatibility (EMC)	according to EN 13309 and EN ISO 14982 regulations		
Ingress Protection Rating	IP65 (IP40 with Thumbwheel)		



DESCRIPTION

The SCS device is a stabilizers control unit integrated with some auxiliary functions useful for the control of cranes installed on trucks. The core of the unit is a microprocessor based electronic card for the advanced control of the machine, which makes available in one device the following features:

BYPASS INTERFACE: control the NO dump valve with a signal compounded of the safety electric signal from the radio remote control and from the torque limiter, maintaining the origin safety characteristics. The NO valve can be commanded both from the remote control and from safety devices installed on the machine (ex. torque limiter).

STABILIZERS CONTROL: verify the correct position of the stabilizers and, if the platform is inserted, enable the crane to work only when they are all extended and correctly positioned.

STABILIZERS BLOCK: class 3 control that avoids the movements of the stabilizers when the main arm of the crane exceeds the horizontal slope. The stabilizers are blocked with a NO valve when their distributor is separated from the crane distributor, or with a NC valve when the stabilizers are commanded by the same distributor of the crane.

SPEED REDUCTION: if this function is not executed by the radio remote control, reduce the speeds of the manoeuvres when the platform is inserted on the crane; the speed reduction is realized through a flow reduction valve.

TECHNICAL SPECIFICATIONS

Power supply voltage	10Vdc ÷ 28Vdc
Current absorption	500 mA + output loads (blade fuse of 7.5A)
Working temperature range	-20 ÷ +70 °C
Protection class	IP65
Output current	max 2.5A for each output (total less than 7.0A)
Control unit dimensions	191 x 167 x 75 mm (aluminium box)
Overall dimensions	295 x 173 x 135 mm (box with connector attached)

FSI-AN

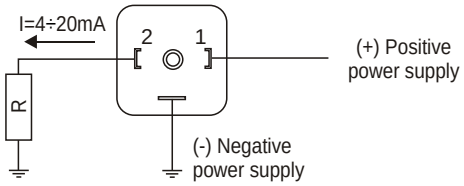
Analogic slope sensor

FABERCOM

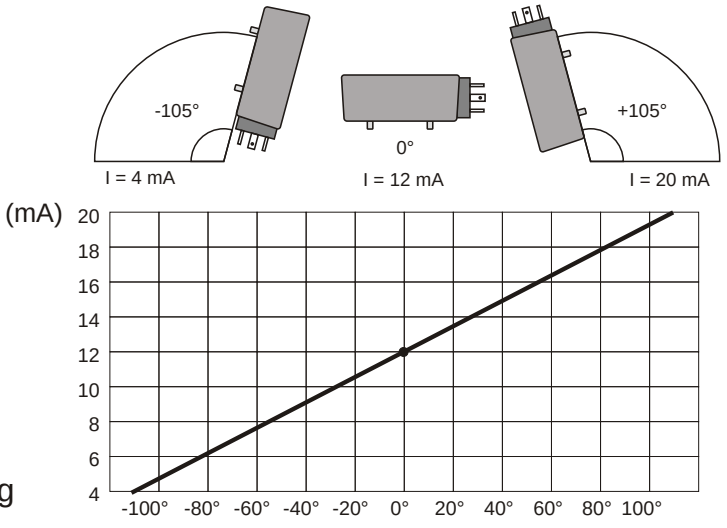
Description:

The FSI-AN sensor is a slope analog transducer with 4÷ 20 mA current output.

It is a transducer with 3 wires:



The output current is proportional to the inclination of the sensor compared to the horizontal position (see picture).



Working:

Supply the sensor and read the output current (directly with a milliamperometer or connecting it to a PLC with 4÷ 20 mA current input).

Attention: the input resistance of the used instrument (for the measurement) must have a value that allows to the sensor to supply the maximum current.

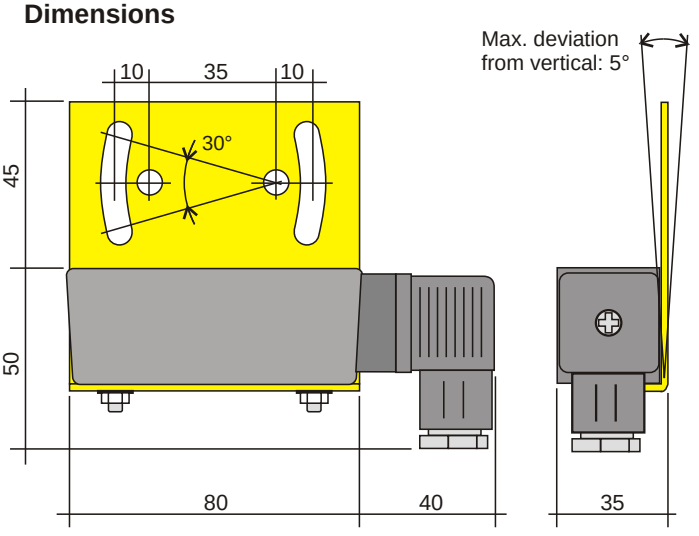
The maximum output tension of the sensor is “Vsupply - 5.5V“.

Fitting:

When you have positioned the sensor, with the long side perfectly in horizontal position, it has an output current value between 11.9mA and 12.1mA. During the fitting, it is necessary to verify that the output current, in horizontal position, is between the upon mentioned values. Otherwise, you have to act on the support slots to place the sensor in a correct way.

Technical specifications	
Supply voltage	10 ÷ 32 VDC
Working range	From -105° to +105°
Resolution	1.16°
Current absorbed with output disconnected	18mA at 12VDC, 20mA at 24VDC
Max output voltage drop	5.5V
Answer time	164 ms
Working temperature	-10°C ÷ +70°C
Precision @ Tamb 0° ÷ 70°C	± 1.4°
Precision @ Tamb -10° ÷ 70°C	± 4.0°
Protection class	IP 67

Dimensions

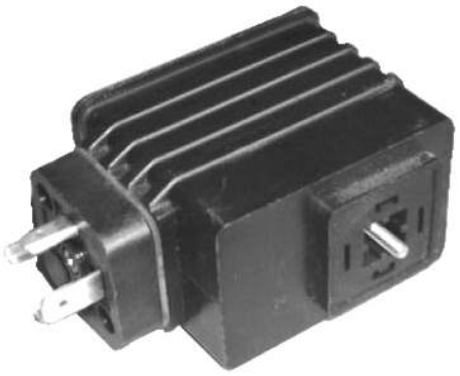


* Specifications and drawings for ±105° version

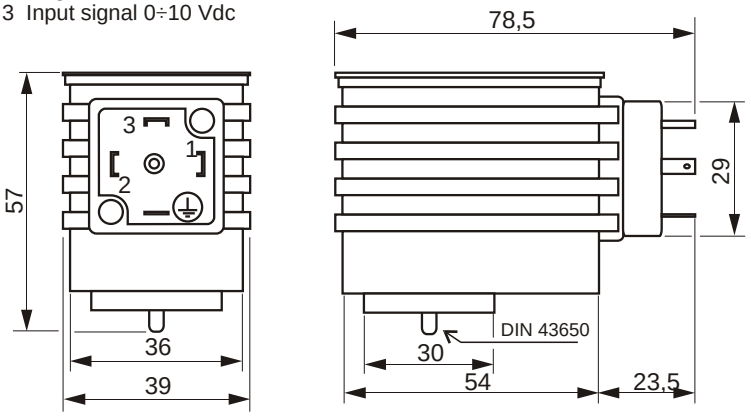
VPC

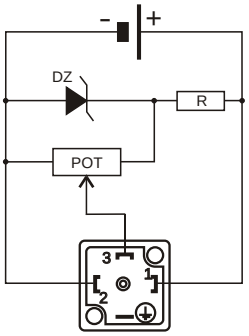
Electronic regulator for PWM controlled solenoid

