# F:T•N
**Cutler-Hammer**

# HT800 30mm Pushbuttons Specifications

The HT800 family of 30.5 mm pushbutton devices includes momentary, illuminated and mushroom-head pushbuttons, selector switches, indicating lights and push-pull switches.

### Features
- Anodized aluminum mounting rings
- Watertight double V-gasket seals
- Extended height bulbs
- Transparent housing contact blocks
- Color-coded contact blocks
- Gold-plated contacts (on low voltage contact block)
- Reliability ridge on movable contact
- Stackable screw-mounted contact blocks
- Contact blocks can be mounted in left/right or top/bottom positions
- Standard N.C. contact opens before N.O. contact closes (break before make operation)
- Bright and long lasting LED indicating lights in six colors
- Field convertible maintained selector switches from two-position to three-position and vice versa
- Field selectable knob/lever mounting positions – at any 22.5° increment

### Benefits
- Corrosion resistant NEMA 4X finish
- Watertight and oil-tight NEMA 4, 13 ingress protection
- Increased side illumination of indicating lights and illuminated pushbuttons
- Easy visual inspection of contact conditions
- Easily identifiable N.O. (white) or N.C. black) contact blocks
- Gold-plated contacts suitable for logic level circuits
- Reliability ridge penetrates contamination buildup on stationary contacts
- Left/right or top/bottom mounted contact blocks allow correct positioning in retrofit applications
- All-purpose selector switches are convertible and can rotate in 22.5° increments to suit panel layouts
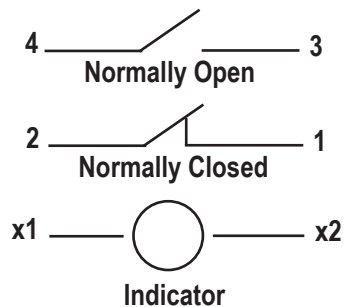
### Standards and Certifications
- UL508, File No. E131568
- CSA C22.2 No. 14, File No. LR68551

### Ingress Protection
- UL (NEMA) 1, 2, 3, 3R, 4, 4X, 12 and 13 when mounted in similarly rated enclosures

## Typical Wiring



4 ——— / ——— 3
**Normally Open**

2 ——— / ——— 1
**Normally Closed**

x1 ——— ◯ ——— x2
**Indicator**

# HT800 30mm Pushbuttons Specifications

## HT800 — Specifications

| Mechanical Ratings | |
|---|---|
| **Frequency of Operation** | |
| **Pushbuttons** | 6,000 Operations per hour |
| **Selector Switches** | 3,000 Operations per hour |
| **Push-Pull Operators** | 3,000 Operations per hour |
| **Mechanical Endurance/Life** | |
| **Pushbuttons** | $10 \times 10^6$ Operations 6K Ops/Hr with 6 N.O. on left and 6 N.C. on right |
| **Selector Switches** | $250 \times 10^3$ Operations 3K Ops/Hr with 2 N.O. on left and 2 N.C. on right |
| **Push-Pull Operators** | $250 \times 10^3$ Operations 3K Ops/Hr with 6 N.O. on left and 6 N.C. on right |
| **Environmental Specifications** | |
| **Operating Temperature** | 10° to 140°F (-12° to 60°C) |
| **Storage Temperature** | -40° to 176°F (-40° to 80°C) |
| **Altitude** | 6,562 ft. (2,000m) |
| **Humidity** | 95% RH @ 60°C |
| **Terminals** | |
| **Contact Blocks** | #6-32 posi-drive saddle clamp type, 1 x 16 AWG to 2 x 14 AWG, 12 in-lbs max. |
| **Light Units** | #6-32 posi-drive saddle clamp type, 1 x 22 AWG to 2 x 14 AWG, 7 in-lbs max. |

## HT800 Standard Contact Blocks UL (NEMA) Rating

| Electrical Ratings Description/Function | Contact Type | Catalog Number | AC | DC |
|---|---|---|---|---|
| **Standard Normally Open contact** | N.O. | **HT8A** | A600 | P600 |
| **Standard Normally Closed contact** | N.C. | **HT8B** | A600 | P600 |
| **Normally Open Early Make Contact will make circuit before standard N.O. contact. DC ratings do not apply.** | N.O.E.M. | **HT8C** | A600 | — |
| **Normally Closed Late Break contact will open after standard N.C. contact. DC ratings do not apply.** | N.C.L.B. | **HT8D** | A600 | — |
| **Logic level, low voltage N.O .contact. Gold plated contacts.** | N.O. | **HT8E** | 5V 1mA (minimum) 28V 500mA (maximum) | |

