

# PERCJ SERIES

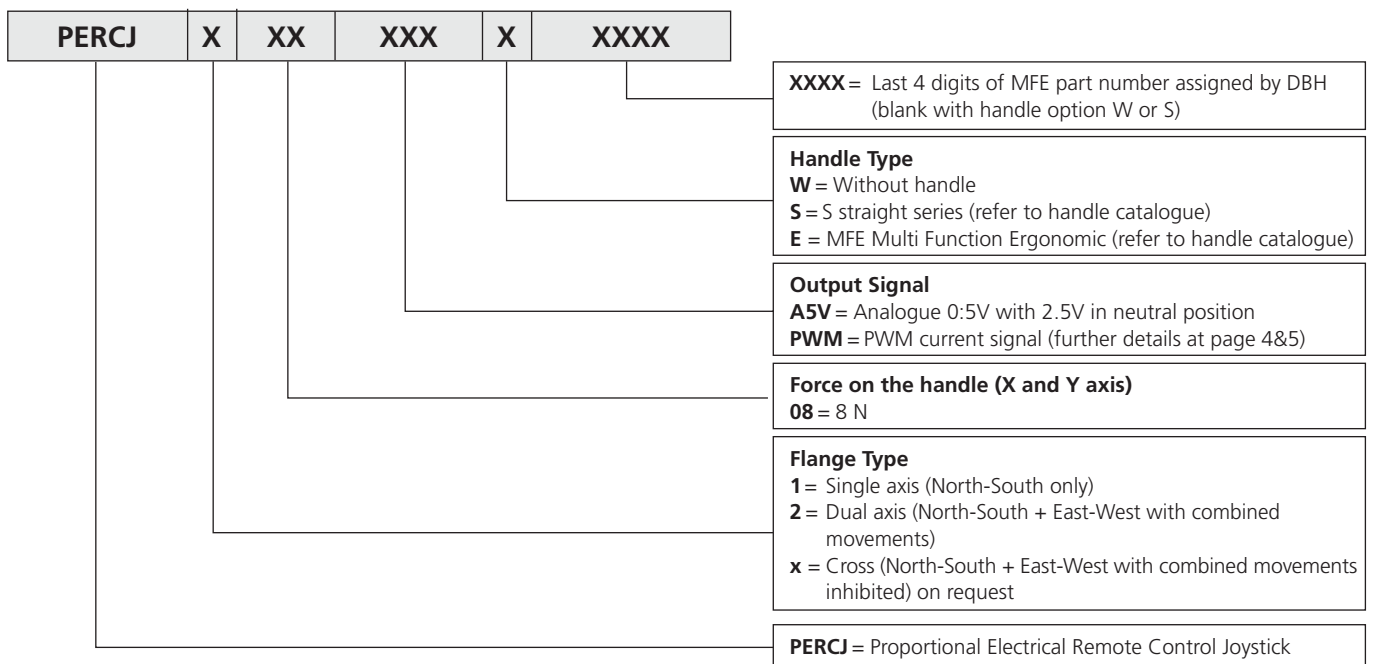
PROPORTIONAL ELECTRIC  
REMOTE CONTROLS JOYSTICK



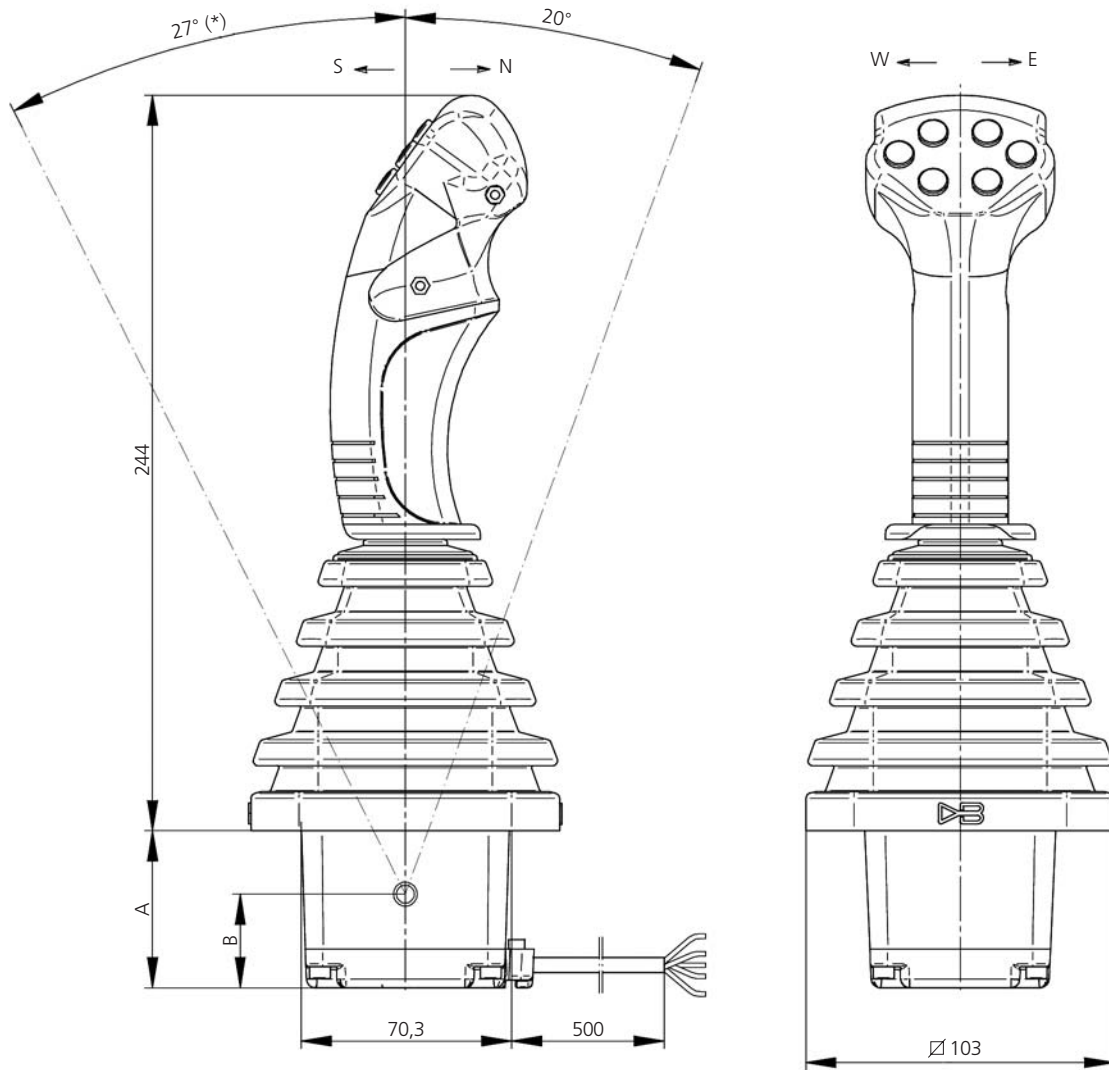
# PERCJ SERIES STANDARD TECHNICAL DATA

Input voltage range	8V to 30V
Maximum input current	180 mA at 24V
Output voltage range (A5V option)	0.5 ÷ 5V (with 2.5V in neutral position)
Output current range (PWM option)	400-1600 mA (12VDC) – 200-800 mA (24VDC)
Out of centre position sensor	Included as standard feature
Life	>5 million cycles
Operating temperature	-40°C ÷ 85°C

# PERCJ SERIES ORDERING KEY

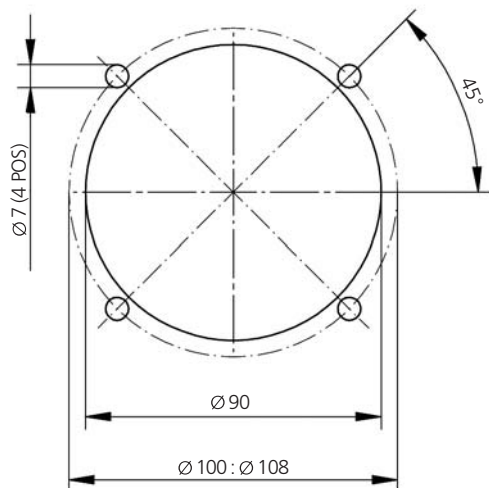


# PERCJ SERIES OVERALL DIMENSIONS



(\* ) COMBINED MOVEMENTS (N+E; N+W; S+E; S+W)

## MOUNTING HOLES



### **A5V Output signal version (Volt)**

A = 52 mm

B = 31 mm

### **PWM Output signal version (Ampere)**

A = 96 mm

B = 75 mm

# PERCJ SERIES WIRE CONNECTIONS

DUAL AXIS JOYSTICK A5V VERSION	
WIRE COLOUR	FUNCTION
YELLOW	X AXIS OUTPUT (0:5 VDC) (*)
BROWN	GROUND (-)
GREY	Y AXIS OUTPUT (0:5 VDC)
GREEN	OUT OF CENTRE SIGNAL
WHITE	SUPPLY (+)

**The PWM card has the following setting values:**

- **Start point setting:** from 0 to 800 mA at 12VDC  
from 0 to 400 mA at 24VDC
- **End point setting:** from 300 to 1600 mA at 12VDC  
from 300 to 800 mA at 24VDC
- **Input/Output ramps:** from 0,2s up to 2s with steps of 0,2s

The parameters above can be settled with a Windows interface software, connecting the PC with a USB cable to the PWM.

The adjustable parameters are for each semiaxis.

