



ROMEO

JOYSTICK

STEPPED OR STEPLESS

Romeo is a joystick designed to control complex machine tools used in heavy duty and aggressive environments.

DESIGN

Materials, technical solutions and size and shape of critical components ensure mechanical strength and life, and special attention is paid to design, ergonomics, sensitivity and accuracy of operation.

OPTIONS

Three different versions of Romeo are available: with free movement, with "dead man" safety device (with mechanical interlock with or without NO/NC contact), or

with electrical interlock. Not all versions are available on any handle of Romeo.

The movement of the rod in both directions can be configured by means of the lever guides. Romeo is a small size joystick available with up to 6 speeds, with or without potentiometer or encoder; a stepless version also available, with integrated analogical actuator, and with current, voltage or PWM outputs.

MATERIALS

Structural components are made of die-cast nickel-plated zama to ensure maximum resistance, while parts subject to wear are made of techno-polymer.



INDUSTRIAL
LIFTING



CONSTRUCTION
LIFTING



INDUSTRIAL
AUTOMATION



STAGE
TECHNOLOGY

STANDARDS - MARKINGS - HOMOLOGATIONS

- Conformity to Community Directives:
 - 2006/95/CE: Low Voltage Directive
 - 2006/42/CE: Machinery Directive
 - Conformity to Standards:
 - EN 60204-1 Safety of machinery - Electrical equipment of machines
 - EN 60947-1 Low-voltage switchgear and controlgear
 - EN 60947-5-1 Low-voltage switchgear and controlgear - Control circuit devices and switching elements - Electromechanical control circuit devices
 - Markings and homologations: **CE** **EMC**
- EN 61000-6-2 Electromagnetic compatibility (EMC) - Generic standards - Immunity for industrial environments
- EN 61000-6-3 Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light-industrial environments

GENERAL TECHNICAL SPECIFICATIONS

- Storage ambient temperature: -40°C/+70°C
- Operational ambient temperature: -25°C/+70°C
- Protection degree: IP 00 (IP 65 max. when assembled in specific enclosure)
- Insulation category: Class I
- Operating positions: any position
- Markings and homologations: **CE** **EMC**

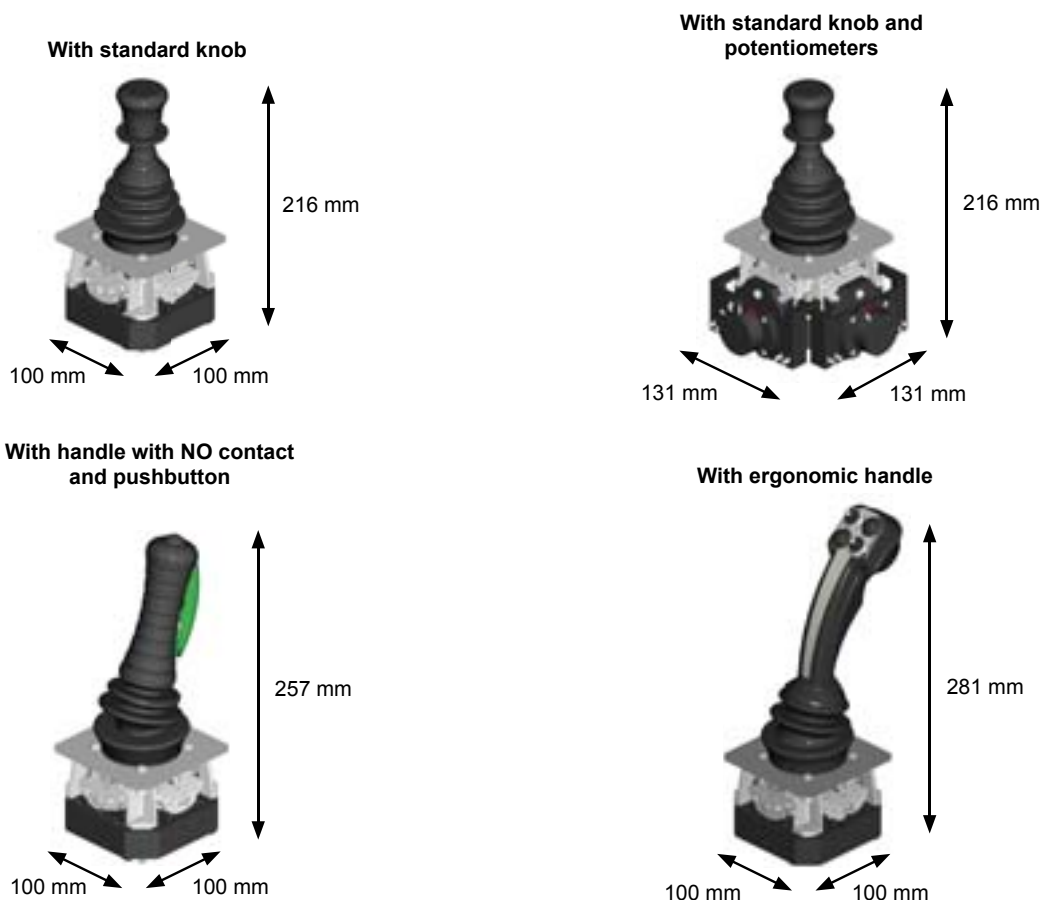
TECHNICAL SPECIFICATIONS OF THE MICROSWITCHES

- Utilisation category: AC 15
- Rated operational current: 2 A
- Rated operational voltage: 48 V~
- Other operating electrical usage:
 - 125 VAC / 1 A
 - 250 VAC / 0,5 A
 - 30 VDC / 1 A
- Rated thermal current: 8 A
- Rated insulation voltage: 60 V~
- Mechanical life: 0.5x10⁶ operations
- Connections: terminal board
- Wires: 0.2 mm² - 2.5 mm²
- Tightening torque: 0.5 Nm - 0.6 Nm
- Markings and homologations: **CE** **VDE** **CUL** **UL** **CSA**

TECHNICAL SPECIFICATIONS OF STEPLESS JOYSTICK

- Supply voltage: 12 ÷ 48 V AC/DC
- Proportional outputs:
 - 2 voltage outputs: 0 ÷ +10 Vdc
 - 2 current outputs: 4 ÷ 20mA
 - 2 PWM outputs: 0 ÷ 100% (freq=1KHz)
- Resolution: 10 bit
- 4 directional microswitches: max 2A / 48V
- Screw terminals: 2.5 mm² (max. section)

OVERALL DIMENSIONS



The data and the products illustrated in this brochure may be modified without notice. Under no circumstances can their description have a contractual value.