## UL (NEMA) A600 and P600 Ratings

| Description | Volts AC 50/60 Hz | | | | Volts DC [1] | | |
|---|---|---|---|---|---|---|---|
| | 120 | 240 | 480 | 600 | 125 | 250 | 600 |
| **Make and Emerg. Interrupting Capacity (Amp)** | 60 | 30 | 15 | 12 | 1.1 | 0.55 | 0.2 |
| **Normal Load Break (Amp)** | 6 | 3 | 1.5 | 1.2 | 1.1 | 0.55 | 0.2 |
| **Thermal Current (Amp)** | 10 | 10 | 10 | 10 | 5 | 5 | 5 |
| **Voltamperes** | | | | | | | |
| **Make and Emerg. Interrupting Capacity** | 7200 | 7200 | 7200 | 7200 | 138[2] | 138[2] | 138[2] |
| **Normal Load Break** | 720 | 720 | 720 | 720 | 138 | 138 | 138 |

Note:  1: DC ratings do not apply to N.O.E.M. (Normally Open Early Make) and N.C.L.B. (Normally Closed Late Break) contact blocks HT8C and HT8D.

2: Maximum make or break volt-amperes at 300V or less

# HT800 30mm Selector Switches

**EA T·N**

**Cutler-Hammer**

**HT8JAH3A knob version**

**HT8JDH3A lever version**

## Two-position Selector Switches

| Contact Type | Operator Type M=Maintained S=Spring Return | Standard Black Knob Operator | | Standard Black Lever Operator | |
|---|---|---|---|---|---|
| | | Catalog Number | Price | Catalog Number | Price |
| No Contacts | M M | HT8JAH3A | | HT8JDH3A | |
| | M<S | HT8JNH3A | | HT8JPH3A | |
| 1 N.O. | M M | *HT8JAH3AA5 | | *HT8JDH3AA5 | |
| | M<S | *HT8JNH3AA5 | | *HT8JPH3AA5 | |

| Switch Part Numbers | Contact Blocks | | Cam Code 3A | |
|---|---|---|---|---|
| | | | Switch Position | |
| HT8JAH3A, HT8JNH3A, HT8JAH3AA5, HT8JNH3AA5, HT8JDH3A, HT8JPH3A, HT8JDH3AA5, HT8JPH3AA5 (Contact block configuration varies with part number) | Left | Right | | |
| Two-position Selector Switch | N.O. | ------ | X | 0 |
| | N.C. | ------ | 0 | X |
| | ------ | N.O. | 0 | X |
| | ------ | N.C. | X | 0 |
| Note: AutomationDirect only offers cam code 3A for two position selector switches. | | | X = On | O = Off |

Notes: A grounding kit is included with each operator or switch assembly.
Part numbers with an * are kitted from individual components at AutomationDirect. The individual components are picked and shipped in the same shipping box. Final assembly of the individual components must be done by the customer.

