

E22 Non-Illuminated Pushbuttons

Flush Pushbuttons

Approximate dimensions in mm (in).
See dimensions for "back-of-panel
extensions" at the beginning of the
E22 series section.



Non-Illuminated Pushbuttons				
Color	Part Number	Description	Price	Drawing Link
Flush Button with Bezel				
Black	<u>E22PB1A</u>	Momentary pushbutton, black bezel, flush black button with one N.O. contact	\$30.50	<u>PDF</u>
Green	<u>E22PB3A</u>	Momentary pushbutton, black bezel, flush green button with one N.O. contact	\$30.50	<u>PDF</u>
Push - Push Flush Button, Operator Only				
Black	<u>E22PPB1</u>	Push to open, push to close, flush, operator only	\$15.00	<u>PDF</u>
White	<u>E22PPB5</u>	Push to open, push to close, flush, operator only	\$15.00	<u>PDF</u>
Extended Button				
Red	<u>E22EB2B</u>	Momentary pushbutton, black bezel, extended red button with one N.C. contact	\$29.00	N/A
Control Station - One Extended Button, One Flush Button				
Green-Red	<u>E22ASB204</u>	Control station: Flush, Momentary, green button (START) with one N.O. contact; Extended, Momentary, red button (STOP) with one N.C. contact Dimensions: mm(inches) H x W x D 120(4.72) x 80(3.15) x 60(2.36)	\$150.00	<u>PDF</u>

See specifications and mounting data at the beginning of this E22 series section.

Note: Contact blocks sold separately, see E22 accessories section.

Extended Pushbuttons

Approximate dimensions in mm (in).
See dimensions for "back-of-panel
extensions" at the beginning of the E22
series section.



Push-Push Flush Pushbuttons



Control Station





Cutler-Hammer

E22 Series Technical Specifications

Ingress Protection (IP) Rating

(IP65, IP66 ratings to IEC 529) UL Listed (NEMA) Types 1, 2, 3, 3R, 4, 4X, 12, and 13 when mounted in an enclosure rated for those same applications.

Electrical Specifications

Electrical Rating UL508; UL File E131568. CSA certified class 3211 03, LR 68551.
NEMA ICS5-2000: A600, Q600 (refer to page 90). IEC 60947-5-1: AC15, DC13.

Maximum Frequency of Operation

22mm Pushbuttons 6,000 operations/hour IEC 60947-5-1: AC15, DC13.

Key and Lever Selector Switches 3,000 operations/hour

Twist-to-Release Devices 1,200 operations/hour

Push-Pull Operators 3,000 operations/hour

Mechanical Life

Pushbutton 5 million operations

Selector Switches 500,000 operations

Push-Pull and Twist-to-Release 300,000 operations

Contact Block 3 million operations

Environmental Specifications

Operating Temperature Maximum 60°C at 95% RH, -20 to 60°C (-14 to 140°F), altitude 2000 meters

Storage Temperature Maximum 60°C at 95% RH, -40 to 80°C (-40 to 176°F)

Vibration

Vibration 5G/0.7 mm peak-to-peak 10 sweeps, 10-500 Hz

Shock 18G, 18ms

Bump 25G, 6ms for 1,000 cycles

Construction

Components	Materials
Housing, Bezel, Mounting Rings	Glass-filled nylon
Internal Seal	Nitrate rubber
Panel Gasket	Nitrate rubber
Illuminated Lenses	Polycarbonate
Buttons	Polyester or polycarbonate
Springs	Stainless steel
Contacts	Silver
Terminal Screws/Terminals	Brass

Panel Thickness - mm (inches)

Nominal 6.8 (0.2)¹

Aluminum Legend Plates 1.3 (0.05)

Large Yellow Round Legend Plates 1.0 (0.04)

Minimum 1.0 (0.04)

¹) Installation of certain accessories will increase the total (overall) panel thickness by the amount shown. The total panel thickness with all accessories installed cannot exceed the maximum allowable nominal dimensions of 6.8 mm (0.27 in.).

