



*Products Overview*

# HANDLES

Rev. 00 • March, 2025

TECHNICAL CATALOGUE



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Handles



## HISTORY OF REVISIONS

DATE	PAGE	CHANGED	REV.
March, 2025	-	First edition	00

## ABOUT THE MANUAL

This manual contains the technical instructions for the Handle by EBI Motion Control.  
All information given in this manual is current and valid according to the information available at the time of publication.  
The data specified above only serve to describe the product. EBI Motion controls reserves to modify or revise the instructions without prior notice.

EBI Motion controls is not responsible for any damage caused by an incorrect use of the product.  
Please visit [www.ebimc.com](http://www.ebimc.com) for the most recent version of this manual.

## CONTENTS

4	<b>INTRODUCTION</b>
5	<b>GENERAL INSTRUCTIONS</b> WARRANTY GENERAL SAFETY INSTRUCTIONS
6	<b>ORDERING CODES EHC</b>
7	<b>GENERAL SPECIFICATIONS EHC</b> BUTTONS COLOURS SPECIFICATIONS
8	<b>ELECTRIC DEVICE SPECIFICATIONS</b> SEALED PUSH BUTTON SWITCHES ROLLER SWITCH ROCKER SWITCH “DEAD MAN” PUSH BUTTON CABLE SPECIFICATIONS
10	<b>EXAMPLE OF CONFIGURATION</b>
12	<b>ORDERING CODES EHM</b>
13	<b>NOTES</b>



## INTRODUCTION

### EHC - HANDLES

EHC1 handles are designed to guarantee high level of customization. The ergonomic shape allows long duty cycles and excellent comfort and safety for the operator. A wide range of configurable options (buttons, rollers, switches, rockers) allow to fit various machines design in terms of shape and layout.

### EHM - HANDLES

The handle families identified with EHM have been designed to equip the vast range of earth-moving machines including mini-excavators, mini-loaders, tractors. These handles can be set up to have or not a microswitch.



## EHC1

Configurable handle



## EHM1

Handle without micro-switch

## EHM2

Handle with one micro-switch

## EHM3

Handle with dual micro-switch

## GENERAL INSTRUCTIONS

### WARRANTY

Check the package and the product for transport damage when receiving goods. The package is not meant for long term storage; protect the product appropriately.

Do not dismantle the product. The warranty is void if the product has been disassembled.

The manufacturer is not responsible for damages resulting from misinterpreted, noncompliance, incorrect, or improper use of the product that goes against the instructions given in this document.

### GENERAL SAFETY INSTRUCTIONS

The following instructions apply to all procedures associated with the product. Read these instructions carefully and follow them closely.

- Use necessary personal protective equipment when working with the product.
- Support the product properly; make sure the product cannot fall over or turn around by accident.
- Use only appropriate equipment and attachments for lifting and transferring the product.
- Always use the lifting equipment properly and check the load-bearing capacity.
- Prevent unintended use of the product during installation and maintenance procedures.

### STORAGE OF NEW PRODUCTS

Encapsulated by a protective wrapping, the products shall not be exposed to direct sunlight nor to source of heat or ozone and kept in a dry place at a temperature between  $-20^{\circ}\text{C}$   $+50^{\circ}\text{C}$ .

### SAFETY GUIDELINES

During any operation on handles, it is recommended to pay attention to components surfaces temperature.

The circuit functions are to be so designed that uncontrolled machine movements, caused by the application, are prevented and that it is possible to switch from one function to another.

Take into account all of the application limits, particularly those application limits stated within this technical catalogue.




















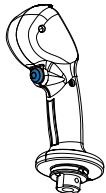
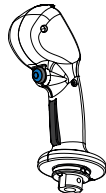
## ORDERING CODES EHC

The order code below provides an example of handle EHC1 with standard configuration.  
This example represents a EHC1 with 6 buttons in front electric device and button “dead man”.