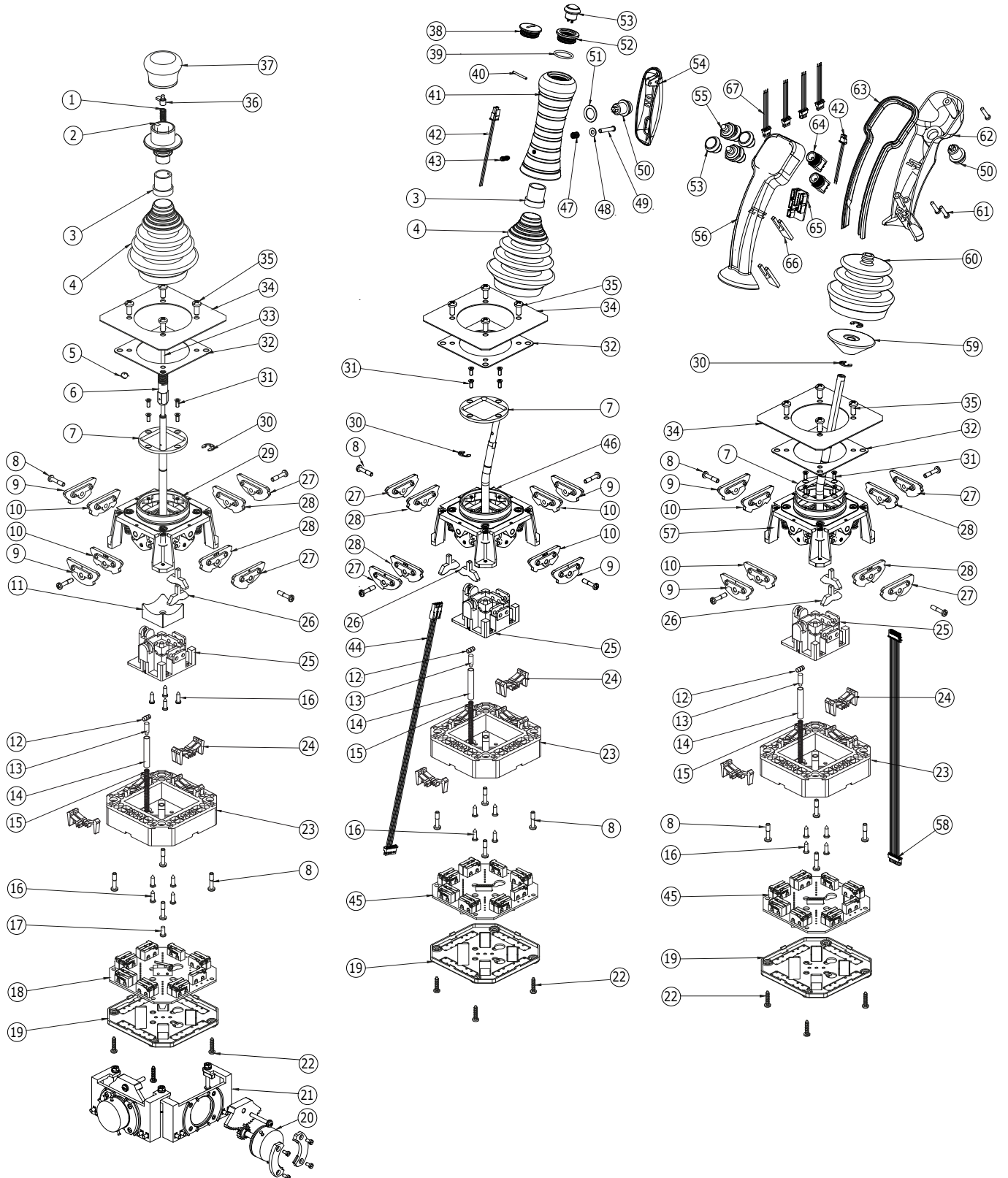
TER Tecno Elettrica Ravasi srl

Via Garibaldi 29/31 - 23885 Calco (LC) - Italy

Registered Office - via San Vigilio 2 - 23887 Olgiate Molgora (LC) - Italy

Tel. +39 0399911011 - Fax +39 0399910445 - E-mail: info@terworld.com

www.terworld.com



LEVER GUIDES

REF	DRAWING	DESCRIPTION	CODE
7		Cross lever guide 6/2-3/1	PRGC6622PE
		Cross lever guide 6/3	PRGC6633PE
		Cross lever guide 6/4-3/2	PRGC6644PE
		Cross lever guide 6/5	PRGC6655PE
		Cross lever guide 3/3-6/6	PRGC6666PE
		Lever guide 1/0	PRGL1100PE
		Lever guide 1/1	PRGL1111PE
		Lever guide 2/0-4/0	PRGL4400PE
		Lever guide 4/1	PRGL4411PE
		Lever guide 4/2-2/1	PRGL4422PE
		Lever guide 4/3	PRGL4433PE
		Lever guide 4/4-2/2	PRGL4444PE
		Lever guide 5/0	PRGL5500PE
		Lever guide 5/1	PRGL5511PE
		Lever guide 5/2	PRGL5522PE
		Lever guide 5/3	PRGL5533PE
		Lever guide 5/4	PRGL5544PE
		Lever guide 5/5	PRGL5555PE
		Lever guide 6/0-3/0	PRGL6600PE
		Lever guide 6/1	PRGL6611PE
		Lever guide 6/2-3/1	PRGL6622PE
		Lever guide 6/3	PRGL6633PE
		Lever guide 6/4-3/2	PRGL6644PE
		Lever guide 6/5	PRGL6655PE
		Lever guide 3/3-6/6	PRGL6666PE