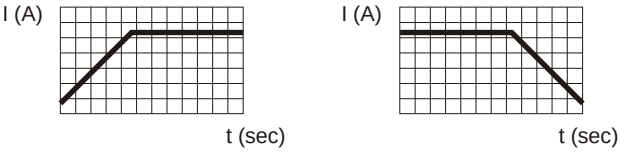
FABERCOM

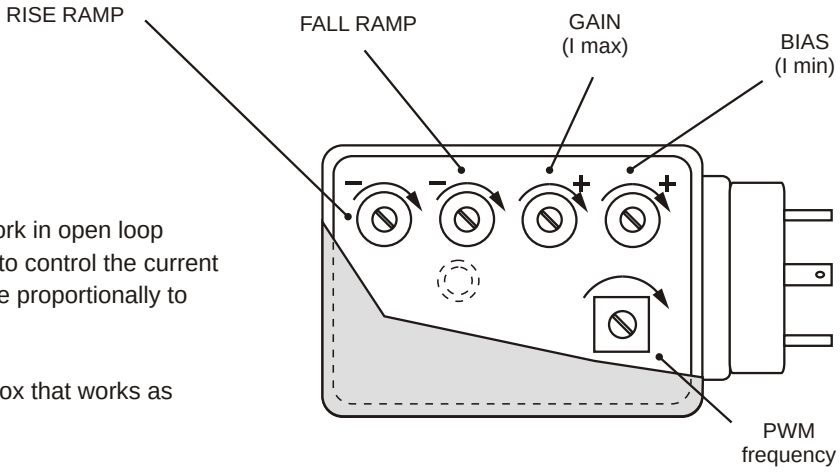


1 Positive 24 - 12 Vdc ±10%
2 Negative
3 Input signal 0÷10 Vdc









This electronic regulator is made to work in open loop control sistems. It has been designed to control the current that flows in the coil of a solenoid valve proportionally to an analog input signal.

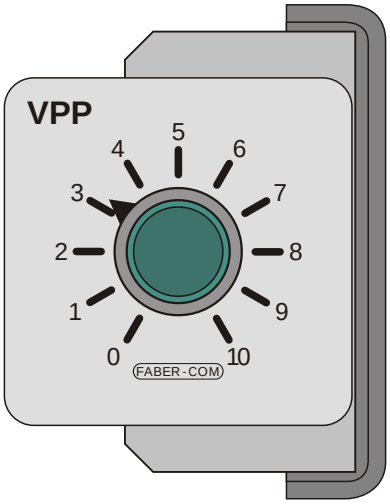
The electronic card is contained in a box that works as connector too.

Supply voltage	24 - 12 Vdc
Voltage input signal range	0 - 10 Volt (0 - 5V)
Input impedance	100 Kohm
Max current adjustment range 1A (24Vdc) 2A (12Vdc)	20 - 100%
Bias adjustment range	0 - 30%
Rise time ramp adjustment	0 - 3 sec
Fall time ramp adjustment	0 - 3 sec
Ramps are linear and independent	
PWM frequency set at 120 Hz (adjustable)	50 ÷ 400 Hz
Working room temperature	-10°C ÷ +50 °C

VPP2

Electronic regulator for PWM controlled solenoid

FABERCOM



TECHNICAL SPECIFICATIONS

Supply voltage (Vsup): . . . . . 10.5 ÷ 30 VDC
Panel potentiometer: . . . . . 5KOhm - 330°
Max output current: . . . . . 2.5 A
Max current gap (Imax - Imin): . . . . . 1.5 A
Max power: . . . . . 75 W
Ramp time adjustment: . . . . . 0.1 ÷ 5 sec
Indirect current measure: . . . . . 1V = 1A
PWM frequency: . . . . . 120 Hz (adjustable from 50 to 330 Hz)

Working temperature: . . . . . -10 °C ÷ +60 °C
Weight: . . . . . 250 g
Back panel dimensions: . . . . . 85 x 47 x 86 mm

Max panel thickness: . . . . . 10 mm
Special version available with IP67 potentiometer

DESCRIPTION

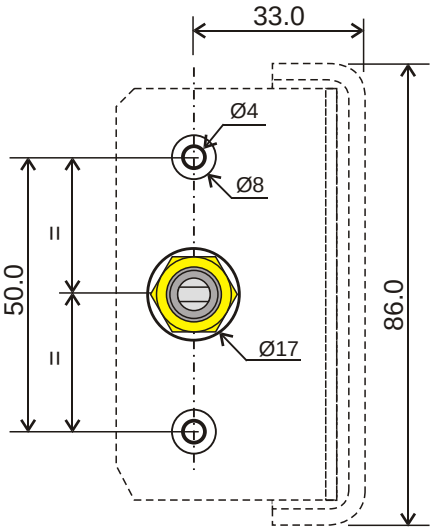
VPP2 electronic regulator is designed for single solenoid proportional valve open loop control.

Current regulation potentiometer is connected and assembled yet on electronic regulator.

Current range (offset and gain), ramps times and PWM frequency can be modified through trimming potentiometer (placed on the back side of card) to meet different kind of valves specifications.

VPP2 is protected against supply overtension and polarity inversion. PWM output is protected against short-circuit.

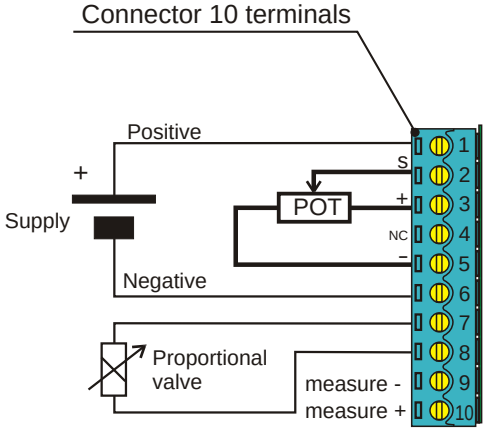
Electronic card is epoxy resin protected.