Wire Specifications

Minimum/Maximum 18AWG (0.75 mm²) / 12AWG (2.5 mm²)

Tightening Torque 7 lb·in

Electrical life

- AC15 durability:
120V, 6A 1 X 10⁶ operations
- DC13 durability:
24V, 8A 0.15 X 10⁶ operations
660V, .1A 0.5 X 10⁶

Logic-level operation

5 VDC, 1mA (minimum recommended)

Contacts feature a pointed surface called "Reliability Nib." The projection penetrates through any oxidation providing unmatched low-level operation without using exotic metals or sealed contacts.

Standards and approvals

- UL listed – UL 508 electrical/environmental;
- UL 486E terminal secureness, File E131568
- CSA Certified – CSA 22.2 #14
- NEMA ICS-1, ICS-2
- IEC 144, 337, 529, 947
- IP65 when mounted in enclosure
- Lloyds No. 4 and 5
- M.T.T.A.
- CE

IEC utilization categories & ratings

AC15
(Control of AC electromagnetic loads)

- 24 volts AC at 10 amps
- 130 volts AC at 6.5 amps

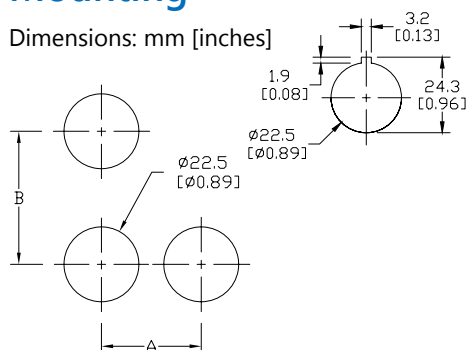
DC13
(Control of DC electromagnetic loads)

- 24 volts DC at 1.5 amps
- 110 volts DC at .5 amps

E22 Mounting / NEMA Aux Contact Ratings

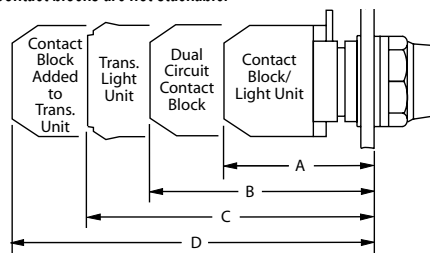
Mounting

Dimensions: mm [inches]



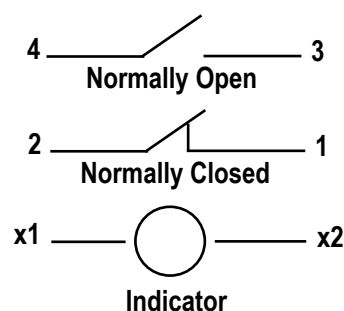
Back-of-panel extensions

Note: This view is to show dimensions only.
Contact blocks are not stackable.



Control Circuit Contact Electrical Ratings and Wiring

Typical Wiring



Minimum Spacing — mm [inches]		
Size/Type of Operator	Dimensions	
	A	B
All types up to 30 (1.18) dia. including knob and key operated selector switches — except those listed below	30 (1.18)	50 (1.97)
Three-way adapter		
50 (1.97) dia. operators	55 (2.16)	55 (2.16)
Large yellow round legend plate - 70 (2.76) diameter	75 (2.95)	50 (1.97)

Approximate Dimensions — mm [inches]			
A	B	C	D
Single circuit block — full voltage and resistor units	Dual circuit contact block	Transformer light unit	Transformer light unit and single circuit contact block
Pushbuttons (All Types and Push-Pull)			
51 [2.0]	66 (2.6)	74 (2.91)	94 (3.7)
Key and Knob Selector Switches			
57 [2.2]	72 (2.83)	80 (3.15)	99 (3.9)

NEMA Mechanical Switching Ratings and Test Values for DC Control Circuit Contacts

Contact Rating Designation	Thermal Continuous Test Current (A)	Maximum Make or Break DC Current (A)			Volt amperes
		125 Volts	250 Volts	301 to 600 Volts	
P300	5.0	1.1	0.55	---	138
P600	5.0	1.1	0.55	0.20	138
Q300	2.5	0.55	0.27	---	69
Q600	2.5	0.55	0.27	0.10	69
R300	1.0	0.22	0.11	---	28

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-2.