POTENTIOMETERS

REF	DRAWING	DESCRIPTION	CODE
20		Potentiometer Megatron 2.2 kΩ	PRVV9035PE
		Potentiometer Megatron 4.7 kΩ	PRVV9020PE
		Potentiometer Megatron 10 kΩ	PRVV9025PE

CAMS

REF	DRAWING	DESCRIPTION	CODE
9		Cam 1 st position - 6/3 speeds	CKR60006
10		Cam 2 nd -3 rd position - 6 speeds	CKR60008
27		Cam 6 th position - 6 speeds	CKR60009
28		Cam 4 th -5 th position - 6 speeds	CKR60007

The data and the products illustrated in this brochure may be modified without notice. Under no circumstances can their description have a contractual value.



TER Tecno Elettrica Ravasi srl

Via Garibaldi 29/31 - 23885 Calco (LC) - Italy

Registered Office - via San Vigilio 2 - 23887 Olgiate Molgora (LC) - Italy

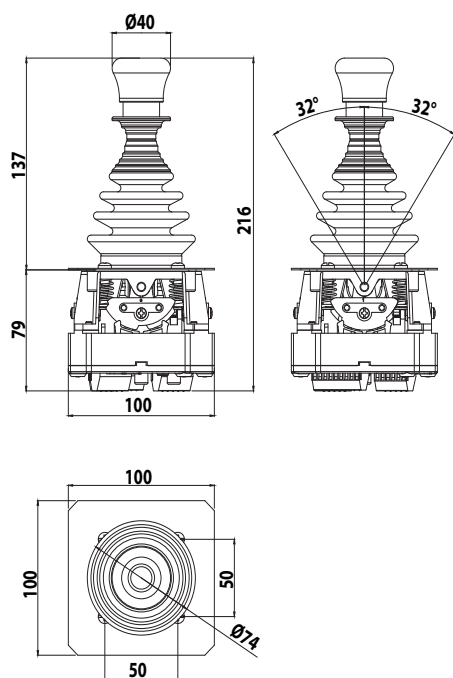
Tel. +39 0399911011 - Fax +39 0399910445 - E-mail: info@terworld.com

www.terworld.com

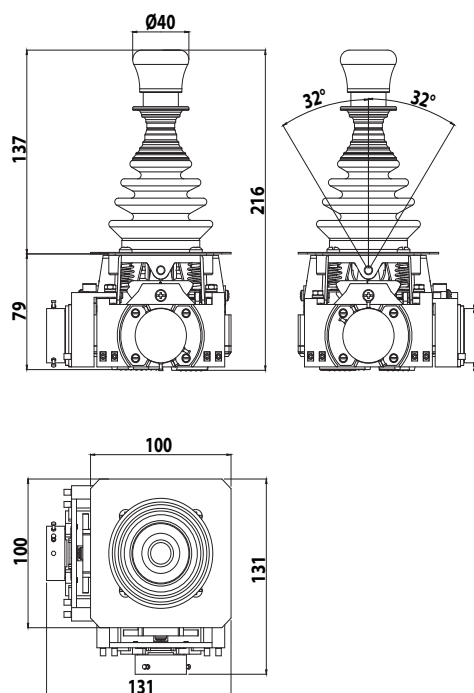
REMARKS

OVERALL DIMENSIONS (MM)

