



3 Position Enabling Pendant Switch – ENS range

Operating Instructions

DESCRIPTION:

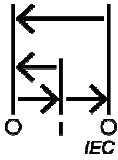
The Idem ENS range is a three-position enabling switch designed for manual control in hazardous environments, typically used in robotic and automated systems. It operates in three distinct positions: released (OFF), partially pressed (ON/enabled), and fully pressed (OFF/disabled), ensuring that if the operator releases or over-grips, the machine stops.

Available pre-wired with M12 quick connect, or customer wireable for use with preferred cable or connector.

Offered in high specification, durable & robust plastic housing, to provide ergonomic, user-friendly switching via finger or hand by operation of the pendant trigger.

An optional magnetic holster is available, providing secure and convenient mounting for all standard applications when not in use.

Pendant and holster provide mounting location and can be used in conjunction with Idem SPF Safety Non-Contact Switch, if monitoring of the docking status of the pendant via safety circuit is required.



(Various configurations available, please consult part number table)

READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING OPERATING OR MAINTAINING THIS EQUIPMENT.

The product is designed to be a component of a customized safety-oriented control system.

It is the responsibility of the user to ensure the correct overall functionality of its systems and machines.

IDEM, its subsidiaries and affiliates, are not in a position to guarantee all of the characteristics of a given system or product not designed by IDEM.

APPLICATION:

The 3-position enabling switch, provides signals that when activated, allow machine operation to be initiated by a separate start control, and when de-activated, initiate a stop function or prevent initiation of machine operation.

OPERATION:

The ENS range of Enabling Pendants are designed to conform to the requirements of IEC 60947-5-8, and be used as directed by ISO 13849-1, IEC 60204-1 and EN ISO 12100. Ergonomic and durable design ensures trouble-free installation and operation within the required limits of force, mechanical durability, and environmental exposure.

INSTALLATION:

Installation of the ENS Enabling Pendant must be in accordance with a risk assessment for the individual application.

MAGNETIC HOLSTER (See Figure 1): M5 mounting screws should be used to fix the enabling pendant holster to a secure surface or frame. M5 tightening torque 2.5Nm. For use in conjunction with Idem Safety SPF Safety Non-Contact Switch, first remove x2 M4 screws holding blanking plate to underside of holster assembly. Then mount SPF non-contact switch to underside of holster as shown in Figure 2, using x2 M4 mounting screws. M4 Tightening torque 1.5Nm.

WIRING AND ASSEMBLY

SELF-WIRE VIA TERMINALS (See Figure 2): Where self-wiring option has been selected, remove the rear cover of the pendant housing assembly using the T10 screw-driver bit provided. Remove all screws as shown and set aside. Pass chosen cable through strain relief gland in base of pendant, and then directly through support clamp, to provide adequate fixture whilst wiring into terminals. Place conductors firmly into spring terminals, ensuring that spring retention has been achieved. Cable Diameter Min-Max: 6mm – 14.8mm. Wire Section AWG: 16 - 26 AWG. Wire Strip length: 8-9mm. Once conductors are firmly secured in spring terminals, tighten x2 M3 screws on interior cable clamp evenly, to ensure reliable cable support. M3 tightening torque 1.5Nm. Ensure cable is firmly clamped. Place rear portion of housing back into position and tighten the outer housing screws back into place, see figure 2.

Self-Tapping External Body Screw Max tightening torque 1Nm. **DO NOT OVER TIGHTEN.**

Tighten strain relief gland to cable as required.

FUNCTION:

ENS Enabling Pendants are designed to be operated by finger or hand depending on individual preference of the operator. The main body of the pendant can be gripped to provide operation of the switch trigger switch, alternatively the upper area of the pendant is designed to be comfortably held in the web between the thumb and index finger for secure operation by the fingers.

COMPLIMENTARY FUNCTIONS (OPTIONAL BY PART NUMBER):

Momentary Push Buttons:	2 provided for inching / jogging machine.
Emergency Stop Button:	1 provided (IEC 60947-5-5)

SAFETY MONITORING:

The ENS must be connected to a suitable safety control unit, to monitor the 2 NC circuits for operation and short circuit protection.