Handle				1			2		
E	H	C	1	F	0	6	R	0	3

POSITION	CODE	DESCRIPTION
1	<b>F06</b>	Front electric device arrangement
2	<b>R03</b>	Rear electric device arrangement

FRONT ELECTRIC DEVICE ARRANGEMENT					
F00		F05		F22	
F01		F06		F31	
F02		F11		F32	
F03		F12		F51	
F04		F21		F52	

REAR ELECTRIC DEVICE ARRANGEMENT					
R00		handle <b>WITHOUT</b> button and “dead man”	R02		handle <b>WITH</b> “dead man”
R01		handle <b>WITH</b> button	R03		handle <b>WITH</b> button and “dead man”

## GENERAL SPECIFICATIONS EHC

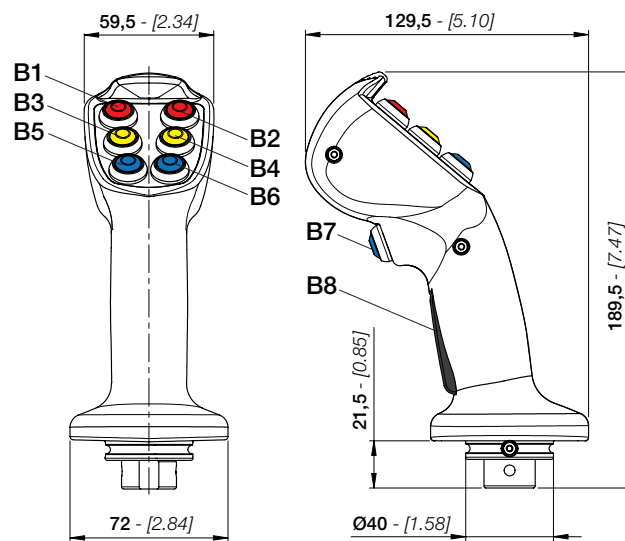
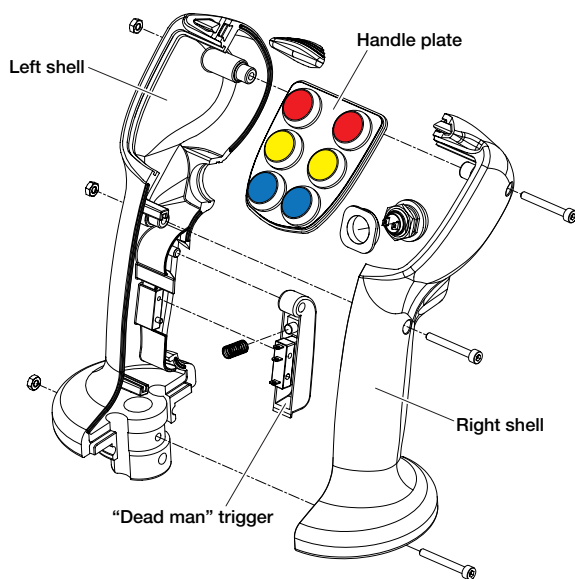
EHC1 is a multifunctional configurable handle designed for EBI servocontrols.

It is designed to guarantee flexibility and high level of customization.

The ergonomic shape allows long duty cycles and excellent comfort for the operator.

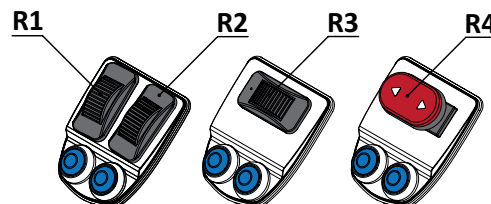
A wide range of configurable options (buttons, rollers, switches, rockers) allow to fit various machines design in terms of shape, layout and color.

- Ergonomic handle
- ON/OFF and proportional functions
- Multiple Roller options
- Rocker switch
- Enable trigger control
- IP configuration driven
- Configurable options combination
- Color and logo personalization on request



### BUTTONS COLOURS SPECIFICATIONS

- Button B1 - B2 ..... **red**
- Button B3 - B4 ..... **yellow**
- Button B5 - B6 - B7..... **blue**
- B8 (button for safety, "dead man") ..... **black**
- Roller R1 (vertical left) ..... **black**
- Roller R2 (vertical right) ..... **black**
- Roller R3 (horizontal) ..... **black**
- Rocker R4 (ON/OFF/ON) ..... **red**