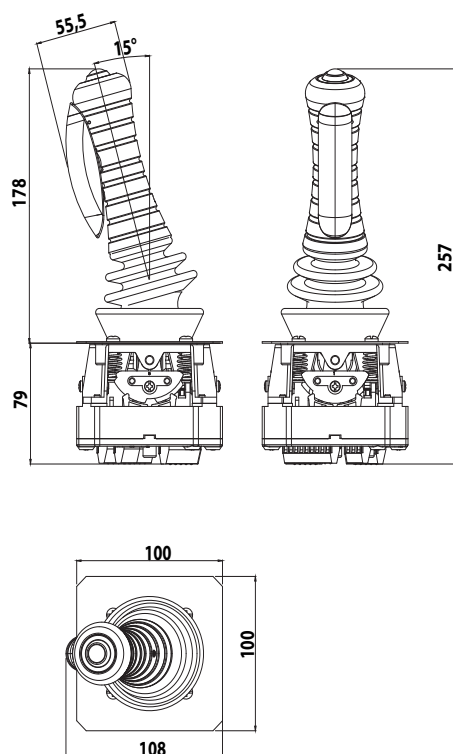
STANDARD



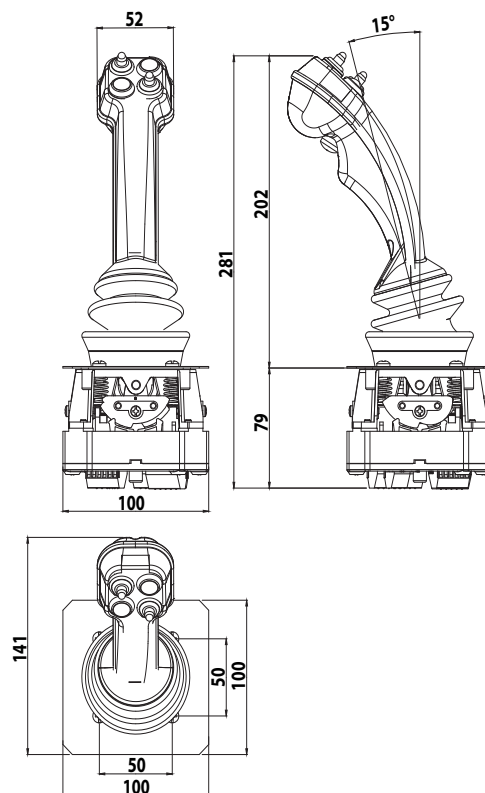
WITH POTENTIOMETERS / ENCODERS



WITH HANDLE



WITH ERGONOMIC HANDLE



The data and the products illustrated in this brochure may be modified without notice. Under no circumstances can their description have a contractual value.



TER Tecno Elettrica Ravasi srl

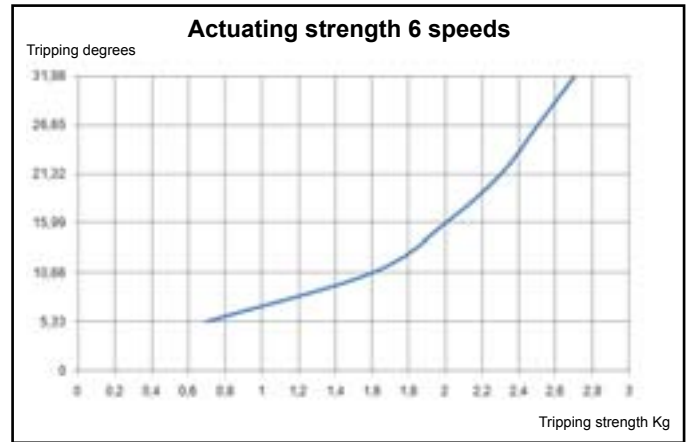
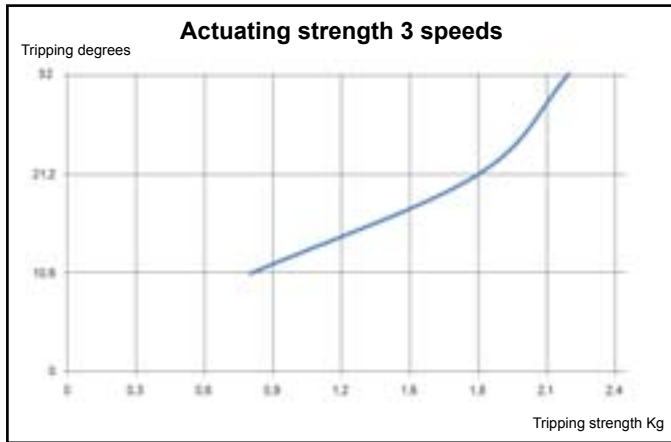
Via Garibaldi 29/31 - 23885 Calco (LC) - Italy

Registered Office - via San Vigilio 2 - 23887 Olgiate Molgora (LC) - Italy

Tel. +39 0399911011 - Fax +39 0399910445 - E-mail: info@terworld.com

www.terworld.com

ACTUATING STRENGTH



OPERATING ELECTRICAL USAGE

CODE	VOLTAGE	NON-INDUCTIVE LOAD				INDUCTIVE LOAD			
		RESISTIVE LOAD		LAMP LOAD		INDUCTIVE LOAD		MOTOR LOAD	
		NC	NO	NC	NO	NC	NO	NC	NO
PRVV0804PE	48 V~					2 A	2 A	2 A	2 A
	125 VAC	3 A		1 A	0,5 A	1 A	0,5 A	1 A	0,5 A
	250 VAC	2 A		0,5 A	0,3 A	0,5 A	0,3 A	0,5 A	0,3 A
	30 VDC	3 A		1 A		1 A		1 A	

STANDARD JOYSTICKS

STEPPED JOYSTICK

GRIP TYPE	POSITIONS	DIRECTION OF MOVEMENT		FREE MOVEMENT	MECHANICAL INTERLOCK + NC/NO CONTACT
		360°	CROSS		
Knob 	1-0		X	PF580C010001	PF580C010002
	1-1	X		PF580L011001	PF580L011002
	2-0		X	PF580C020001	PF580C020002
	2-2	X		PF580L022001	PF580L022002
	3-0		X	PF580C030001	PF580C030002
	3-1	X		PF580L031001	PF580L031002
	3-2	X		PF580L032001	PF580L032002
	3-3	X		PF580L033001	PF580L033002
	4-0		X	PF580C040001	PF580C040002
	4-1	X		PF580L041001	PF580L041002
	4-2	X		PF580L042001	PF580L042002
	4-3	X		PF580L043001	PF580L043002
	4-4	X		PF580L044001	PF580L044002
	5-0		X	PF580C050001	PF580C050002
	5-1	X		PF580L051001	PF580L051002
	5-2	X		PF580L052001	PF580L052002
	5-3	X		PF580L053001	PF580L053002
	5-4	X		PF580L054001	PF580L054002
	5-5	X		PF580L055001	PF580L055002
	6-1	X		PF580L061001	PF580L061002
	6-2	X		PF580L062001	PF580L062002
	6-3	X		PF580L063001	PF580L063002
	6-4	X		PF580L064001	PF580L064002
	6-5	X		PF580L065001	PF580L065002
	6-6	X		PF580L066001	PF580L066002

