

HEAVY DUTY 22.5 mm PUSHBUTTONS

EM22 Series



EM22 Operators

- Heavy-Duty Zinc Diecast Construction
- Metal Mounting Nut Doubles as Grounding and Anti-Rotation Device
- Chrome Plated Metal Bezel (Matte Black Not Available)

Features

- Reliability Nibs on Contact Blocks
- Plain or Notched Hole Mounting
- Direct Opening Action Normally Closed Contacts
- Fingerproof Terminals

The 22.5 mm industrial heavy-duty pushbutton line offers a wide array of functional, smartly styled illuminated and non-illuminated pushbuttons, selector switches, push pulls, alternate action and twist-to-release operators. The complete line also includes transformer, full voltage, resistor, LED or neon light units. The EM22 Metal Series is a rugged line of metal construction 22.5 mm (0.88") pushbutton devices. The devices are an extension of the industrially proven E22 Series heavy-duty double insulated 22.5 mm pushbutton family. EM22 Series operators are heavy-duty zinc die-cast construction plated with a corrosion-resistant chromate finish. Operators are complete with a very durable chrome plated metal bezel. Indicating light units in the EM22 Series feature smartly styled round lenses that enhance their appearance and brightness. All EM22 Series operators are compatible with existing E22 Series contact blocks, light units, accessories and enclosures. EM22 Series metal operators and indicating lights are grounded when mounted to metal panels through the toothed mounting nut. They are not grounded when mounted to plastic panels.



All models shown larger than actual size.



SPECIFICATIONS

Standards and Certifications:

CE EN 60947-5-1

UL 508: File No. E131568

CSA: File No. LR68551

Additional Certifications for Trigger Action E-Stop Devices:

UL Listed E-Stop Device:

File No. E217948

Machinery Safety Directive: EN418 Semiconductor Manufacturing

Equipment : SEMI S2-0200

DEMKO Third Party Certification:

Certificate No. 129648-01

and 129648-02

Ingress Protection: UL (NEMA)

Type 1, 2, 3, 3R, 4, 4X, 12

and 13 IEC IP65

Note: Ratings apply when mounted in enclosures with the same ratings.

MECHANICAL ENDURANCE RATINGS

Frequency of Operation:

- Pushbuttons:** 6000 operations per hr
- Push-Pulls:** 3000 operations per hr
- Push-Push:** 1800 cycles per hr
- Selector Switches:** 3000 operations per hr
- Trigger-Action E-Stop:** 360 cycles per hr
- Twist-to-Release:** 1200 cycles per hr

MECHANICAL LIFE

- Contact Blocks:** 3M operations
- Pushbuttons:** 5M operations
- Push-Pulls:** 300,000 operations
- Push-Push:** 300,000 operations
- Selector Switches:** 500,000 operations
- Trigger-Action E-Stop:** 100,000 operations
- Twist-to-Release:** 300,000 operations
- Joysticks:** 500,000 operations;
vibration IEC 68-2 (BS 2011)
- Vibration:** 5 g/0.7 mm peak to peak,
10 sweeps, 10 to 500 Hz
- Shock:** 30 g, 18 ms
- Bump:** 25 g, 6 ms for 1000 cycle

ENVIRONMENTAL CONDITIONS

- Operating Temperature:** -20 to 60°C (-4 to 140°F)
- Storage Temperature:** -40 to 80°C (-40 to 176°F)
- Altitude:** Up to 2000 m (6562')
- Pollution Degree (IEC 947-1):** 3
- Humidity:** Maximum 95% RH @ 60°C (140°F)

CONTACT BLOCK TERMINAL CLAMPS

- Clamp Type:** Self-lifting
- Screw Type:** Plus/minus, captive
- Wire Range:** 18 to 12 AWG (0.75 to 4.0 mm²)
- Fingerproof Protection:** IP2X
- Tightening Torque:** 7 lb in (0.8 Nm)

ELECTRICAL RATINGS

Meet or exceed NEMA contact rating designations A600 and Q600

A600: Q600 per UL 508

AC15: DC13 per IEC 60947-5-1

Logic Level Contact Blocks: UL A600, Q600 and IEC AC15, DC13 rated and also have a minimum rating of 1 mA @ 5 Vdc

Impulse Withstand Voltage (Uimp): 4 kV

Short Circuit Coordination to IEC/EN 60947-5-1:

- Rated Conditional Short Circuit Current:** 1 kA
- Fuse Type:** GE power controls TIA 10, red spot type gG, 10 A, 660 Vac, 460 Vdc, BS88-2, IEC 60269-2-1

ELECTRICAL RATINGS FOR CONTACT BLOCKS

Description	A600 Vac				Q600 Vdc			
	120	240	480	600	125	250	440	600
Make and emergency interrupting capacity (A)	60	30	15	12	0.55	0.27	0.1	0.1
Normal load break (A)	6	3	1.5	1.2	0.55	0.27	0.1	0.1
Thermal current (A)	10	10	10	10	2.5	2.5	2.5	2.5

¹Ratings do not apply to rotary cam switches.