**EA T·N**

**Cutler-Hammer**

**HT8JBH1D knob version**

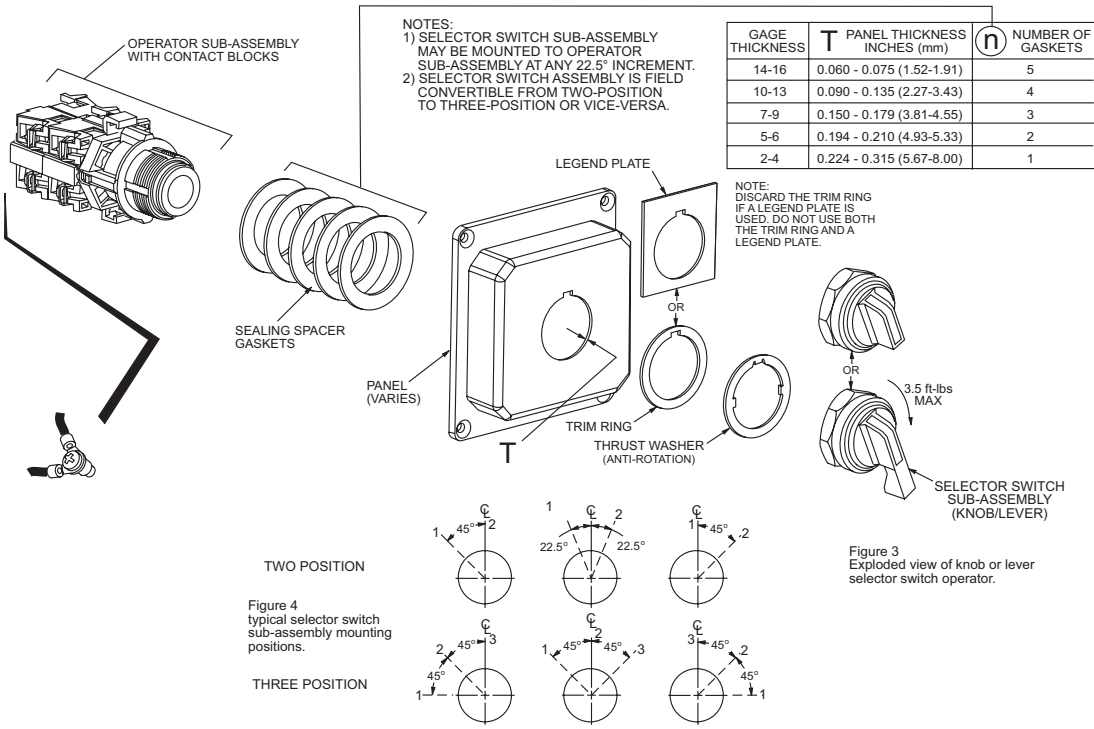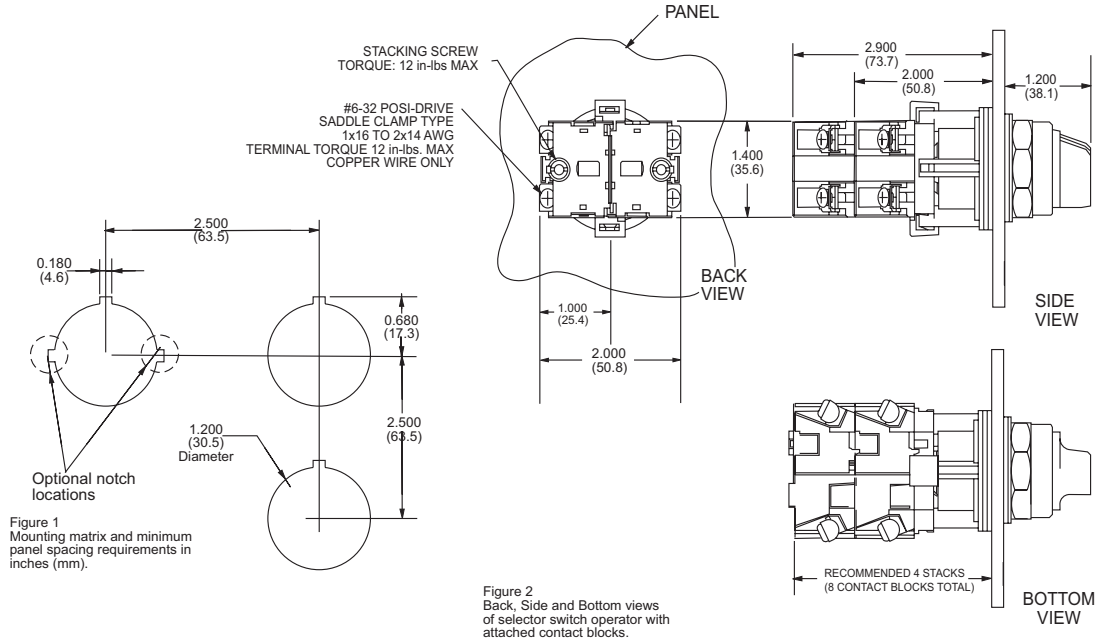**HT8JEH1D lever version**