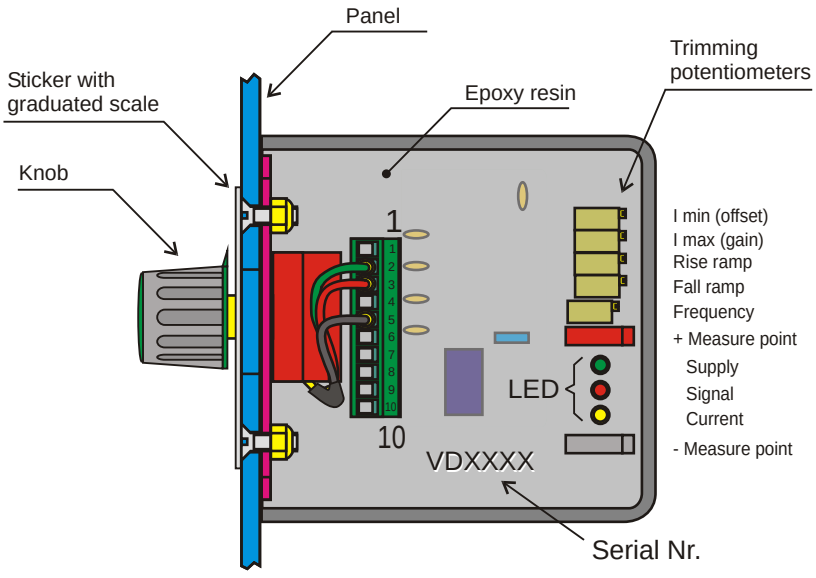


INSTALLATION

You can mount the regulator on panel through two countersunk screws M4x10 (included). In the picture on side is showed front panel dimensions and drills mask.

With VPP2 regulator is also included a sticker with graduated scale from 0 to 10. You can use this sticker as reference scale for potentiometer adjustment.

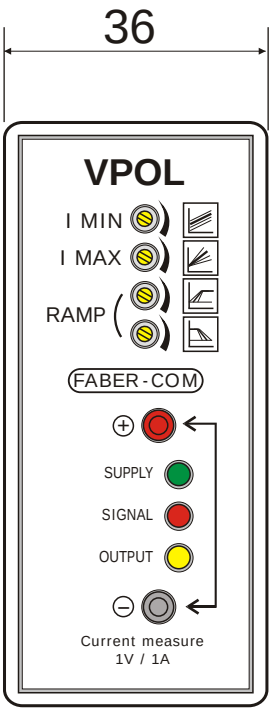




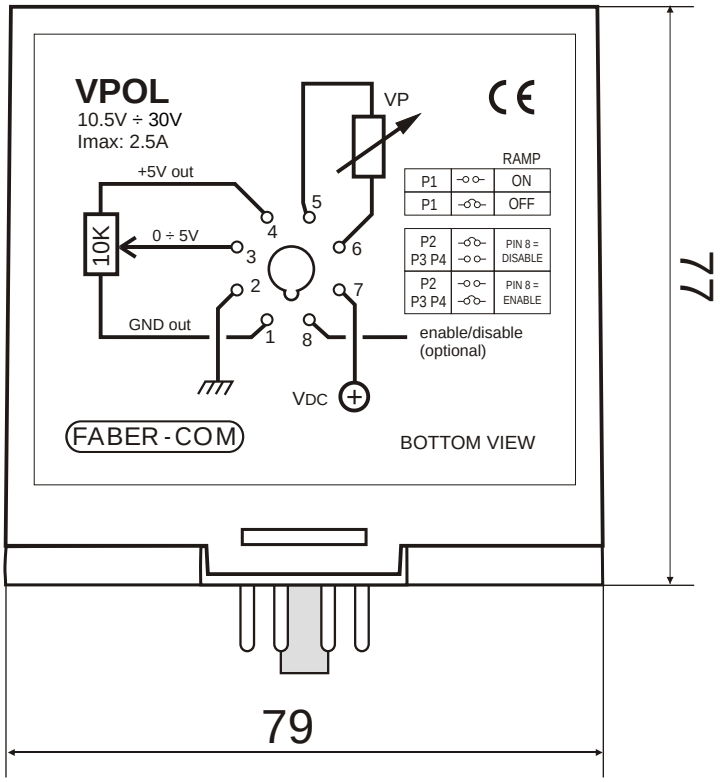
VPOL

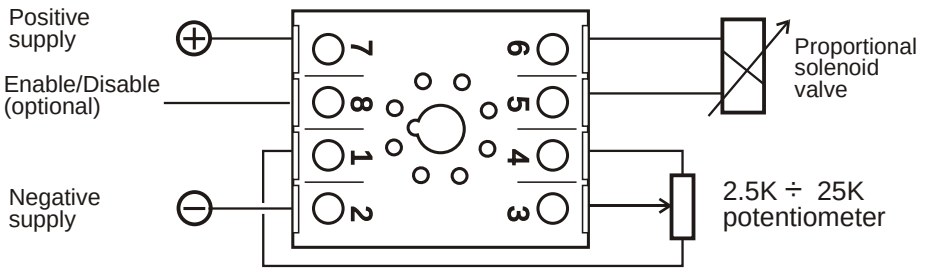
Electronic regulator for PWM controlled solenoid

FABERCOM



OCTAL SOCKET
(optional)





LED on panel for:
- Supply
- Output current
- Input signal

Potentiometer for:
- Offset current (Imin)
- Gain (Imax)
- Ramp rise
- Ramp fall
- Frequency (inside)

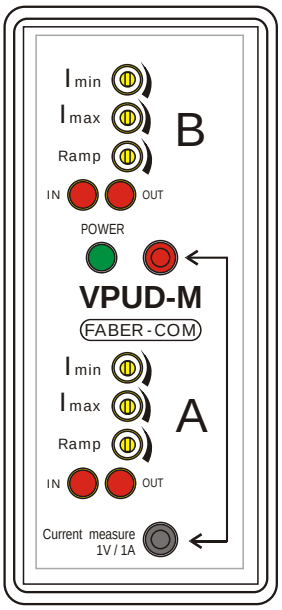
TECHNICAL SPECIFICATIONS

Power supply	from 10.5 to 30 Vdc
Reference signal	0÷10V max (optional 4÷20 mA)
Reference input impedance	20 kOhm
potentiometer supply	4.6 V
Max output current	2,5 A
Ramp range regulation	0 - 5 sec (separate rise/fall)
PWM frequency	50 ÷ 250 Hz (preset to 120 Hz)
Room working temperature	-10°C ÷ +60 °C
Indirect current measure (test point on panel)	1V read every 1A output current
Enable/Disable optional input	Vsupply commanded

VPUD-M

Electronic regulator for two PWM controlled solenoids

FABERCOM



TECHNICAL SPECIFICATIONS

Power supply voltage:	10Vdc ÷ 30Vdc
Input signal range:	-5V ÷ +5V or 0V ÷ 10V or ¼ ÷ ½ ÷ ¾Vsupply
Max output current:	2.5 A
External potentiometer supply:	-5V and +5V (max 10 mA)
Input signal impedance:	11 kOhm
Indirect current measure (test poin on panel):	1V / 1A
Working temperature range:	-20 ÷ +50 °C

Independent regulations for each solenoid
min current (offset), max current (gain) and rise/fall timeramp.