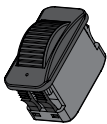
## ELECTRIC DEVICE SPECIFICATIONS

### SEALED PUSH BUTTON SWITCHES



Front panel sealing according to IEC 60529 .....	<b>IP67</b>
Shock resistance .....	<b>100 g</b> according to IEC 512-4, test 6c
Vibration resistance .....	<b>10-500 Hz - 10 g</b> according to IEC 512-4, test 6d
Salt spray .....	<b>IEC 512-4, test 11f</b>
Operating temperature .....	<b>-40°C to +85°C [-40°F +185°F]</b>
Max. current/voltage rating with resistive load .....	<b>5 A / 12 VDC - 5 A / 24 VDC</b>
Initial contact resistance .....	<b>50 mΩ max.</b>
Insulation resistance .....	<b>1 GΩ min. at 500 VDC</b>
Dielectric strength .....	<b>1.000 Vrms</b>
Electrical life at full load .....	<b>500.000 cycles</b>
Typical operating force .....	<b>4 N ± 3 N</b>
Low level or mechanical life .....	<b>1.000.000 cycles</b>

### ROLLER SWITCH



Sealing according to IEC 60529 .....	<b>IP67</b>
Power supply .....	<b>9 - 32 VDC</b>
Power current consumption .....	<b>24 mA</b>
Power output current .....	<b>1 mA</b>
Operating temperature .....	<b>-40°C to +85°C [-40°F +185°F]</b>
Output signal range .....	<b>0,5 - 4,5 V</b>
Center output signal .....	<b>2,5 V ± 0,1 V</b>
Signal tolerance (center position / stroke end) .....	<b>± 100 mV</b>
Minimum load .....	<b>10 Ω</b>
Travel angle .....	<b>± 30°</b>
Typical operating force .....	<b>2,4 N</b>
Low level or mechanical life .....	<b>5.000.000 cycles</b>

### ROCKER SWITCH



Sealing according to IEC 60529 .....	<b>IP67</b>
Actuation type .....	<b>direct</b>
Switching function .....	<b>SPDT - center OFF</b>
Rating IEC .....	<b>16 (4) A 250 V AC 1E4</b>
Rating North America .....	<b>16 A 125 V AC 1/3 HP - 16 A 250 V AC 1/2 HP</b>
Operating temperature .....	<b>-40°C to +85°C [-40°F +185°F]</b>
Inrush peak current (capacitive) .....	<b>120 A</b>
Contact resistance .....	<b>&lt; 100 Ω (12 V, 1 A DC)</b>
Insulation resistance .....	<b>&gt; 100 Ω (500 V DC between open contacts)</b>
Insulation distance .....	<b>≥ 8 mm</b>
Plug force of the terminals .....	<b>≤ 80 N</b>
Mechanical life endurance .....	<b>1.000.000 cycles</b>

### “DEAD MAN” PUSH BUTTON

Rated amperage .....	<b>up to 3 A inductive</b>
Inlet protection rating (microswitch) .....	<b>IP67</b>
Version .....	<b>Spring return</b>
Contact type .....	<b>NA</b>
Mechanical life endurance .....	<b>1.000.000 cycles</b>
Electric life endurance .....	<b>200x10<sup>3</sup> cycles</b>



## ELECTRIC DEVICE SPECIFICATIONS

### CABLE SPECIFICATIONS

Number of conductors .....	<b>16 max</b>
Conductor material .....	<b>copper with tinned ends</b>
Conductor section .....	<b>AWG16 - AWG20</b>
Insulating material .....	<b>PVC</b>
Protective covering material .....	<b>fireproof polyurethane</b>
Useful cable length .....	<b>700 mm</b>

All EBI handles are wired with numbered cables.

Each position indicated on the handle (B1, B2, B3, B4, B5, B6, B7, B8, R1, R2, R3, R4) is characterized by a dedicated and unique cable number.