ROMEO - JOYSTICK

GRIP TYPE	POSITIONS	DIRECTION OF MOVEMENT		FREE MOVEMENT	ELECTRICAL INTERLOCK NO CONTACT
		360°	CROSS		
Handle 	1-0		X	PF580C010006	PF580C010003
	1-1	X		PF580L011006	PF580L011003
	2-0		X	PF580C020008	PF580C020003
	2-2	X		PF580L022008	PF580L022003
	3-0		X	PF580C030006	PF580C030003
	3-1	X		PF580L031007	PF580L031003
	3-2	X		PF580L032006	PF580L032003
	3-3	X		PF580L033006	PF580L033003
	4-0		X	PF580C040008	PF580C040003
	4-1	X		PF580L041007	PF580L041003
	4-2	X		PF580L042006	PF580L042003
	4-3	X		PF580L043006	PF580L043003
	4-4	X		PF580L044007	PF580L044003
	5-0		X	PF580C050006	PF580C050003
	5-1	X		PF580L051006	PF580L051003
	5-2	X		PF580L052006	PF580L052003
	5-3	X		PF580L053006	PF580L053003
	5-4	X		PF580L054006	PF580L054003
	5-5	X		PF580L055006	PF580L055003
	6-1	X		PF580L061006	PF580L061003
	6-2	X		PF580L062006	PF580L062003
	6-3	X		PF580L063006	PF580L063003
	6-4	X		PF580L064006	PF580L064003
	6-5	X		PF580L065006	PF580L065003
	6-6	X		PF580L066006	PF580L066003
Ergonomic handle 	1-0		X	PF580C010004	PF580C010005
	1-1	X		PF580L011004	PF580L011005
	2-0		X	PF580C020004	PF580C020005
	2-2	X		PF580L022004	PF580L022005
	3-0		X	PF580C030004	PF580C030005
	3-1	X		PF580L031004	PF580L031005
	3-2	X		PF580L032004	PF580L032005
	3-3	X		PF580L033004	PF580L033005
	4-0		X	PF580C040004	PF580C040005
	4-1	X		PF580L041004	PF580L041005
	4-2	X		PF580L042004	PF580L042005
	4-3	X		PF580L043004	PF580L043005
	4-4	X		PF580L044004	PF580L044005
	5-0		X	PF580C050004	PF580C050005
	5-1	X		PF580L051004	PF580L051005
	5-2	X		PF580L052004	PF580L052005
	5-3	X		PF580L053004	PF580L053005
	5-4	X		PF580L054004	PF580L054005
	5-5	X		PF580L055004	PF580L055005
	6-1	X		PF580L061004	PF580L061005
	6-2	X		PF580L062004	PF580L062005
	6-3	X		PF580L063004	PF580L063005
	6-4	X		PF580L064004	PF580L064005
	6-5	X		PF580L065004	PF580L065005
	6-6	X		PF580L066004	PF580L066005

The data and the products illustrated in this brochure may be modified without notice. Under no circumstances can their description have a contractual value.



TER Tecno Elettrica Ravasi srl

Via Garibaldi 29/31 - 23885 Calco (LC) - Italy

Registered Office - via San Vigilio 2 - 23887 Olgiate Molgora (LC) - Italy

Tel. +39 0399911011 - Fax +39 0399910445 - E-mail: info@terworld.com

www.terworld.com

GRIP TYPE	DIRECTION OF MOVEMENT		FREE MOVEMENT
	360°	CROSS	
Knob		X	PF584C066001
	X		PF584L066001

GRIP TYPE	DIRECTION OF MOVEMENT		FREE MOVEMENT	ELECTRICAL INTERLOCK NO CONTACT
	360°	CROSS		
Handle 		X	PF584C066002	PF584C066003
	X		PF584L066002	PF584L066004
Ergonomic handle 		X	PF584C066004	PF584C066005
	X		PF584L066005	PF584L066006

REMARKS

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on its right side, suggesting it's resting on a surface.

Grip type

- ☐ Knob (IP 65 assembled in specific enclosure)

Function

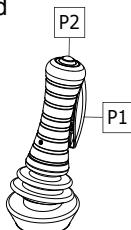
- ☐ Free movement
- ☐ Mechanical interlock + NC/NO contact (not available for proportional Romeo)



- ☐ Handle (IP 44 assembled in specific enclosure)

Function

- ☐ Free movement
- ☐ Electrical interlock (P1 button NO)
- ☐ Electrical interlock (P1 button NO) + P2 button NO
- Colour of P2 button
☐ black ☐ green



- ☐ Ergonomic handle (IP 43 assembled in specific enclosure)

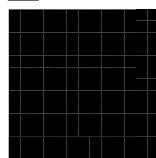


Movement

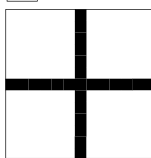
- ☐ Stepped - spring return
- ☐ Stepped - maintained positions
- ☐ Linear - spring return

Lever guide

Standard lever guide

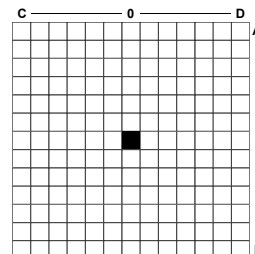


6 steps directions A-B
6 steps directions C-D
360° movement



6 steps directions A-B
6 steps directions C-D
Cross movement

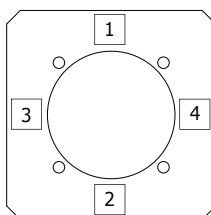
- ☐ Customized lever guide (not available for proportional Romeo)



Joystick label

- ☐ Blank label
- ☐ Lifting-Traverse symbols
- ☐ Trolley-Rotation symbols

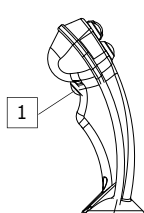
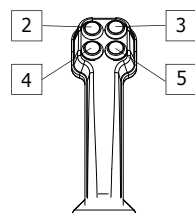
- ☐ Customized label