## Three-position Selector Switches

| Contact Type | Operator Type M=Maintained S=Spring Return | Standard Black Knob Operator | | Standard Black Lever Operator | |
|---|---|---|---|---|---|
| | | Catalog Number | Price | Catalog Number | Price |
| No Contacts | M M M | HT8JBH1D | | HT8JEH1D | |
| | M M < S | HT8JUH1D | | HT8JVH1D | |
| | S > M < S | HT8JXH1D | | HT8JYH1D | |
| 2 N.O. | M M M | HT8JBH1DAA5 | | *HT8JEH1DAA5 | |
| | M M < S | *HT8JUH1DAA5 | | *HT8JVH1DAA5 | |
| | S > M < S | *HT8JXH1DAA5 | | *HT8JYH1DAA5 | |

| Switch Part Numbers | Contact Blocks | | Cam Code 1D | | |
|---|---|---|---|---|---|
| | | | Switch Position | | |
| HT8JBH1D, HT8JUH1D, HT8JXH1D, HT8JBH1DAAD, HT8JUH1DAA5, HT8JXH1DAA5, HT8JEH1D, HT8JVH1D, HT8JYH1D, HT8JEH1DAA5, HT8JVH1DAA5, HT8JYH1DAA5(contact block configuration varies with part number) | Left | Right | | | |
| Three-position Selector Switch | N.O. | ------ | X | 0 | 0 |
| | N.C. | ------ | 0 | X | X |
| | ------ | N.O. | 0 | 0 | X |
| | ------ | N.C. | X | X | 0 |
| | *N.0.-------------- | --------------N.0. | X | 0 | X |
| | **N.C.------------- | --------------N.C. | 0 | X | 0 |
| * Indicates contact blocks wired in parallel ** Indicates contact blocks wired in series | | | X = On | O = Off | |

Note: AutomationDirect only offers cam code 1D for three-position selector switches.
Note: For additional contact blocks, see HT800 accessories in this section.

# HT800 30mm Three-position Selector Switches

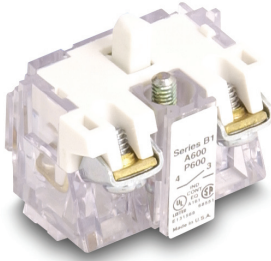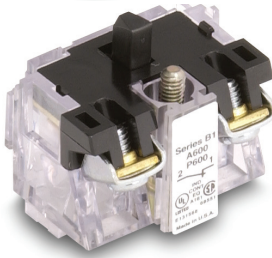30.5 mm Selector Switch Installation and Mounting Instructions - inches (mm)



Figure 1
Mounting matrix and minimum panel spacing requirements in inches (mm).

Figure 2
Back, Side and Bottom views of selector switch operator with attached contact blocks.

STACKING SCREW TORQUE: 12 in-lbs MAX

#6-32 POSI-DRIVE SADDLE CLAMP TYPE 1x16 TO 2x14 AWG TERMINAL TORQUE 12 in-lbs. MAX COPPER WIRE ONLY

PANEL

BACK VIEW

SIDE VIEW

BOTTOM VIEW

RECOMMENDED 4 STACKS (8 CONTACT BLOCKS TOTAL)

Optional notch locations



NOTES:
1) SELECTOR SWITCH SUB-ASSEMBLY MAY BE MOUNTED TO OPERATOR SUB-ASSEMBLY AT ANY 22.5° INCREMENT.
2) SELECTOR SWITCH ASSEMBLY IS FIELD CONVERTIBLE FROM TWO-POSITION TO THREE-POSITION OR VICE-VERSA.

| GAGE THICKNESS | T PANEL THICKNESS INCHES (mm) | n NUMBER OF GASKETS |
|---|---|---|
| 14-16 | 0.060 - 0.075 (1.52-1.91) | 5 |
| 10-13 | 0.090 - 0.135 (2.27-3.43) | 4 |
| 7-9 | 0.150 - 0.179 (3.81-4.55) | 3 |
| 5-6 | 0.194 - 0.210 (4.93-5.33) | 2 |
| 2-4 | 0.224 - 0.315 (5.67-8.00) | 1 |

NOTE:
DISCARD THE TRIM RING IF A LEGEND PLATE IS USED. DO NOT USE BOTH THE TRIM RING AND A LEGEND PLATE.