- Maximum and minimum current
- Starting and ending lever angle (%)
- Broken characteristics
- Ramps

DUAL AXIS JOYSTICK PWM VERSION	
WIRE COLOUR	FUNCTION
BLACK	GROUND (-)
RED	SUPPLY (+)
WHITE	X AXIS OUTPUT SIGNAL (EAST) (*)
YELLOW	Y AXIS OUTPUT SIGNAL (SOUTH)
GREEN	Y AXIS OUTPUT SIGNAL (NORTH)
GREY	X AXIS OUTPUT SIGNAL (WEST) (*)
ORANGE	X AXIS GROUND (WEST-EAST) (*)
BROWN	Y AXIS GROUND (NORTH-SOUTH)
BLUE (14)	OUT OF CENTRE SIGNAL (SOUTH)
BLUE (15)	OUT OF CENTRE SIGNAL (WEST) (*)
BLUE (16)	OUT OF CENTRE SIGNAL (EAST) (*)
BLUE (17)	OUT OF CENTRE SIGNAL (NORTH)

(\*) Disabled for single axis version

## PWM TECHNICAL SPECIFICATIONS

FUNCTION DESCRIPTION	VALUES	NOTES
Input voltage range	8 ÷ 32 VDC	
Input voltage signal range	0,25 ÷ 5 V	Center position 2,5 Volt
Current output signal	400 ÷ 1600 mA	Input voltage 12V
Current output signal	200 ÷ 800 mA	Input voltage 24V
Maximum output current @ 20°C	2300 mA (12 Vdc) – 1200 mA (24 Vdc)	
PWM frequency	1000 HZ (Dither 100 HZ)	
Maximum hysteresis	1%	For output current signal
Life	10 <sup>7</sup> cycles	
Duty cycle	75%	
Input/Output delay	from 30 up to 100 ms	
Ramp time setting	from 0,2 up to 2s step 0,2s	
Ramp setting system	Impulse programmer	
Operating ambient temperature	-20 : 85°C	
Card insulation	With transparent protective resin	
Y axis starting point setting	from 0 up to 800mA	Input voltage 12V
Y axis starting point setting	from 0 up to 400 mA	Input voltage 24V
Y axis final point setting	from 300 up to 1800 mA	Input voltage 12V
Y axis final point setting	from 300 up to 1000 mA	Input voltage 24V
Out-neutral position signal	100 mA for 4 semiaxis	
Wire terminals	Tinned wires	
Card overall dimensions	54x61 mm	
Card fixing	with 4 screws	
Card marking	with DB logo and part number	

## PWM PROGRAMMING SOFTWARE

### PROFILE SETTING

The screenshot shows the 'Programming: PROFILES' window for a Joystick David Brown STD+G (Serial Number: 9002). The interface is divided into several sections:

- Movements List:** A list on the left with 'Movement 1' selected.
- Movement Name:** A text field containing 'Movement 1'.
- Note:** An empty text area for additional information.
- Forward Profile:** A graph showing current (mA) vs. input command (%). The y-axis ranges from -2000 to -250 mA. The x-axis ranges from 100 to 0. The curve starts at approximately -1500 mA at 100% command and decreases to -250 mA at 0% command.
- Backward Profile:** A graph showing current (mA) vs. input command (%). The y-axis ranges from 2000 to 250 mA. The x-axis ranges from 0 to 100. The curve starts at approximately 250 mA at 0% command and increases to 1500 mA at 100% command.
- Current Settings:**
  - Forward:** I<sub>max</sub> = 1470 mA, I<sub>min</sub> = 200 mA.
  - Backward:** I<sub>max</sub> = 1410 mA, I<sub>min</sub> = 390 mA.
- Command Settings:**
  - Forward:** Val. for I<sub>max</sub> = 89%, Val. for I<sub>min</sub> = 15%.
  - Backward:** Val. for I<sub>max</sub> = 91%, Val. for I<sub>min</sub> = 17%.
- De-linearisation knee:**
  - Forward:** Current = 29%, Command = 65%.
  - Backward:** Current = 24%, Command = 57%.
- Buttons:** 'Restore default' and 'Set as default' are present for both Forward and Backward profiles.
- Footer:** PWM frequency selection (30Hz, 60Hz, 90Hz, 120Hz, 150Hz), 'Send to the board', 'Save in DataBase', 'Exit', and a help icon.

### RAMP SETTING

The screenshot shows the 'Programming: RAMPS' window for a Joystick David Brown STD (Serial Number: 9013). The interface is divided into several sections:

- Movements List:** A list on the left with 'Movement 1' selected.
- Movement Name:** A text field containing 'Movement 1'.
- Note:** An empty text area for additional information.
- Forward Profile:** A graph showing acceleration and deceleration vs. input command (%). The x-axis ranges from 100 to 0. The acceleration is constant at 2 1/10 sec. until the deceleration point, which is also set to 2 1/10 sec.
- Backward Profile:** A graph showing acceleration and deceleration vs. input command (%). The x-axis ranges from 0 to 100. The acceleration is constant at 2 1/10 sec. until the deceleration point, which is also set to 2 1/10 sec.
- RAMP Settings:**
  - Forward:** Accel. = 2 1/10 sec., Decel. = 2 1/10 sec.
  - Backward:** Accel. = 2 1/10 sec., Decel. = 2 1/10 sec.
- Buttons:** 'Restore default' and 'Set as default' are present for both Forward and Backward profiles.
- Footer:** PWM frequency selection (30Hz, 60Hz, 90Hz, 120Hz, 150Hz), 'Send to the board', 'Save in DataBase', 'Exit', and a help icon.

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