Pos. Letterings

1	_____
2	_____
3	_____
4	_____

Actuators for ergonomic handle



Actuators for positions 2-3-4-5

- ☐ A Black button NO 1 contact + 1 common
- ☐ B Green button NO 1 contact + 1 common
- ☐ C 2 position selector ON-OFF 1 contact + 1 common
- ☐ D 2 position selector MOM-OFF 1 contact + 1 common
- ☐ E 2 maintained position selector ON-ON 2 contacts + 1 common
- ☐ F 3 maintained position selector ON-OFF-ON 2 contacts + 1 common
- ☐ G 2 position spring return selector ON-MOM 2 contacts + 1 common
- ☐ H 3 position selector MOM-OFF-MOM 2 contacts + 1 common
- ☐ I 3 position selector ON-OFF-MOM 2 contacts + 1 common

* Maximum 5 contacts + 1 common available
 Ex.: NO contact in position 1 + 4 buttons A type
 NO contact in position 1 + 4 selectors C type
 NO contact in position 1 + 2 selectors G type
 ** In case of use of the electrical interlock function, connect it to actuator 1

Actuator type* and label letterings

Pos. ☐ 1 ☐ Y ☐ N Green button NO 1 cont.+1 comm.**

Type	Lettering
☐ 2	_____
☐ 3	_____
☐ 4	_____
☐ 5	_____

The data and the products illustrated in this brochure may be modified without notice. Under no circumstances can their description have a contractual value.



TER Tecno Elettrica Ravasi srl

Via Garibaldi 29/31 - 23885 Calco (LC) - Italy

Registered Office - via San Vigilio 2 - 23887 Olgiate Molgora (LC) - Italy

Tel. +39 0399911011 - Fax +39 0399910445 - E-mail: info@terworld.com

www.terworld.com

☐ Joystick with switches

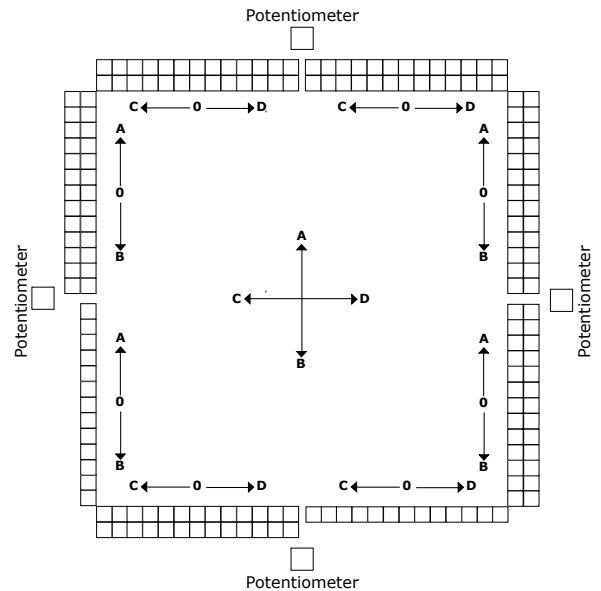
Potentiometer

- ☐ 1 2.2 k Ω
- ☐ 2 4.7 k Ω
- ☐ 3 10 k Ω
- ☐ 4 Preset only

Instructions

When necessary, write the number corresponding to the **potentiometer** or to the **preset** required. Fill in the **contact** scheme blackening the boxes corresponding to the positions where the cams close the contacts (each bar of 13 boxes correspond to a switch; the central box corresponds to the zero position of the joystick). In the example, the contact is closed in positions 1-2-3 to the left and 3-4 to the right.

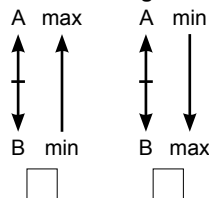
6	5	4	3	2	1	0	1	2	3	4	5	6



☐ Stepless proportional joystick

A-B LEVER DIRECTION

Select the increase / decrease direction of the signal



☐ Standard outputs*

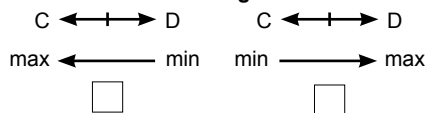
Standard outputs (A-B direction)			Select a version
Voltage	Current	PWM	
0-10V	4-20mA	0-100%	☐
0-5V	4-12mA	0-50%	☐
0,5-9,5V	4,5-19,5mA	5-95%	☐
0,5-4,5V	4,5-11,5mA	5-45%	☐

☐ Customized outputs

Customized outputs (A-B direction)								
Voltage (from 0 to 10 V)			Current (from 4 to 20 mA)			PWM (from 0 to 100%)		
min	Lever in central position	max	min	Lever in central position	max	min	Lever in central position	max
_____V	_____V	_____V	_____mA	_____mA	_____mA	_____%	_____%	_____%

LEVER DIRECTION C-D

Select the increase / decrease direction of the signal



☐ Standard outputs*

Standard outputs (C-D direction)			Select a version
Voltage	Current	PWM	
0-10V	4-20mA	0-100%	☐
0-5V	4-12mA	0-50%	☐
0,5-9,5V	4,5-19,5mA	5-95%	☐
0,5-4,5V	4,5-11,5mA	5-45%	☐

☐ Customized outputs

Customized outputs (C-D direction)								
Voltage (from 0 to 10 V)			Current (from 4 to 20 mA)			PWM (from 0 to 100%)		
min	Lever in central position	max	min	Lever in central position	max	min	Lever in central position	max
_____V	_____V	_____V	_____mA	_____mA	_____mA	_____%	_____%	_____%

* Select the standard output required. In case of customized outputs, fill in the 'customized outputs' table paying attention at the value ranges. The value of 'Lever in central position' must be in between the minimum and maximum values chosen.