Undecal type housing for DIN guides mounting
Overall dimensions: 79 x 36 x 77 mm
Weight: 200 g

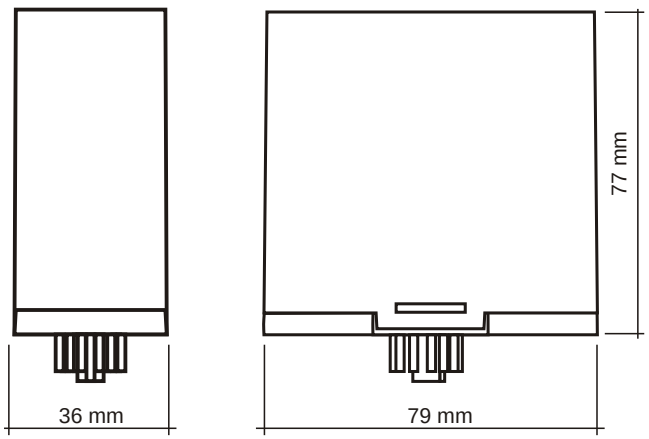
WORKING DESCRIPTION

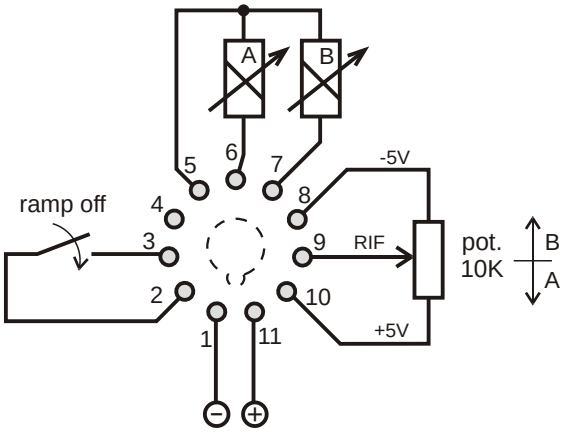
The VPUD-M electronic regulator is designed to command two proportional solenoids with one reference signal. Solenoids are controlled (PWM) with feedback signal so that linearity between output current and input signal is guaranteed and working is independent from external elements (supply voltage, temperature, etc.). The working frequency (PWM) is set to 120 Hz but it is adjustable from 50 Hz to 330 Hz).

The regulator can be commanded by a potentiometer (the supply voltage ±5V are present) but 0 to 10V or ¼ ÷ ¾ Vsupply signals can be utilised (coupling with a PLC). Outputs cannot be active contemporaneously, interlocked by a control circuit.

Minimum (BIAS) and maximum (GAIN) currents and rise/fall ramps are independently adjustable. Ramps are adjustable (between 0.1 and 5 seconds) and disabled by a positive signal connected to the proper input terminal. Red LEDs on panel show input signals variation and current variation to the solenoids, signalling if the output circuit is interrupted.

The regulator is protected against voltage reversal and output short circuits.

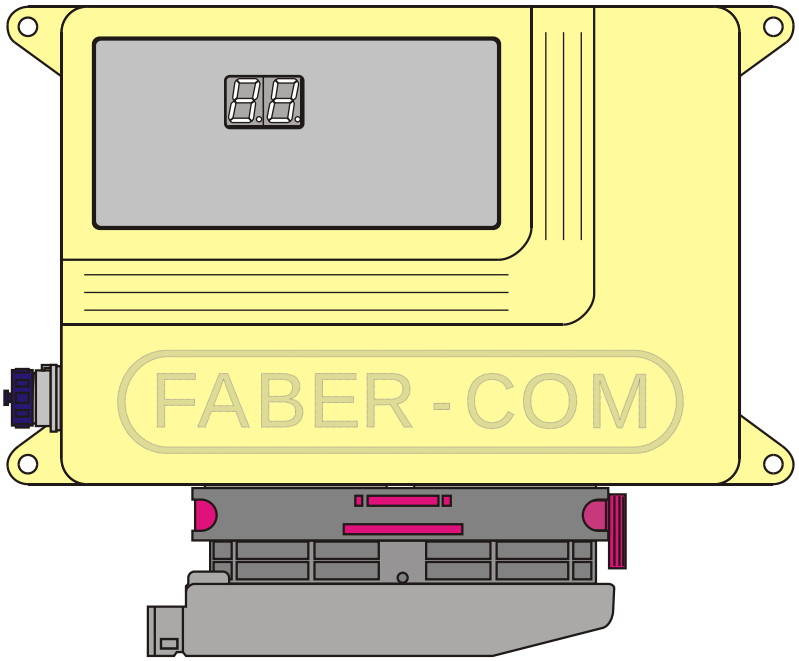




ELECTRICAL CONNECTIONS

STU-PWMi

Electronic regulator for multiple PWM controlled solenoids



DESCRIPTION

STU-PWM electronic card is a regulator for proportional solenoid valves, which can drive up to 8 modules (8+8 PWM outputs), starting from analog inputs (input signal range from 0 to 5V). If the inputs analog signals are generated from potentiometric joysticks, the control card provides a stabilized 5V supply to power them.

INPUTS

- n° 8 analog inputs signals (range from 0 to 5V);
- n° 1 enable input defined as CONTROL PANEL ON;
- n° 2 ENABLE inputs with different operating features;
- n° 1 input to select LOW/HIGH SPEED(optional);
- n° 3 ON/OFF inputs, directly carried to three power outputs;

OUTPUTS

- n° 8+8 PWM outputs, to drive proportional solenoid valves (a pairoutputs for each analog inputs);
- n° 1 DUMP VALVE output drived by all manoeuvres;
- n° 1 FAULT output;
- n. 3 ON/OFF outputs, directly drived by three ON/OFF inputs (max 2.5A);

FEATURES

Adjustable PWM frequency, min/max output currents and rise/fall time ramps. As option, STU-PWM is available with two selectable maximum speed sets (LOW/HIGH SPEED), to operate a different maximum speed in different operating conditions.

It is also available a DUMP VALVE output that is turned on when a manouvre turns on. This output has a programmable delay on switch off, to avoid elevated pressure spikes in the hydraulic circuit.