OPERATOR SUB-ASSEMBLY WITH CONTACT BLOCKS

SEALING SPACER GASKETS

PANEL (VARIES)

LEGEND PLATE

OR

TRIM RING

THRUST WASHER (ANTI-ROTATION)

OR

3.5 ft-lbs MAX

SELECTOR SWITCH SUB-ASSEMBLY (KNOB/LEVER)

Figure 3
Exploded view of knob or lever selector switch operator.

Figure 4
typical selector switch sub-assembly mounting positions.

TWO POSITION

THREE POSITION

# HT800 30mm Contact Blocks & Accessories

## Contact blocks

**HT8A**

**HT8B**

### HT8 Series Contact Blocks

| Part Number | Description | Price |
|---|---|---|
| *HT8A* | Normally open contact block for HT8 series switches. NEMA Rated A600, P6001 | |
| *HT8B* | Normally closed contact block for HT8 series switches. NEMA Rated A600, P6001 | |
| *HT8C* | Early closing normally open contact block for HT8 series switches. NEMA Rated A6001 | |
| *HT8D* | Late opening normally closed contact block for HT8 series switches. NEMA Rated A6001 | |
| *HT8E* | Logic level normally open contact block for HT8 series switches. Gold plated contacts for reliable low energy switching. Power Rating: Min 1mA @ 5V; Max 500mA 28V. | |

**Notes**
1. See HT800 specifications in this section for typical contact wiring diagram.
2. NEMA ICS 5-2000. For more information, refer to HT800 technical specifications and control circuit contact electrical ratings at the beginning of this section.

## Spare parts and tools

**HT8WRENCH**  **HT8LAMPTOOL**  **109305**  **HT8BULBV3**  **HT8LEDYF3**

### HT8 Series Spare Parts and Tools

| Part Number | Description | Price |
|---|---|---|
| *HT8WRENCH* | Installation wrench for Cutler-Hammer HT8 series and E22 series pushbuttons, switches, and indicators | |
| *HT8LAMPTOOL* | Bulb extraction tool for removing bulbs from switches, indicators and stacklights | |
| *109305* | Knockout punch hole cutting tool for 30.5 mm mounting hole. Includes punch, die and draw stud | |
| *HT8X1* | Spare anti-rotation ring for HT8 series. Included with each HT8 device. (not shown) | |
| *HT8X2* | Spare trim ring for HT8 series. Included with each HT8 device. (not shown) | |
| *HT8X3* | Spare sealing/spacing ring for HT8 series. Included with each HT8 device. (not shown) | |
| *HT8GR1* | Spare grounding kit for HT8 series devices except non-PTT indicators. Included with each HT8 device. (not shown) | |
| *HT8GR2* | Spare grounding kit for HT8 series non-PTT indicators. Included with each HT8 device. (not shown) | |
| HT8BULBV3 | 24 volt incandescent bulb for HT8 illuminated devices. This is an extended bulb for enhanced illumination with HT8 devices. 50mA at 24 volts. | |
| HT8BULBV7 | 120 volt incandescent bulb for HT8 illuminated devices. This is an extended bulb for enhanced illumination with HT8 devices. 19mA at 120 volts. | |
| HT8LEDRF3 | 24 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Red | |
| HT8LEDYF3 | 24 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Yellow | |
| HT8LEDGF3 | 24 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Green | |
| HT8LEDBF3 | 24 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Blue | |
| HT8LEDWF3 | 24 volt replacement LED bulb for HT800 30mm pushbuttons. Color: White | |
| HT8LEDAF3 | 24 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Amber | |
| HT8LEDRF7 | 120 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Red | |
| HT8LEDYF7 | 120 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Yellow | |
| HT8LEDGF7 | 120 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Green | |
| HT8LEDBF7 | 120 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Blue | |
| HT8LEDWF7 | 120 volt replacement LED bulb for HT800 30mm pushbuttons. Color: White | |
| HT8LEDAF7 | 120 volt replacement LED bulb for HT800 30mm pushbuttons. Color: Amber | |

**NOTE: LED modules have very low current draw and should not be used with triac output devices like PLC triac output modules.**