The Romeo joystick is an electromechanical device for low voltage control circuits (EN 60947-1, EN 60947-5-1) to be used as electric equipment on machines (EN 60204-1) in compliance with the essential requisites of the Low Voltage Directive 2006/95/CE and the Machine Directive 2006/42/CE.

The Romeo joystick is designed for use in industrial environments even under severe climatic conditions (working temperatures from -25°C to +70°C and suitable for use in tropical environments). The equipment is not suitable for use in environments with potentially explosive atmosphere, corrosive agents or a high percentage of sodium chloride (saline fog). Oils, acids or solvents may damage the equipment. Do not connect more than one phase to each switch. Do not oil or grease the switches and the control elements.

If the joysticks are equipped with mechanical interlock, do not move the control lever before removing this block by lifting the lower part of the knob (01), this operations also activates the dedicated central switch.

If the joysticks are equipped with the "Dead Man" button, push the button (P1) to enable movement and while operating eventual push buttons / selectors (P2, P3, P4, P5) the foreseen functions are activated.

With regard to the conditions for installation, use and evaluation of the essential requisite for safety and the protection of health, the joystick must be installed so as to ensure adequate protection of the equipment in general and of the active parts in particular (protection against electric shock and against the penetration of solid bodies and liquids).

The installation of the Romeo joystick shall be carried out by expert and trained personnel. Wiring shall be properly done according to the current instructions.

Prior to the installation and the maintenance of the joystick, the main power of the machinery shall be turned off.

The joystick is supplied with a bag of accessories including: 4 metric screws (04).

Steps for the proper installation of the joystick

- Drill holes Ø 60 on the chosen support (support with a thickness of 4 mm) (for correct drilling use the special template supplied on request)
- Place the joystick in the hole on the support (press the bellows on the joystick (3) slightly for correct insertion)
- Position the plate (05) with its gasket on the joystick
- Fasten the screws (04) matching the holes on the plate (05) with those on the support and the threaded holes on the joystick (take care to position the gasket correctly between the joystick and the support)
- Strip the multi-pole cable for a length sufficient for electrical connection with the terminals
- Fasten the multi-pole cable so as to prevent the possibility of external traction on the connections
- Connect the wires to the terminals in accordance with the wiring diagram shown on the instructions; we suggest the use of pin terminals

Steps for routine maintenance

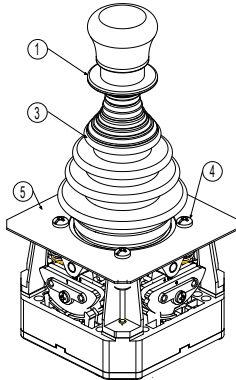
- Check the correct tightening of the screws (04) fastening the joystick to the support
- If there is a mechanical interlock (01), make sure it functions correctly
- If there is a "Dead Man" button (P1), make sure it mechanically functions correctly
- If there are a push buttons / selectors (P2, P3, P4, P5), make sure they mechanically functions correctly
- Check the conditions of the wiring (in particular where wires clamp into the terminals)
- Check the conditions of the bellows (03) on the joystick

Any change to parts of the joystick will invalidate the rating plate and identification data of the device, and render the warranty null and void. In case of replacement of any part, use original spare parts only.

TER declines all responsibility for damages caused by the improper use or installation of the equipment.