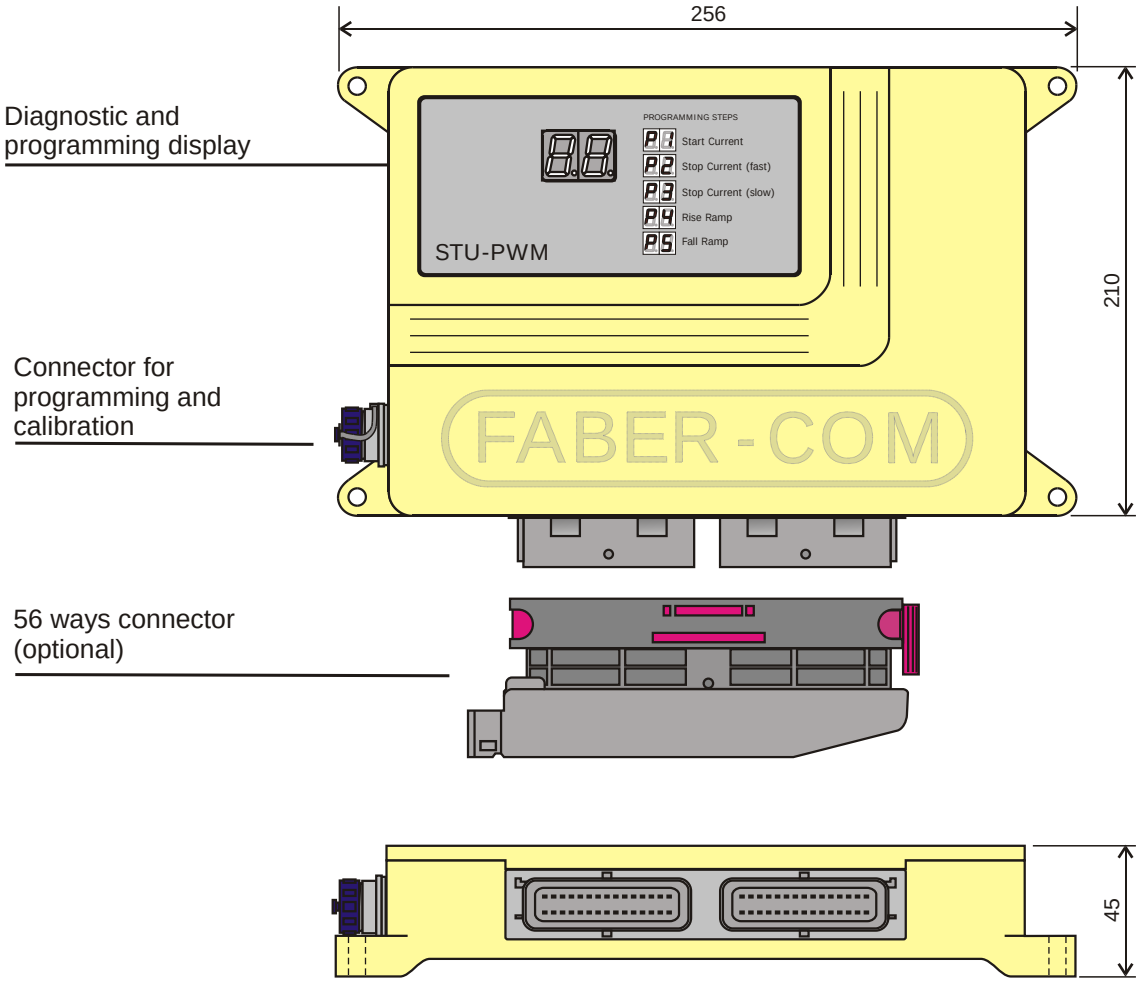
The control unit provides three ON/OFF input/output to drive directly solenoid valves, starting from low power command signal.

To ensure more safety during working mode, the electronic card provides:

- programmable deadband, electrical stroke and adjustable signal threshold;
- an overall relay, feedback controlled, supply all control unit's outputs;
- three inputs ENABLE signals (CONTROL PANEL ON, ENABLE1 and ENABLE2);
- an output to control the DUMP VALVE;
- an output (FAULT) to drive a warning light or a relay that report errors on analog inputs.

STU-PWMi

Electronic regulator for multiple PWM controlled solenoids



Order codes for STU-PWM control unit (without connector):

Code: **PSCH45i** _ _

- **R** - with two speed sets
- **4** - 4 functions (4+4 PWM outputs)
- **5** - 5 functions (5+5 PWM outputs)
- **6** - 6 functions (6+6 PWM outputs)
- **7** - 7 functions (7+7 PWM outputs)
- **8** - 8 functions (8+8 PWM outputs)

TECHNICAL SPECIFICATIONS

Power supply voltage	10Vdc ÷ 30Vdc
Current absorption	300 mA + load outputs
External potentiometers power supply voltage	+5V short circuit protected, max current 10 mA
Working temperature range	-20 ÷ +70 °C
PWM minimum current range	from 100 to 2500 mA
PWM maximum current range	from 100 to 2500 mA
Available PWM frequencies	50-60-70-85-100-125-150-200-250-300 Hz
ON&OFF outputs maximum current	2500 mA (700 mA for FAULT output)
Analog inputs impedance	11 KOhm towards 2.5V
Overall dimensions with connector mounted	256 x 210 x 45 mm
Drill interaxis	242 x 142 mm (n. 4 holes, max diameter 6 mm)

CIVP

Proportional solenoid incremental control device

FABERCOM

OPERATION:

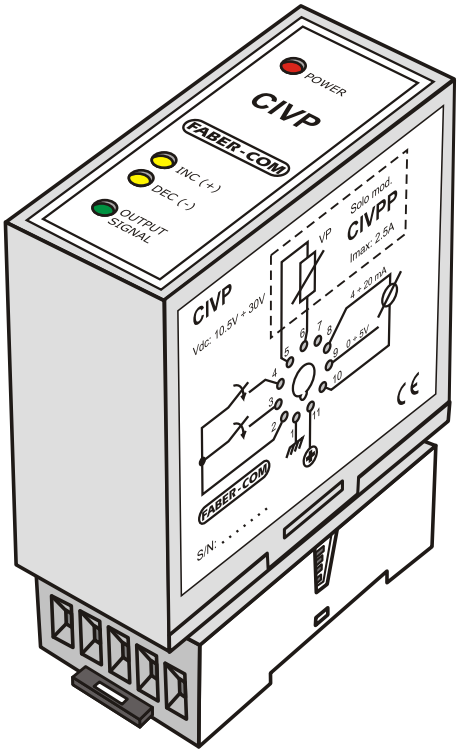
The CIVP card can be considered like an **ELECTRONIC POTENTIOMETER**

It can be used to replace a potentiometer with the further possibility to have several control working positions at the same time.

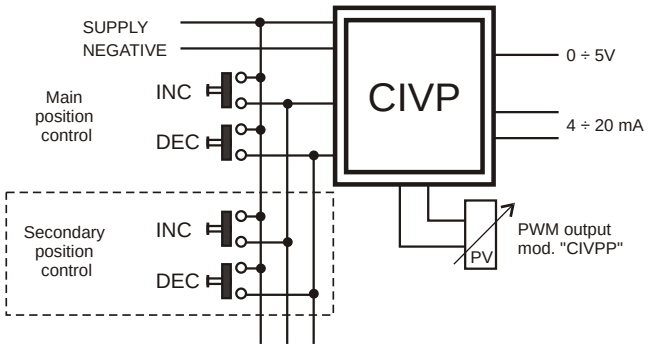
FEATURES:

- Voltage output signal 0 ÷ 5V, and current output signal 4 ÷ 20 mA.
- Output regulation by a pair of push buttons.
- Easy to command from several control working positions at the same time (simply with the connection in parallel of the others push buttons pairs)
- At the start-up the output can take the last set value or zero.
- Automatic increase/decrease, if the regolation button is held pushed, with the possibility to choose between two different speed.
- On the frontal panel some leds show the output and the control push buttons state.