# 30mm Legend Plates



## For Pushbutton Operators and Indicating Lights

| Legend | Color of Field | Catalog Number | Price |
|---|---|---|---|
| Clamp | Black | HT8SP90 | |
| Close | Black | HT8SP73 | |
| Down | Black | HT8SP74 | |
| Emergency Stop | Red | HT8SP13 | |
| Fast | Black | HT8SP75 | |
| Faster | Black | HT8SP87 | |
| Feeder On | Black | HT8SP94 | |
| Feeder Off | Black | HT8SP95 | |
| Forward | Black | HT8SP15 | |
| High | Black | HT8SP16 | |
| In | Black | HT8SP17 | |
| Inch | Black | HT8SP18 | |
| Jog | Black | HT8SP19 | |
| Jog Forward | Black | HT8SP20 | |
| Jog Reverse | Black | HT8SP21 | |
| Low | Black | HT8SP22 | |
| Lower | Black | HT8SP23 | |
| Lube-fail | Black | HT8SP92 | |
| Motor Run | Black | HT8SP81 | |
| Motor Stop | Black | HT8SP82 | |
| Off | Red | HT8SP24 | |
| On | Black | HT8SP25 | |
| Open | Black | HT8SP26 | |
| Out | Black | HT8SP27 | |
| Power On | Black | HT8SP80 | |
| Raise | Black | HT8SP28 | |
| Ready | Black | HT8SP86 | |
| Reset | Black | HT8SP29 | |
| Reverse | Black | HT8SP30 | |
| Run | Black | HT8SP31 | |
| Safe | Black | HT8SP85 | |
| Slow | Black | HT8SP32 | |
| Slower | Black | HT8SP88 | |
| Start | Black | HT8SP33 | |
| Stop | Red | HT8SP34 | |
| Test | Black | HT8SP83 | |
| Transfer | Black | HT8SP93 | |
| Trip | Black | HT8SP84 | |
| Unclamp | Black | HT8SP91 | |
| Up | Black | HT8SP35 | |

*Note: Dimensions: 1.77" (45mm) x1.77" (45mm)

## For Selector Switch Operators/ Two-Position

| Legend | Color of Field | Catalog Number | Price |
|---|---|---|---|
| Forward Reverse | Black | HT8SP38 | |
| Hand Auto | Black | HT8SP39 | |
| High Low | Black | HT8SP40 | |
| Jog Run | Black | HT8SP41 | |
| Manual Auto | Black | HT8SP67 | |
| Off On | Black | HT8SP42 | |
| Open Close | Black | HT8SP43 | |
| Run Jog | Black | HT8SP44 | |
| Safe Run | Black | HT8SP45 | |
| Start Jog | Black | HT8SP46 | |
| Start Stop | Black | HT8SP47 | |
| Up Down | Black | HT8SP48 | |

## For PUSH/PULL Units

| Legend 3/32" lettering | Color of Field | Catalog Number | Price |
|---|---|---|---|
| ON/OFF | Black | HT8PP5 | |
| OPEN/CLOSE | Black | HT8PP8 | |
| UP/DOWN | Black | HT8PP11 | |

## For Selector Switch Operators/ Three-Position

| Legend | Color of Field | Catalog Number | Price |
|---|---|---|---|
| Auto Off Hand | Black | HT8SP49 | |
| For. Off Rev | Black | HT8SP50 | |
| For. Safe Rev. | Black | HT8SP69 | |
| Hand Off Auto | Black | HT8SP51 | |
| Man. Off Auto | Black | HT8SP68 | |
| Open Off Close | Black | HT8SP53 | |
| Run Safe Jog | Black | HT8SP70 | |
| Up Off Down | Black | HT8SP54 | |
| On Stop Safe | Black | HT8SP71 | |

## Square Blank Plastic Legend Plates

| Lettering | Color of Field | Catalog Number | Price |
|---|---|---|---|
| Black | White/Silver | HT8SP76 | |
| White | Red/Black | HT8SP77 | |

## Round Plastic Legend Plates

| Legend | Color of Field | Catalog Number | Price |
|---|---|---|---|
| ESTOP | Yellow | HT8RP79 | |

NOTE: 70 mm / 2-3/4" diameter

NOTE: All 30 mm legend plates are plastic.