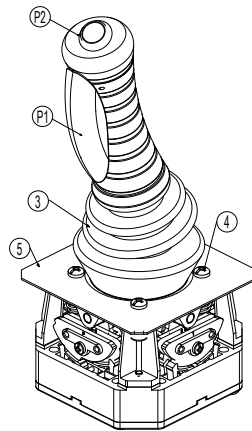
JOYSTICK WITH SWITCHES

Schema Cablaggio A
Wiring Layout A



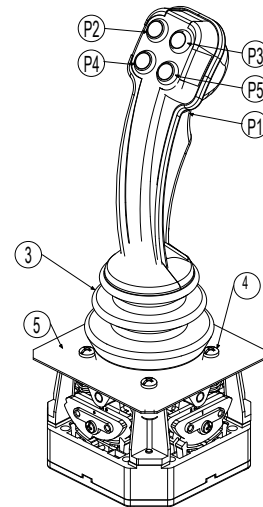
Dispositivo 1
Device 1

Schema Cablaggio B
Wiring Layout B

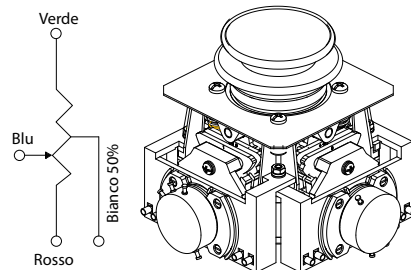


Dispositivo 2
Device 2

Schema Cablaggio B
Wiring Layout B



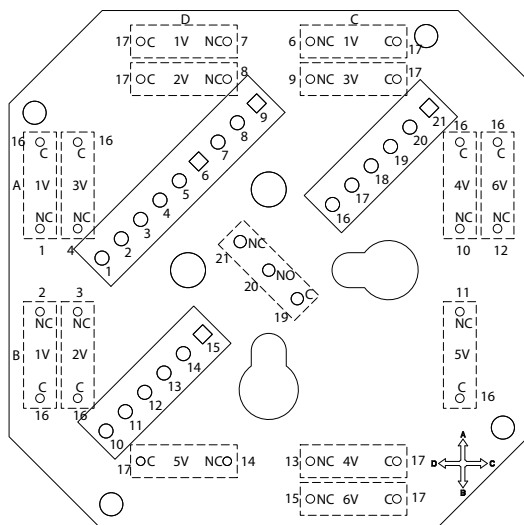
Dispositivo 3
Device 3



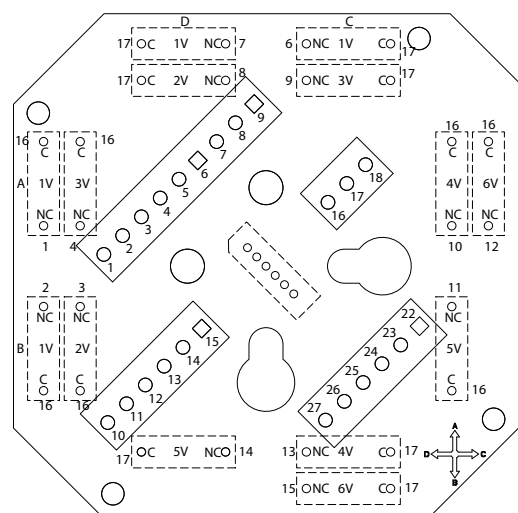
Disponibile per tutti i modelli
Available for all models

	1	2	3
Dispositivo Device			
Posizione Position	Funzione Function		
	Numero Pin Pin number		
			23
			27
			26
			25
			24
			22

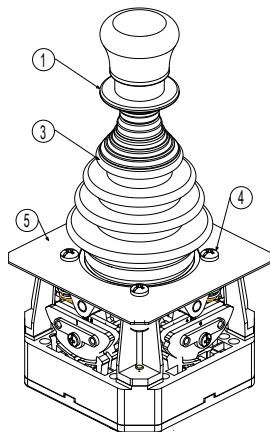
Schema di cablaggio A
Wiring Layout A



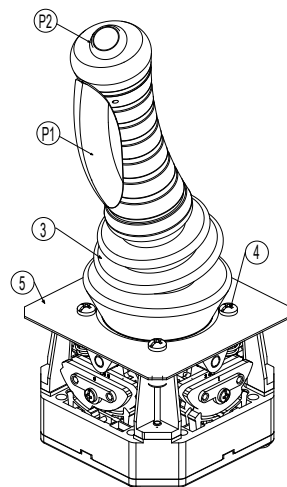
Schema di cablaggio B
Wiring Layout B



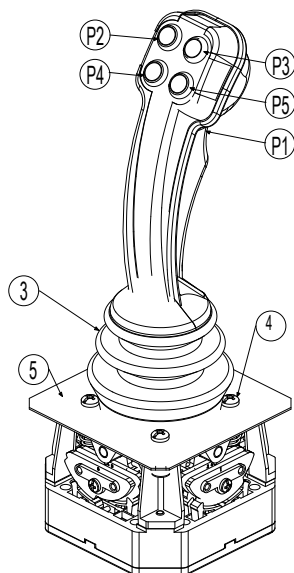
STEPLESS PROPORTIONAL JOYSTICK



Dispositivo 1
Device 1

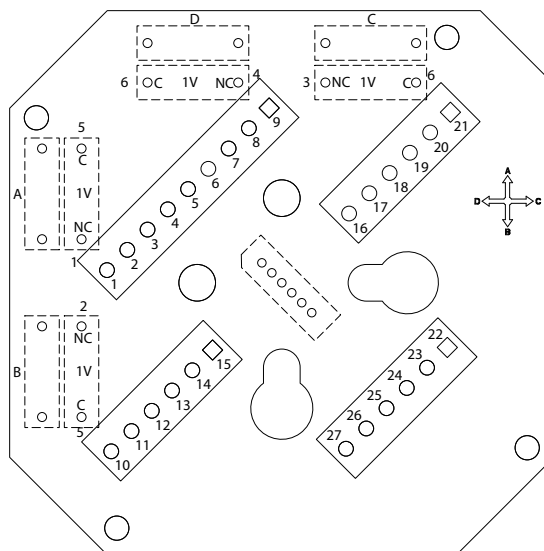


Dispositivo 2
Device 2



Dispositivo 3
Device 3

N. PIN	Funzione / Function	
1	Uscita interruttore direzione A / Switch output direction A	A
2	Uscita interruttore direzione B / Switch output direction B	B
3	Uscita interruttore direzione C / Switch output direction C	C
4	Uscita interruttore direzione D / Switch output direction D	D
5	Comune direzione A/B / Common direction A/B	COM_AB
6	Comune direzione C/D / Common direction C/D	COM_CD
7	Riferimento di massa per le uscite analogiche Ground reference for analog outputs	GND
8	Alimentazione Vac/VDC- / Supply voltage Vac/VDC-	VAC/VDC-
9	Alimentazione Vac/VDC+ / Supply voltage Vac/VDC-	VAC/VDC+
10		
11		
12		
13		
14		
15		
16	Non connesso / Not connected	
17	Non connesso / Not connected	
18	Uscita PWM direzione A/B / PWM output direction A/B	PWM_AB
19	Uscita PWM direzione C/D / PWM output direction C/D	PWM_CD
20	Non connesso / Not connected	
21	Non connesso / Not connected	
22	Non connesso / Not connected	
23	Non connesso / Not connected	
24	Uscita analogica in tensione direzione C/D Voltage analog output direction C/D	V_CD
25	Uscita analogica in tensione direzione A/B Voltage analog output direction A/B	V_AB
26	Uscita analogica in corrente direzione C/D Current analog output direction C/D	I_CD
27	Uscita analogica in corrente direzione A/B Current analog output direction A/B	I_AB



The data and the products illustrated in this brochure may be modified without notice. Under no circumstances can their description have a contractual value.



TER Tecno Elettrica Ravasi srl

Via Garibaldi 29/31 - 23885 Calco (LC) - Italy

Registered Office - via San Vigilio 2 - 23887 Olgiate Molgora (LC) - Italy

Tel. +39 0399911011 - Fax +39 0399910445 - E-mail: info@terworld.com

www.terworld.com