The mechanical life must be considered when assessing the safety function to ISO 13849-1.

MAINTENANCE: Every month: Check all circuits for correct function. If enabling pendant shows signs of mechanical damage, then remove and replace. IDEM will not accept responsibility for failure of the switch functions if the installation and maintenance requirements are not implemented. THESE INSTRUCTIONS FORM PART OF THE PRODUCT WARRANTY.

PRODUCT DIMENSIONS (mm)

3 Position Enabling Pendant Switch – ENS range

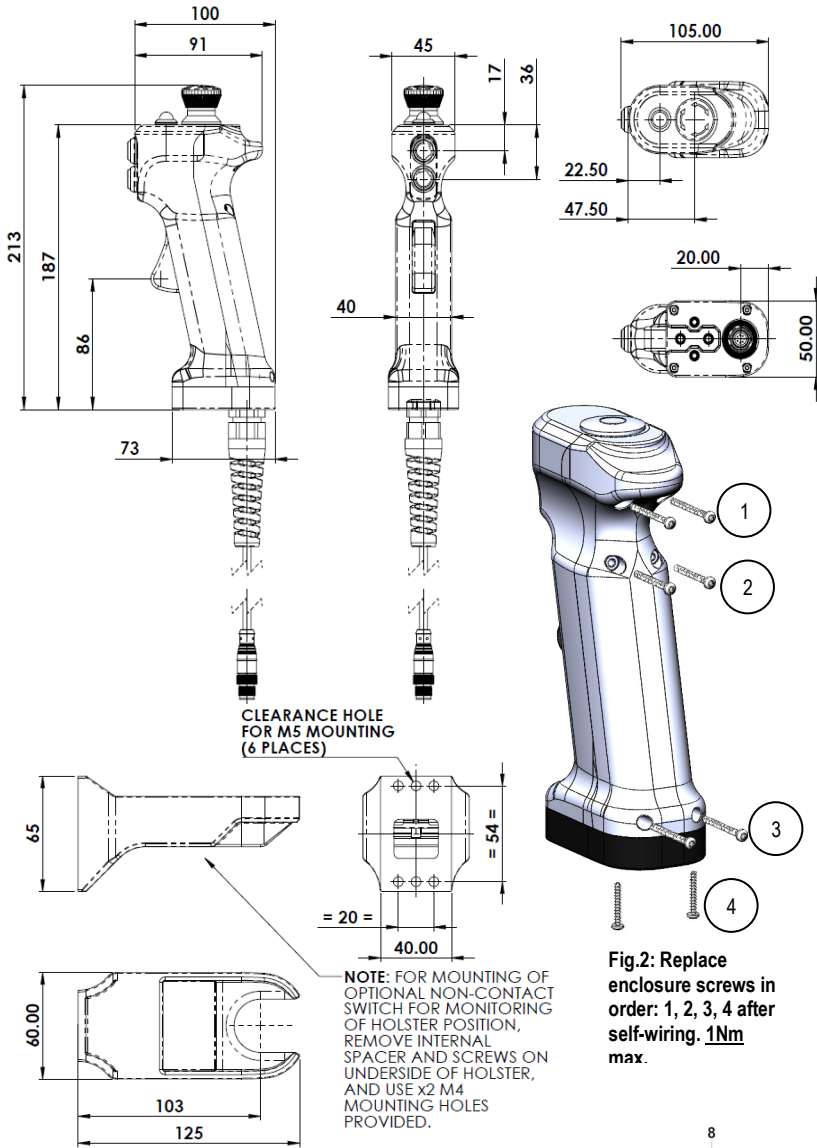


Fig.1: Magnetic holster with mounting for SPF Non-Contact.