- Available with proportional solenoid valve direct PWM output (mod.**CIVPP)**



WIRE DIAGRAM:



TECHNICAL SPECIFICATIONS

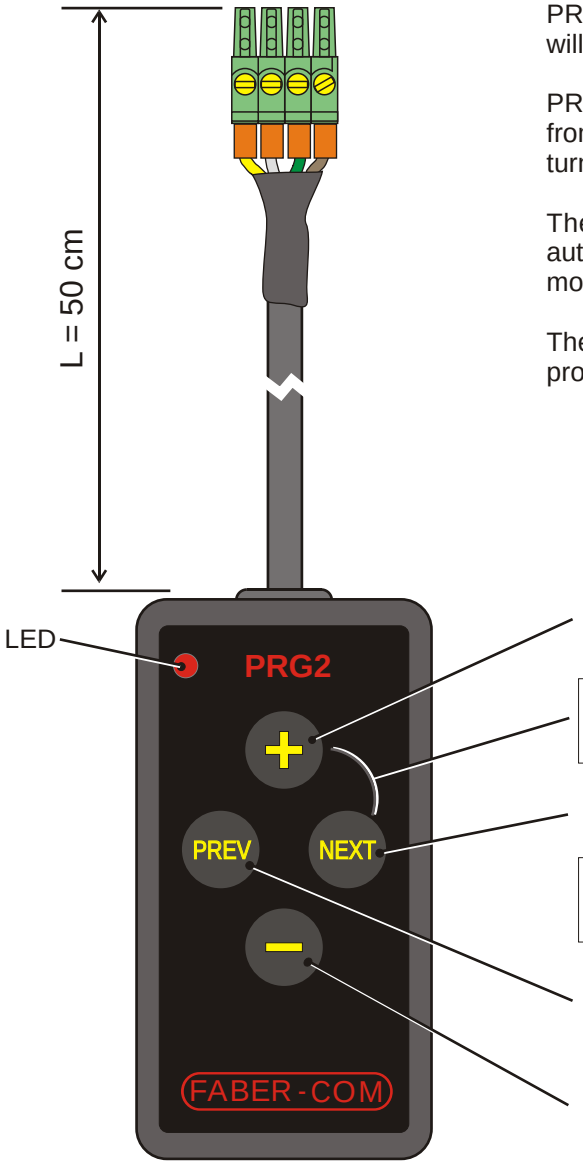
Power supply voltage	10 Vdc ÷ 30 Vdc
Voltage output signal	0 ÷ 5V - Max current: 5 mA
Current output signal	4 ÷ 20 mA
Output signal resolution	256 levels
Output signal stability	< 0.5%
Working room temperature	-20 ÷ +60 °C
Case	Plastic box with Undecal connector
Overall dimensions	79 x 36 x 77 mm
Weight	200 g

PRG2 Programming keyboard

DESCRIPTION

The PRG2 keyboard is the simplest device that can be used to tune working parameters on the last-generation electronic cards developed by FABER-COM.

With PRG2 keyboard and the help of the two-digit display mounted on the electronic card to be programmed, or the flashing LED on the PRG2, you will be able to scroll all the working parameters and tune them at will.



ACTUAL SIZE

At the end of the programming phase, it is necessary to save parameters in memory by pushing contemporaneously the PREV and the NEXT buttons, otherwise all the modifications will be lost when the device will be turned off.

PRG2 keyboard connector can be plugged in and pulled out from his socket on the electronic card even with the system turned on.

The presence of the programming keyboard will be automatically detected and the device will go in programming mode.

The LED shows, with a series of flashes, the current programming step.

WORKING SPECIFICATIONS

Increase the value of the current parameter.
(For some of the parameters, to see the value displayed changing, you have to push the button 2 or more times.)

Push "+" and NEXT together to send a CALIBRATE command

Go to the next parameter.
(once reached the last parameter, restart from the first)

Push PREV and NEXT together to send a SAVE command

Go to the previous parameter.
(once reached the first parameter, stay there)

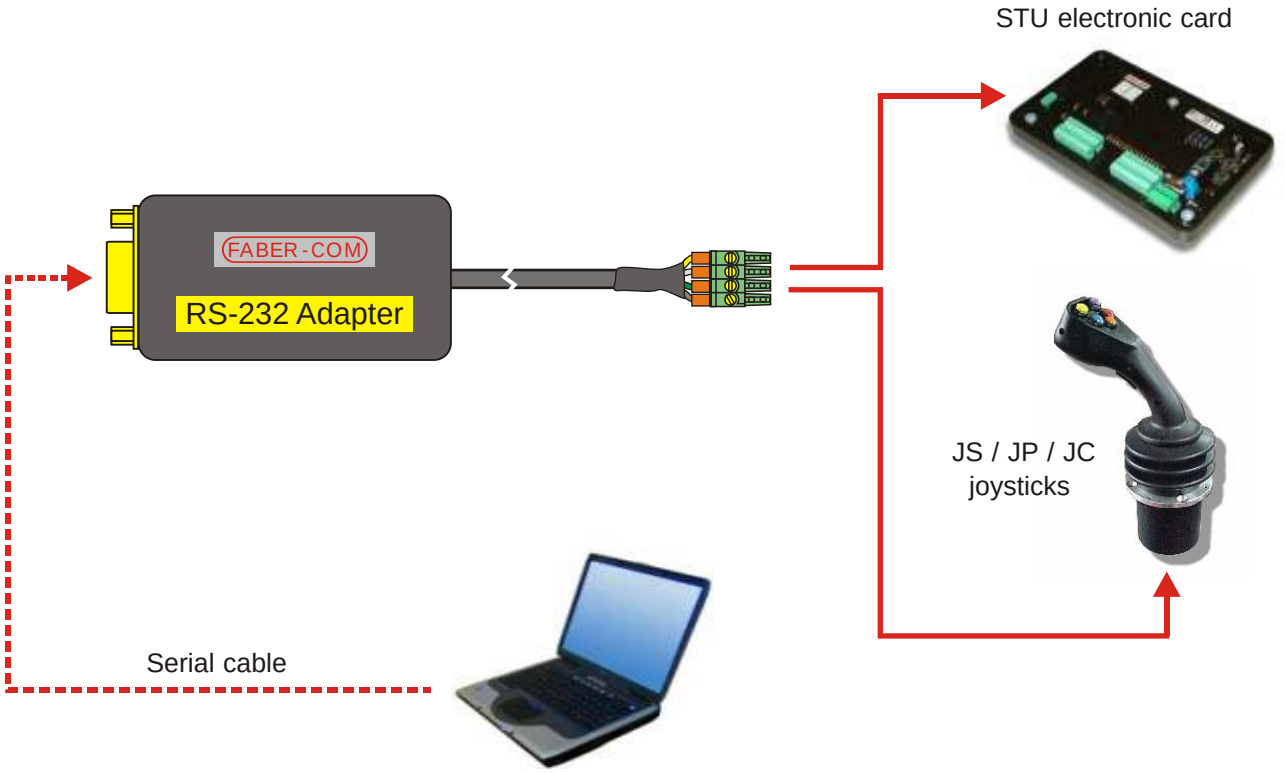
Decrease the value of the current parameter.
(For some of the parameters, to see the value displayed changing, you have to push the button 2 or more times.)

"+", "-", "Prev" and "Next" keys have the autorepeat function that starts 1/2 sec. after they have been pressed.

For more complex needs (extended access mode to reserved parameters, uploading of the entire set of parameters to download to other cards, parameter's value direct introduction, 16x2 LCD display visualization, advanced diagnostics,...) it is available the PCPS serial programmer.

AIS

Serial interface adapter for FABER-COM electronic cards



DESCRIPTION

The AIS Serial Interface Adapter is the only medium to connect FABER-COM electronic devices (STU electronic card and JS/JP/JC joysticks) to a PC for programming, calibration, firmware updating and working parameters monitoring.