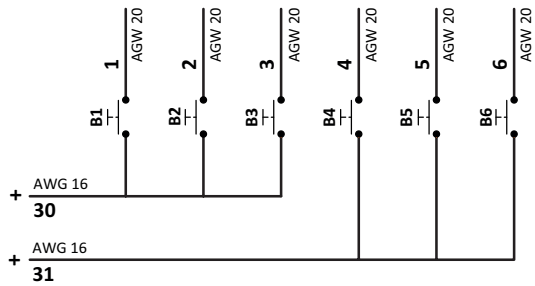
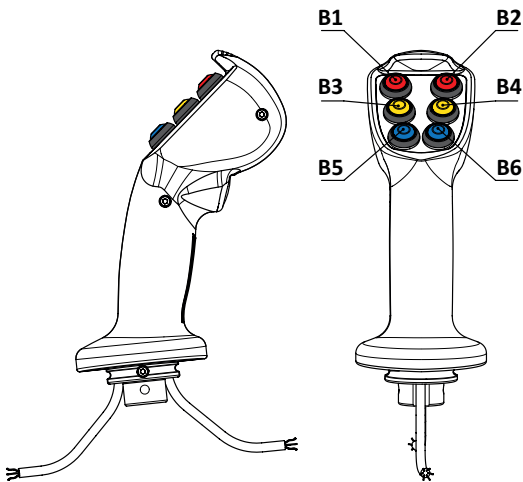


## EXAMPLE OF CONFIGURATIONS

### COMPLETE HANDLES EHC1

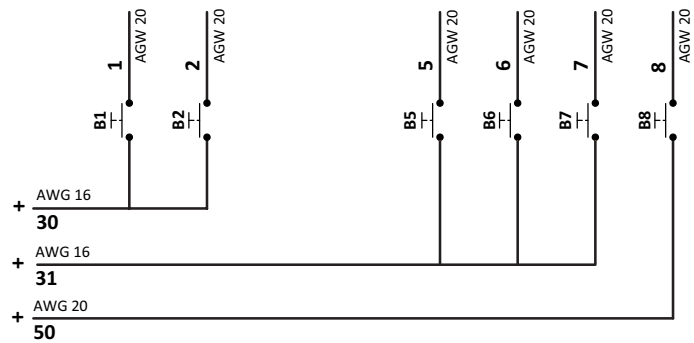
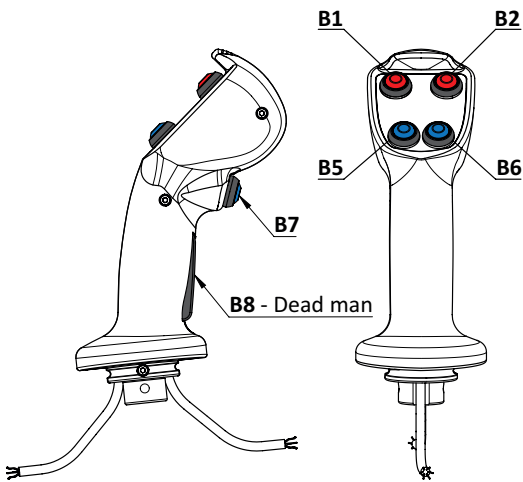
handle	front arrangement	rear arrangement
EHC1	F06	R00

Handle with 6 push-buttons in the front arrangement (B1, B2, B3, B4, B5 and B6) and NO push-button in rear arrangement.



handle	front arrangement	rear arrangement
EHC1	F04	R03

Handle with 4 push-buttons in the front arrangement (B1, B2, B5 and B6) and 2 push-button in rear arrangement (B7 and dead man, B8).

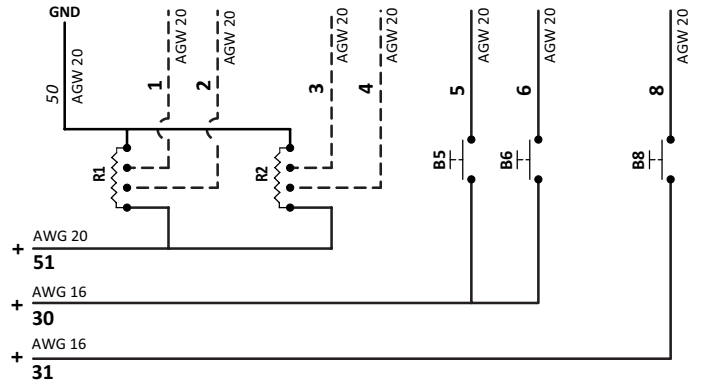
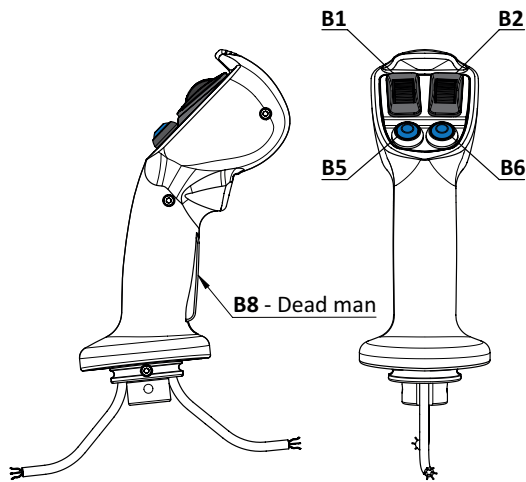