Fig.2: Replace enclosure screws in order: 1, 2, 3, 4 after self-wiring. **1Nm max.**

TECHNICAL SPECIFICATION:

3-Position Enabling Switch

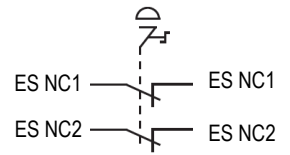
Contact Type	2 NC + 1 NO	EP NC1		EP NC1
Rated Insulation Voltage	250 V	EP NC2		EP NC2
Rated Operating Voltage	24 V AC/DC	EP NO1		EP NO1
Rated Operating Current	2 A			
Mechanical Life (B10d)	Position 1-2-1; 100,000 operations			
Electrical Life	100,000 at rated load.			
Ambient temperature	20C / 60C.			
IP rating	IP54			
Operating Force(s):	3-Stage Sw. ON (1→2): Approx. 8.1N 3-Stage Sw. OFF (2→3): Approx. 18N			

Enabling Switch Circuit (Shown in position 2: OFF→ON→OFF):



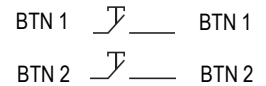
Emergency Stop Button (if fitted):

Contact Type	2 NC
Rated Insulation Voltage	250 V
Rated Operating Voltage	24 V AC/DC
Rated Operating Current	0.5A
Mechanical Life	50,000
Electrical Life	50,000



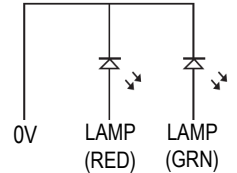
Momentary Push Buttons (if fitted):

Contact Type	1 NO
Rated Operating Voltage	24 V AC/DC
Rated Operating Current	0.1 A
Mechanical Life	500,000
Electrical Life	1,000,000



LED Indicator Lamp (if fitted):

Supply Voltage	24 V DC
Supply Current	0.02 A (per LED)



TERMINAL LAYOUT:

2NC + LED version

NC1		NC1
NC2		NC2
GN LED		RD LED
E/S NC1		E/S NC1
E/S NC2		E/S NC2
BUTTON 1		BUTTON 1
BUTTON 2		BUTTON 2
-		0V

2NC + 1NO version

NC1		NC1
NC2		NC2
NO1		NO1
E/S NC1		E/S NC1
E/S NC2		E/S NC2
BUTTON 1		BUTTON 1
BUTTON 2		BUTTON 2
-		-

M12 PIN LAYOUT

PIN Layout	Flying Lead Colour	EP	EP + ES	EP + BUTTONS	EP + LED
8	Orange	--	ES N/C 2	BUTTON 2	RED LED
5	Brown	EP N/C 2	EP N/C 2	EP N/C 2	EP N/C 2
4	Yellow	EP N/O 1	ES N/C 1	BUTTON 1	--
6	Green	EP N/C 2	EP N/C 2	EP N/C 2	EP N/C 2
7	Black	EP N/C 1	EP N/C 1	EP N/C 1	EP N/C 1
1	White	EP N/C 1	EP N/C 1	EP N/C 1	EP N/C 1
2	Red	--	ES N/C 2	BUTTON 2	GREEN LED
3	Blue	EP N/O 2	ES N/C 1	BUTTON 1	0V

PART NUMBERS:

Screw Terminal Versions	Extra Function / Features							
	Basic	1			2			3
Configuration	2NC 1NO	2NC 1NO E-Stop 2NC	2NC 1NO Push Button x 2	2NC LED (2 Colour)	2NC 1NO E-Stop 2NC Push Button x 2	2NC E-Stop 2NC LED (2 Colour)	2NC Push Button x 2 LED (2 Colour)	2NC E-Stop 2NC Push Button x 2 LED (2 Colour)
Part Number	241000	241001	241002	241003	241004	241005	241006	241007

QC Versions M12 Male 8-Way on 250mm Flying Lead	Extra Function / Features				Accessory Part Number	Enabling Pendant Magnetic Holster	
	Basic	1				241400	
Configuration	2NC 1NO	2NC E-Stop 2NC	2NC Push Button x 2	2NC LED (2 Colour)	SALES NUMBER	DESCRIPTION	CABLE LENGTH
Part Number	241300	241301	241302	241303	405104	SPF-M-RFID	QC-M12
					140101	FEMALE QC LEAD	M12 FEMALE 5m 8 WAY
					140102	FEMALE QC LEAD	M12 FEMALE 10m 8 WAY