NEMA Mechanical Switching Ratings and Test Values for AC Control Circuit Contacts

Contact Rating Designation	Thermal Continuous Test Current (A)	Maximum AC Current, 50/60Hz (A)								Volt amperes	
		120 Volts		240 Volts		480 Volts		600 Volts			
		Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
A300	10	60	6.00	30	3.00	---	---	---	---	7200	720
A600	10	60	6.00	30	3.00	15	1.50	12	1.20	7200	720
B300	5	30	3.00	15	1.50	---	---	---	---	3600	360
B600	5	30	3.00	15	1.50	7.5	0.75	6	0.60	3600	360
C600	2.5	15	1.5	7.5	0.75	3.75	0.375	3.00	0.30	1800	180

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-1.

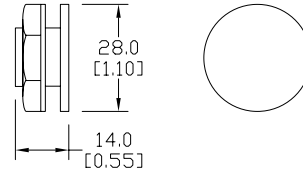
Octagonal Wrench



Hole Plug



Dimensions: mm [inches]



Bulb Removal Tool



Guard for E22 E-Stop



Replacement Incandescent Bulbs

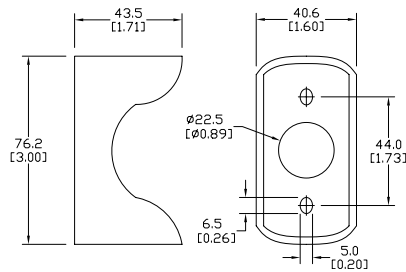


Replacement LED Lamps



Accessories

Part number	Description	Price
<u>HT8WRENCH</u>	Octagonal wrench for tightening back-of-panel mounting nut on all Cutler-Hammer operators.	\$19.00
<u>E22BHP</u>	Hole plug for unused 22mm panel holes.	\$14.00
<u>HT8LAMPTOOL</u>	Lamp extraction tool for removing lamps from switches, indicators and stacklights	\$10.00
<u>E22MGTA</u>	22mm yellow guard for E22LTA2QB and E22LPB2B for emergency stop applications.	\$30.50



Replacement Incandescent Bulbs

Part Number	Rating	Description	Quantity	Price
<u>ECX1900-5</u>	6V, 1.2 watts	6V replacement bulb for 22mm switches and indicators. Miniature bayonet base T31/4.	5	\$9.50
<u>ECX1902-5</u>	24V@ 80mA	24V replacement bulb for 22mm switches and indicators. Miniature bayonet base T31/4.	5	\$9.50
<u>ECX1904-5</u>	130V@20mA	120V replacement bulb for 22mm switches and indicators. Miniature bayonet base T31/4.	5	\$20.00
<u>W1121</u>	120V@20mA	Replacement bulb for Cutler-Hammer E22 full voltage indicators and switches. Does not replace the LED monoblock indicators.	4	\$38.50
<u>W1226</u>	60V@20mA	Replacement bulb for Cutler-Hammer E22 resistor indicators, switches and pushbuttons. Does not replace the LED monoblock indicators.	4	\$38.50
<u>W1819</u>	24V@20mA	Replacement bulb for Cutler-Hammer E22 indicators and pushbuttons. Does not replace the LED monoblock indicators.	4	\$37.50

Replacement LED Lamps

Replacement LED Lamps					
Part Number	Color	Rating	Description	Quantity	Price
<u>ECX1911-2</u>	Red	24V@26mA	LED replacement lamp for miniature bayonet bases Works with 22mm switches and indicators, but illumination will not be as even when used with the ECX 22mm indicators Note: Will not replace sealed Cutler-Hammer monoblock LED indicators.	2	\$17.50
<u>ECX1912-2</u>	Green				\$22.00
<u>ECX1913-2</u>	Yellow				\$17.50
<u>ECX1914-2</u>	Blue				\$23.50
<u>ECX1915-2</u>	White				\$28.00
<u>ECX1921-2</u>	Red	120V@5mA			\$17.50
<u>ECX1922-2</u>	Green				\$22.00
<u>ECX1923-2</u>	Yellow				\$17.50
<u>ECX1924-2</u>	Blue				\$23.50
<u>ECX1925-2</u>	White				\$28.00

EATON E22 Legend Plates

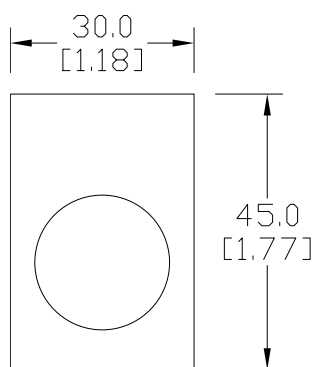
Cutler-Hammer

Legend Plates

Aluminum legend plates feature a plastisol backing to help prevent rotation of the operator.