ELECTRICAL LIFE

AC15 Durability:

120V: 6 A – 1 x 106 operations

DC13 Durability:

24V: 4 A – 0.15 x 106 operations

660V: 0.1 A – 0.5 x 106 operations

MATERIAL

Housing, Bezel, Mounting Rings: Glass filled nylon

Metal Bezels: Chrome plated brass

Internal Seal: Nitrile rubber

Panel Gasket: Nitrile rubber

Illuminated Lenses: Polycarbonate

Buttons: Polyester or polycarbonate

Contacts: Silver

Terminals: Brass

TERMINAL MARKINGS

All rear of panel devices are marked with the circuit configuration per CENELLEC 500013 standards.

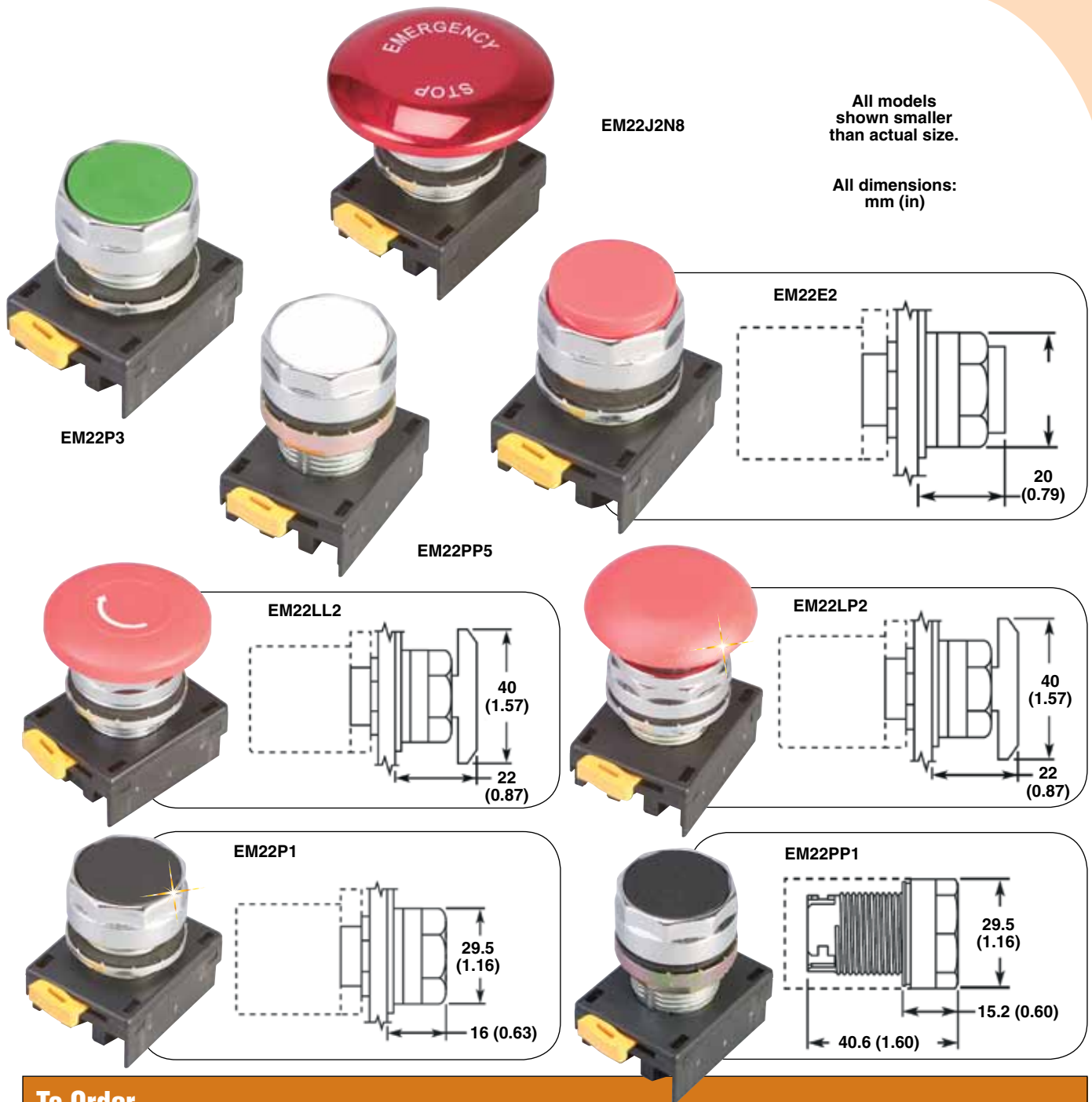
CONTACT BLOCKS

Circuit Configuration	Description	Plunger Color
	1 NC	Red
	1 NO	Green
	1 NO-1 NC	White
	2 NO	Green
	1 NO Early Make	Black
	1 NC Late Break	Gray