The communication between the device and PC is supported by SepSim, a Windows application (Win98/Win2K/XP tested). The "Lite" version of SepSim is provided freely when the device is purchased.

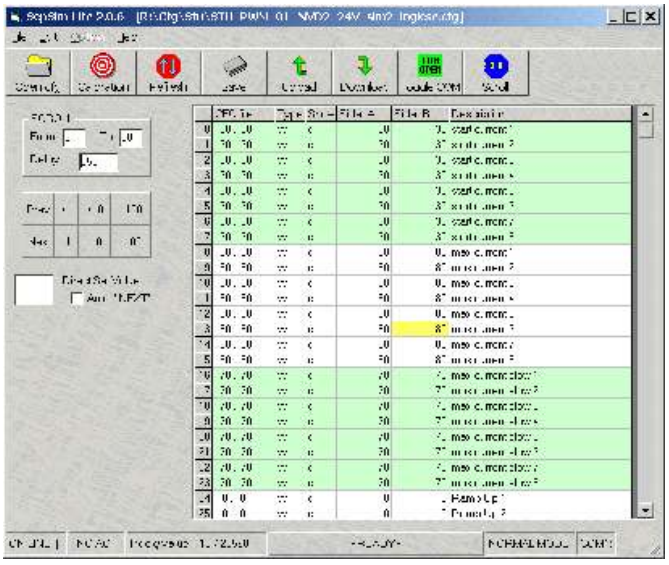
With this application a device configuration can be saved to a file and downloaded into another device.

The application requires a serial port or a USB to RS232 converter.

The program file is self-installing and the application is extremely user friendly.

AIS is provided with a 1,80 m long serial cable (DB9 male/female).

On the right is showed the main page of SepSim.



DIM

Soft start engine device

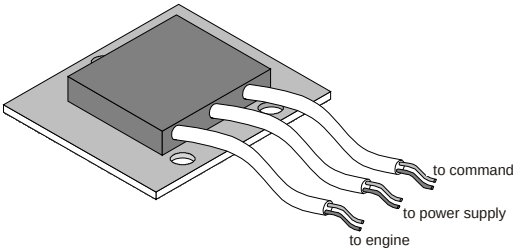
FABERCOM

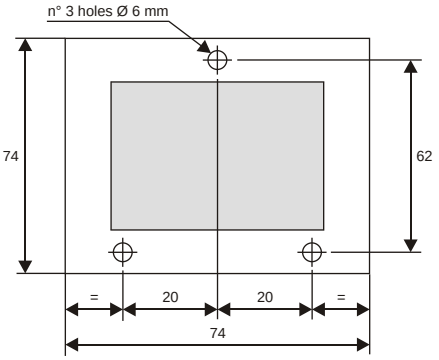
DESCRIPTION
The DIM device can be used to start a D.C. engine, limiting the start current.

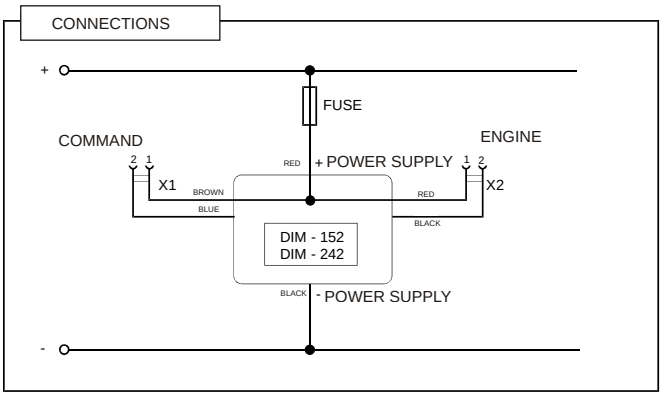
WORKING
The device starts the engine when a contact connected to its input is closed (or if you supply a +24Vdc to the blue wire). This phase of start engine is defined by pulses, at controlled current, of growing duty-cycle. So you will have a start at soft growing speed. At 75% of the start phase, if the charge is in short circuit, the starting will be stopped and the short circuit warning light will be turned on.

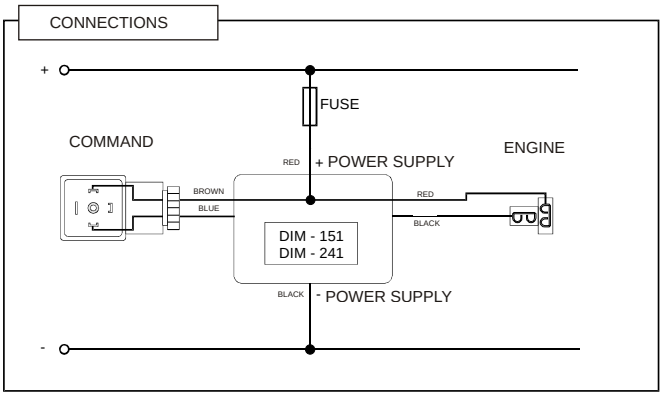
During the starting, the medium supply voltage on the engine allows to the battery to have a soft growing charge, cutting some overcharge and oversupply peaks, to give longer life to the battery, to the electric system and also to the engine.

The electronic card is totally covered by synthetic resin.









ORDER CODES
PDAV-S : Standard version, with DIN43650 + FAST-ON connectors (DIM-151/241)
PDAV-C : Version without connectors (DIM-152/242)

TECHNICAL SPECIFICATIONS

Power supply voltage	from 11 to 28Vdc	
Stand-by consumption	0mA	
Current limit during the start phase	DIM-15x ..... about 17A at 12V about 9A at 24V	DIM-24x ..... about 25A at 12V about 15A at 24V
Max engine power	DIM-15x 150W	DIM-24x 240W
Start duration time	20s	
Working temperature range (starting cycles of minimum 2 min.)	-40°C ÷ 85°C (fixed on metal support) -40°C ÷ 60°C (fixed on plastic support)	
Power supply cable	DIM-152/242 ..... 4.0m x 2.5 mmq	DIM-151/241 ..... 3.0m x 2.5 mmq
Engine cable	DIM-152/242 ..... 1.0m x 2.5 mmq	DIM-151/241 ..... 0.8m x 2.5 mmq
Command cable	DIM-152/242 ..... 1.5m x 1.0 mmq	DIM-151/241 ..... 0.8m x 1.0 mmq
Protection level (only for the device)	IP67	
Overall dimensions	74 x 74 x 20 mm	

LEV201 Automatic aerial platform controller

LEV-201/2 reads continuously the slope of platform with an angle transducer and it proportionally regulates the oil flow into the two chambers of a levelling cylinder, keeping the platform in horizontal position during every conditions of work.

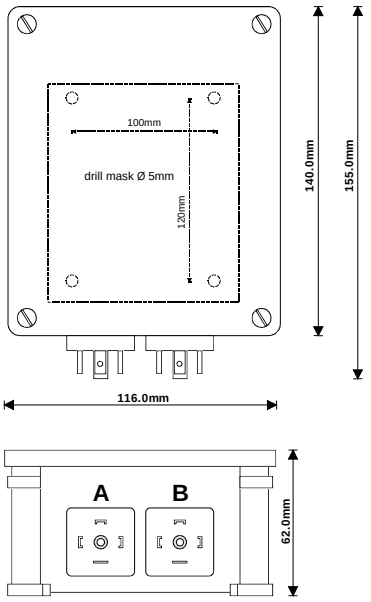
The control unit has two safety by-pass outputs, these positive (2A MAX) outputs are electronic card independent, the first one is active when platform slope is between from -90° to +10° and the second is active when platform slope is between from +90° to -10°.