Dimensions: mm [inches]

**E22VA8**

Legend Plates				
Part Number	Price	Color	Legend	Drawing Link
E22NS11	\$7.50	Black	"CLOSE"	PDF
E22NS12	\$7.50	Black	"DOWN"	PDF
E22NS13	\$7.50	Red	"EMERG. STOP"	PDF
E22NS15	\$7.50	Black	"FORWARD"	PDF
E22NS19	\$7.50	Black	"JOG"	PDF
E22NS25	\$7.50	Black	"ON"	PDF
E22NS26	\$7.50	Black	"OPEN"	PDF
E22NS30	\$7.50	Black	"REVERSE"	PDF
E22NS31	\$7.50	Black	"RUN"	PDF
E22NS33	\$7.50	Black	"START"	PDF
E22NS34	\$7.50	Red	"STOP"	PDF
E22NS35	\$7.50	Black	"UP"	PDF
E22NS36	\$7.50	Black	Blank plate	PDF
E22NS37	\$7.50	Red	Blank plate	PDF
E22NS38	\$7.50	Black	"FOR-REV"	PDF
E22NS39	\$7.50	Black	"HAND-AUTO"	PDF
E22NS41	\$7.50	Black	"JOG-RUN"	PDF
E22NS42	\$7.50	Black	"OFF-ON"	PDF
E22NS43	\$7.50	Black	"OPEN-CLOSE"	PDF
E22NS48	\$7.50	Black	"UP-DOWN"	PDF
E22NS50	\$7.50	Black	"FOR-OFF-REV"	PDF
E22NS51	\$7.50	Black	"HAND-OFF-AUTO"	PDF
E22NS80	\$7.50	Black	"POWER ON"	PDF
E22NS81	\$7.50	Black	"MOTOR RUN"	PDF
E22NS82	\$7.50	Black	"MOTOR STOP"	PDF
E22NL36	\$7.50	Black	Jumbo alum. blank plate (1.57 in wide x 1.85 in tall)	PDF
E22NL37	\$7.50	Red	Jumbo alum. blank plate (1.57 in wide x 1.85 in tall)	PDF
E22NSP77	\$7.50	Red /black	Plastic blank plate; red on one side, black on other side; either side can have letters engraved down into white plastic	PDF
E22VA8	\$12.50	Yellow	"EMERGENCY STOP" oversize yellow legend plate, 2.76" (70mm), printed	N/A

NOTE: Legend plates also work with the GCX/ECX series 22mm metal switches. The removal of the locator tab on the legend plate is required. This is easily accomplished with a round file or small grinder.