LIGHTED UNITS

Circuit Configuration	Description
	Full Voltage
	Resistor
	Transformer

- E22CB1, E22CB11, E22CB1E, E22B1, and E22B11 contact blocks are marked with Direct Opening Action (DOA) symbol per IEC 60947-5-1, Annex K and NEMA ICS 5, Part 6. For mechanical operating parameters.
- E22CB1, E22CB11 and E22CB1E contact blocks will be marked as suitable for isolation per IEC 60947-5-1.



To Order

MODEL NO.

DESCRIPTION

22 mm METAL

PUSHBUTTONS OPERATORS ONLY

EM22E2

Red extended pushbutton operator, chrome bezel

EM22J2N8

Red (alum) 50 mm MRH operator engraved EMERGENCY STOP

EM22LL2

Red 40 mm MRH twist-to-release operator

EM22LP2

Red 40 mm MRH push-pull (maint) operator

EM22P1

Black flush pushbutton operator, chrome bezel

EM22P3

Green flush pushbutton operator, chrome bezel

EM22PP1

Black flush push-push (alternate action) pushbutton

EM22PP5

White flush push-push (alternate action) pushbutton

Comes with instruction sheet

Ordering Example: EM22E2, red extended pushbutton operator.



EM22T0



EM22T2



EM22T3

All models shown smaller than actual size.

To Order

MODEL NO.

DESCRIPTION

22 mm METAL

E22 INDICATING LIGHT AND ILLUMINATED PUSHBUTTON OPERATORS

EM22T0

Clear Pres-Test or illuminated PB operator, chrome bezel

EM22T2

Red Pres-Test or illuminated PB operator, chrome bezel

EM22T3

Green Pres-Test or illuminated PB operator, chrome bezel

Comes with instruction sheet

Ordering Example: EM22T0, clear pres-test or illuminated pushbutton operator.

All dimensions: mm (in)

EM22V561



EM22VE61



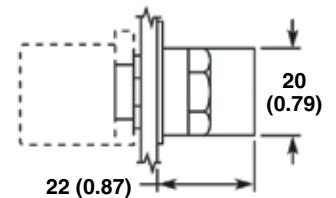
EM22VM61



EM22X661



EM22XG61

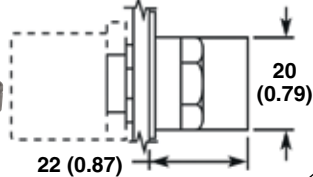


Dimensions: mm (in)

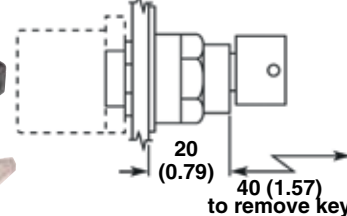
All models shown smaller than actual size.



EM22X561



EM22KF5



EM22XM61



To Order

MODEL NO.

DESCRIPTION

E22 SELECTOR SWITCHES OPERATORS ONLY

EM22V561

2-position maintained selector switch, lever

EM22VE61

2-position momentary selector switch, lever

EM22VH61

3-position maintained selector switch, lever

EM22VM61

3-position momentary selector switch, lever

EM22X561

2-position maintained selector switch, knob

EM22X661

2-position momentary selector switch, knob

EM22XG61

3-position maintained selector switch, knob, 60°

EM22XM61

3-position momentary selector switch, knob

EM22KF5

2-position maintained selector switch, key, 45°

EM22KH7

3-position maintained selector switch, key, 45°

Comes with instruction sheet

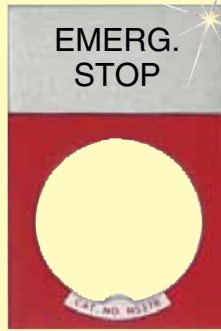
Ordering Example: EM22V561, lever 2 position switch.

Build Your Own System



EM22J2N8

+



E22NS13

+



E22B20

Note: To order complete system add a contact block and legend plate to operator.