## EXAMPLE OF CONFIGURATIONS

### COMPLETE HANDLES EHC1

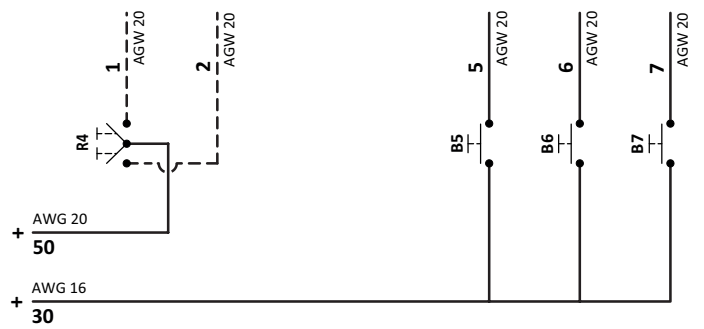
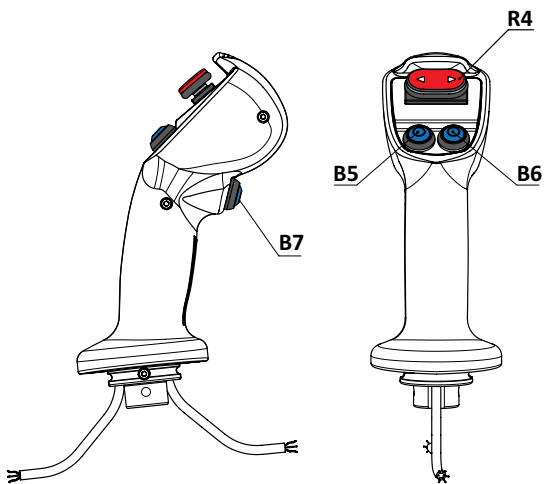
handle	front arrangement	rear arrangement
EHC1	F22	R02

Handle with 2 push-buttons (B5 and B6) and 2 Rollers (R1 and R2) in the front arrangement and 1 push-button in rear arrangement (dead man, B8).

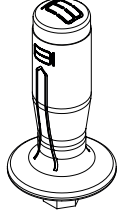
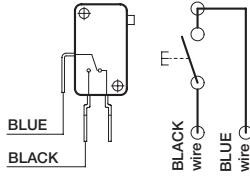
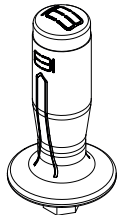
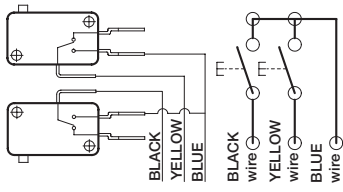
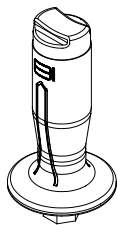


handle	front arrangement	rear arrangement
EHC1	F52	R01

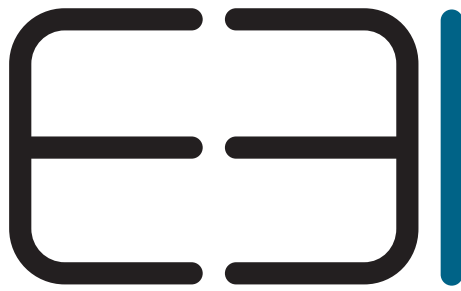
Handle with 2 push-buttons (B5 and B6) and 1 Rocker ON/OFF/ON (R4) in the front arrangement and 1 push-button in rear arrangement (B7).



**ORDERING CODES EHM**

CODE	DESCRIPTION	ELECTRIC SCHEME	CONFIGURATION
<b>EHM1</b>	Handle without micro-switch		
<b>EHM2</b>	Handle with one micro-switch		
<b>EHM3</b>	Handle with dual micro-switch		





engineering beyond imagination

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