E22 Series Cross-reference Tables

Pushbutton, Indicator Light, and Selector Switch Cross Reference				
Cutler-Hammer	Allen-Bradley	Telemecanique XB2B (chrome bezel) XA2B (black bezel)	GE C-2000	Siemens
Non-Illuminated Pushbuttons				
E22PB1A	800EPF2 800E3LX10	ZA2BA2 ZA2BZ101	P9XPNG10N0	3SB1000-0AB01 3SB02-CBH 3SB1400-0B
E22PB3A	800EPF3 800E3LX10	ZA2BA3 ZA2BZ101	P9XPNVG10N0	3SB1000-0AE01 3SB02-CBH 3SB1400-0B
E22EB2B	800EPE4 800E3LX01	ZA2BL4 ZA2BZ102	P9XPNRS20N0	3SB1000-0LC01 3SB02-CBH 3SB1400-0B
E22ASB204	ENCLSR: 800E-2P 800EP-F3 800E-2LX10 800EP-E4 800E-2LX01 800E-34BE208 800E-34R212	XALB211 Both flush - stop is not extended	P9CPNRSN20N0 P9CPNVGN10N0 P9EPB02 P9AEPN201 P9AEPN202	3SB02-S21
Illuminated Pushbuttons				
E22TB2X4B	800EPL4 800E3DL3 800E3X01	ZA2BW14 ZA2BW06224	P9XPLRSDN12NADI	3SB1001-0LC01 3SB02-CBH 3SB1400-0C 3SB1400-2H
E22TB3X4A	800EPL3 800E3DL3 800E3X10	ZA2B213 AZ2B206124	P9XPLVSDN12NADI	3SB1001-0LE01 3SB02-CBH 3SB1400-0B 3SB1440-2H
E22TB9X4A	800EPL5 800E3DL3 800E3X10	ZA2BW15 ZA2BW06124	P9XPLASDN12NADI	3SB1001-0LD01 3SB02-CBH 3SB1400-0B 3SB1400-2H
E22TB2X10B	800EPL4 800E2RL5 800E3X01	ZA2BW14 ZA2BW062120	P9XPLRSB P9PRNVJ P9PDNVD	3SB1001-0LC01 3SB02-CBH 3SB1400-0C
E22TB3X10A	800EPL3 800E2RL5 800E3X10	ZA2BW13 ZA2BW061120	P9XPLVSD P9PRNVJ P9PDNVD	3SB02-UPR1P 3SB1910-0DE 3SB1400-0B
E22TB9X10A	800DPLE5 800E2RL5 800E3X10	ZA2BW15 ZA2B2061120	P9XPLASD P9PRNVJ P9PDNVD	3SB02-UPR1P 3SB1910-0DD 3SB1400-0B

E22 Series Cross-reference Tables

Pushbutton, Indicator Light, and Selector Switch Cross Reference (cont'd)				
Cutler-Hammer	Allen-Bradley	Telemecanique XB2B (chrome bezel) XA2B (black bezel)	GE C-2000	Siemens
Non-Illuminated Mushroom Pushbuttons				
E22LB2B	800EPM4 800E3LX01	ZA2BC4 ZA2BZ102	P9XEM4RNN20N0	3SB1000-1RC01 3SB02-CBH 3SB1400-0C
E22LLB2B	800EPM4 800E3LX01	ZA2BS54 ZA2BZ102	P9XER4RAN20N0	3SB1000-1AC01 3SB02-CBH 3SB1400-0C
E22JPB2B	800EPMJ4 800E3LX01	ZA2BR4 ZA2BZ102	P9XEMGRN (60mm) P9BO1VN	3SB1000-1VC01 (70MM) 3SB1400-0C
E22JLB2N8B	800EPMJP28 800E3LX01	NO EQUAL	NO EQUAL	NO EQUAL
E22JPLB2B	800EPMJP24 800E3LX01	ZA2BX4 ZA2BZ102	P9XET4RN1200	3SB1000-0KC01 (40mm) 3SB1400-0C
E22ASB106	800EP-MT4 800E-2LX01 800E-1P 800E-15YE112	XALJ174 No Nameplate + Yellow Cover	P9XER4RAN20N0 P9EPB01 P9AEPNEN	3SB02-S13 No Nameplate + Yellow Cover
Indicating Lights				
		Use ZA2 or ZB2 for these indicating lights		
E22HV2X4	800EPPL4 800E3DL3	ZA2BV04 ZA2BV624	P9XURRD0 BA9S24	N/A
E22HV3X4	800EPPL3 800E3DL3	ZA2BV03 ZA2BV624	P9XUGRD0 BA9S24	N/A
E22HV9X4	800EPPL5 800E3DL3	ZA2BVO5 ZA2BV624	P9XUARD0 BA9S24	N/A
E22HV2X8	800EPPL4 800E3DL5	ZA2BV04 ZA2BV6120	B9XURRD0 BA9S130	N/A
E22HV3X8	800EPPL3 800E3DL5	ZA2BV03 ZA2BV6120	B9XUGRD0 BA9S130	N/A
E22HV9X8	800EPPL5 800E3DL5	ZA2BV05 ZA2BV6120	B9XUARD0 BA9S130	N/A
E22HL2X4	800EPPL4 800E3DL3R	ZA2BV043 ZA2BV624 DL1CJUS0244	B9XURRD0 080BA9S24LR	N/A
E22HL3X4	800EPPL3 800E3DL3G	ZA2BV033 ZA2BV624 DL1CJUS0243	B9XUGRD0 080BA9S24LG	N/A
E22HL9X4	800EPPL5 800E3DL3A	ZA2BV053 ZA2BV624 DL1CJUS0245	B9XUARD0 080BA9S24LA	N/A
E22HL2X8	800EPPL4 800E3DL5R	ZA2BV043 ZA2BV620 DL1CJUS1204	B9XURRD0 080BA9S120LR	N/A
E22HL3X8	800EPPL3 800E3DL5G	ZA2BV033 ZA2BV6120 DL1CJUS1203	B9XUGRD0 080BA9S120LG	N/A
E22HL9X8	800EPPL5 800E3DL5A	ZA2BV053 ZA2BV6120 DL1CJUS1205	B9XUARD0 080BA9S120LA	N/A