EM22H0



EM22H2



EM22H3



EM22H5



EM22H9

All models shown smaller than actual size.

To Order

MODEL NO.	DESCRIPTION
E22 INDICATING LIGHT AND ILLUMINATED PUSHBUTTON OPERATORS	
EM22H0	Clear lens unit
EM22H2	Red lens unit
EM22H3	Green lens unit
EM22H5	White lens unit
EM22H9	Amber lens unit

Comes with instruction sheet.

Ordering Example: EM22H2, red lens unit.



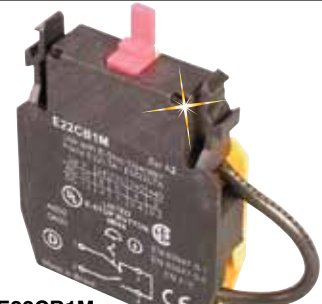
E22B1E



E22B2E



E22B20



E22CB1M

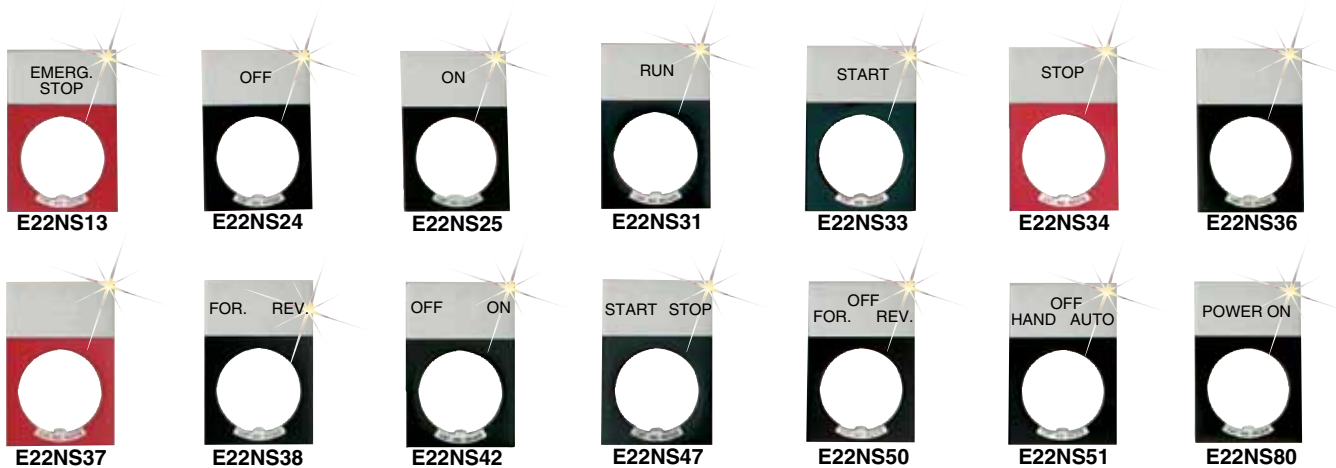
All models shown smaller than actual size.

To Order

MODEL NO.	DESCRIPTION
22 mm HEAVY DUTY PLASTIC	
E22 CONTACT BLOCKS	
E22B20	Contact Block, 2 NO
E22B1E	Contact Block, 1 NC, Logic
E22B2E	Contact Block, 1 NO, Logic
E22CB1M	Self monitoring contact block, 1 NC

Comes with instruction sheet

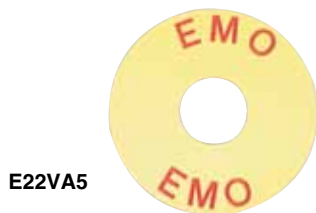
Ordering Example: E22B20, 2 normally open contacts.



All models shown smaller than actual size.

To Order	
MODEL NO.	DESCRIPTION
E22 LEGEND PLATES	
E22NS13	Emergency Stop
E22NS24	Off
E22NS25	On
E22NS31	Run
E22NS33	Start
E22NS34	Stop
E22NS36	Blank, Black
E22NS37	Blank, Red
E22NS38	For Rev
E22NS42	Off On
E22NS47	Start Stop
E22NS50	F - O - R
E22NS51	H - O - A
E22NS80	Power On

Comes with instruction sheet
Ordering Example: E22NS13, emergency stop legend plate.



E22VA5



E22MGTA

Both models shown smaller than actual size.

To Order	
MODEL NO.	DESCRIPTION
E22 PUSHBUTTONS ACCESSORIES	
E22MGTA	Rectangular guard
E22VA5	EMO round yellow nameplate

Comes with instruction sheet
Ordering Example: E22MGTA, rectangular guard.