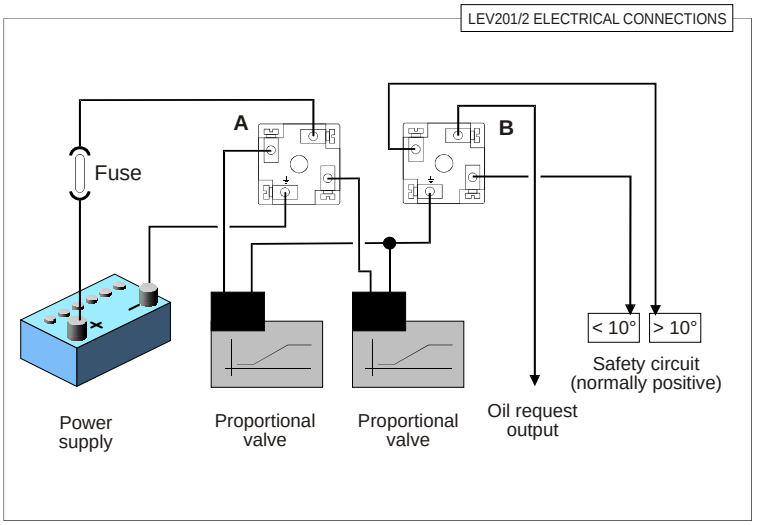
Using by-pass outputs it is possible to obtain a safety circuit of class '1' in according to EN954-1 law.

Moreover this outputs protect against wrong handmade correction of platform slope.

An "Oil Request" output is activated when platform slope exceeds of 1° after reference position (in both directions).

All outputs are protected against short-circuit. Electronic card is moulded in resin; this protection defend control unit against water condense into the box.





TECHNICAL SPECIFICATIONS

Power supply voltage	10 Vdc ÷ 32 Vdc
Absorbed current (without loads)	18mA @ 12Vdc
Solenoid valves current range	from 0.3A to 1.7A
Maximum current on safety outputs	2A
Maximum current on "Oil Request" output	2A
Working temperature	-15 ÷ +70 °C
Connectors	DIN 43650/ISO-4400/6952
IP protection	IP 55

CCS Salt spreader dashboard

DESCRIPTION

The SALT SPREADER dashboard is an electronic regulator that allows you to proportionately control and independently set spreading distance and salt quantity, through the regulation of two PWM outputs.

There are also 3 more switches for auxiliary functions:
- one to set proportional commands to their max value;
- one to control light system;
- one to control a bidirectional function (A-0-B).

The red led on the front panel provides informations during working mode.

The dashboard is provided with cables and DIN connectors for proportional solenoid valves.

On the rear side is placed a strong magnet to fix the dashboard into the cockpit.

FEATURES

Through the PRG2 serial programming keyboard (optional) you will be able to tune minimum and maximum current for each proportional solenoid valve; you can also choose the PWM outputs frequency (70 or 100 Hz).

On the start up the regulator controls the status of the analog signals in order to block PWM outputs if command signals are not at zero position; the system begins to work again when potentiometers are reset to zero.

To ensure more safety during working mode, the regulator provides a threshold for input signals (in case of a broken potentiometer); PWM output will be blocked if the corresponding command signal goes out of its allowed range.

TECHNICAL SPECIFICATIONS

Supply Voltage	10Vdc ÷ 30Vdc
Current absorption	200 mA + output load
Working temperature range	-20 ÷ +70 °C
PWM output minimum current	adjustable from 100 to 2250 mA
PWM output maximum current	adjustable from 100 to 2250 mA
PWM frequency	adjustable: 70 o 100 Hz
ON/OFF output maximum current	5A
Dashboard size	150 x 95 x 95 mm
Cables lenght	3 m
Seal integrity	indoor use only
Cockpit fixing through the magnet on the rear side of the dashboard	

Service conditions

FABER-COM s.r.l. offers to the customers a **qualified, efficient and express support,** by telephone or by direct visit to the customer.

The support service can be used only by installers.

The telephone support is active every working day in office timetable.

At the first contact you have to provide the following informations:
- Type of system;
- System serial number;
- System special characteristics;
- Accurate description of the problem and in which conditions the problem show itself.

Only a competent technician, after he tried to solve the problem by telephone and after he has estimated the type of the defect, can authorise the shipment for the repair or the eventual shipment of a replacement part.

We will accept rendered material only if it has been authorised in advance and it has been shipped "CARRIAGE FREE" (if not agreed in a different way).

In case of technician exit for a repair to the user, it will be always debited, beyond to a fixed right of call, expenses of travel based on the current kilometric rates and the time used for the repair.

Main warranty conditions

The manufacturer guarantees the good working of the equipment of own production for a period of 12 (twelve) months from the date of purchase certified by the invoice at the specified conditions below.

1. The warranty includes, of course, the change or the free repair of the parts of the equipment that have production defects and not damages due to bad maintenance or improper use of the equipment.

2. The manufacturer can decide unquestionably on any issue about complaints and defects.

3. In the hypothesis of improper use or bad maintenance and/or in case of violation of the equipment from users not authorised by manufacturer, the customer will loose all rights of assistance under warranty.

4. The manufacturer has no responsibility for eventual damages that, directly or indirectly, could arrive from people or things for the missed observance of all instructions indicated on the "manual" and, especially, referring to the installation, safety, use and maintenance indications. Moreover this warranty does not include compensation for the equipment inefficiency or stop periods of the machines.

5. The equipment will be repaired in FABER-COM s.r.l. or in the nearest after sale authorised centre. Costs and risks of transport from and to the assistance centre will be at customer charge. Please consider that all costs referring to equipment repair and/or change, as for instance (but not only this) FABER-COM s.r.l. people travelling expenses, will be completely at customer charge.

6. Every defective piece replaced not under warranty will become ownership of the customer.

7. Every defective piece replaced under warranty will become ownership of the manufacturer.

8. For assistance or requests without a well precise fault and for installation or explanation of system use rules, already explained in the "manual", all costs are at buyer charge.

9. If demanded, for all repaired components, will be given a copy of the technical relation with problem description, and added or replaced materials. If the repair is not possible or could be more expensive than the sale price of the new component, the sales department will contact the customer for a new offer and the defective material will be sent back without repair it.

REGOLATORI ELETTRONICI PER VALVOLE PROPORZIONALI
PROPORTIONAL SOLENOID VALVE ELECTRONIC REGULATORS

SENSORI DI INCLINAZIONE
SLOPE TRANSDUCERS

RADIOCOMANDI PROPORZIONALI PER MACCHINE IDRAULICHE SERVOCOMANDATE
PROPORTIONAL RADIO REMOTE CONTROLS FOR SERVO CONTROLLED HYDRAULIC MACHINES

CENTRALINE CONTROLLO STABILIZZATORI
OUTRIGGERS CONTROL DEVICES

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