E22 Series Cross-reference Tables

Pushbutton, Indicator Light, and Selector Switch Cross Reference (cont'd)				
Cutler-Hammer	Allen-Bradley	Telemecanique XB2B (chrome bezel) XA2B (black bezel)	GE C-2000	Siemens
Indicating Lights (cont'd)				
		Use ZA2 or ZB2 for these indicating lights		
E22H2X11	800EPPL4 800E3TL5	ZA2BV04 ZA2BV3	P9XLRGJI	3SB1001-6CC06 3SB02-CBH 3SB1400-5M
E22H3X11	800EPPL3 800E3TL5	ZA2BV03 ZA2BV3	P9XLGGJI	3SB1001-6CE06 3SB02-CBH 3SB1400-5M
E22H9X11	800EPPL5 800E3TL5	ZA2BV05 ZA2BV3	P9XLAGJI	3SB1001-6CD06 3SB02-CBH 3SB1400-5M
E22TB9X26	800DPLE5 800ETLT5X11	ZA2B215 ZA2BW065120	P9XPLASDN30NKJI	3SB02-UPR1P 3SB1910-0DD 3SB1400-0B
E22TB2X27	800EPLE4 800E3TLT5X11	ZA2BW14 ZA2BW035	P9XPLRSDN30NHJI	3SB100-0QC01 3SB02-CBH 3SB1400-5M
E22TB9X27	800EPLE5 800E3TLT5X11	ZA2BW15 ZA2BW035	P9XPLASDN30NHJI	3SB1001-0QA01 3SB02-CBH 3SB1400-5M
Selector Switches				
E22XB51A	800EPSM22 800E3LX10	ZA2BD2 ZA2BZ101	P9XSMD0N P9B10VN	3SB02-2MKBP 3SB1400-0B
E22XB51C	800EPSM22 800E3LX11	ZA2BD2 ZA2BZ105	P9XSMD0N P9B11VN	3SB02-2MKBP 3SB1400-0C
E22XBG1RR	800EPSM32 800E3LX20 800E3LX02	ZA2BD3 ZA2BZ103 ZA2BZ104	P9XSMZ0N P9B11VN	3SB02-3MKBP 3SB1400-0G 3SB1400-0H
E22KB53A	800EPKM2Z1 800E3LX11	ZA2BG4 ZA2BZ101	P9XSCD0K95 P9B10VN	3XB02-2MHC1P 3SB1400-0B
E22KB62A	800EPKR2Z1 800E3LX10	ZA2BG6 ZA2BZ101	P9XSCD0K95 P9B10VN	3SB02-2LHC1P 3SB1400-0B

E22 Series Cross-reference Tables

Pushbutton, Indicator Light, and Selector Switch Cross Reference (cont'd)				
<i>Cutler-Hammer</i>	<i>Allen-Bradley</i>	<i>Telemecanique XB2B (chrome bezel) XA2B (black bezel)</i>	<i>GE C-2000</i>	<i>Siemens</i>
<i>Accessories</i>				
E22B1	800E3X01	ZA2BZ102	P9B01VN	3SB1400-0C
E22B2	800E3X10	ZA2BZ101	P9B10VN	3SB1400-0B
E22NS33	800E13BE208	ZA2BZ32303	P9ACP2N202	P22MPS03
E22NS34	800E13BE212	ZA2BZ32304	P9ACP2N201	P22MPS04
E22NS19	800E13BE138	ZA2BZ32101 + custom text	P9ACP2N210	P22MPS28
E22NS11	800E13BE107	ZA2BZ32314	P9ACP2N205	P22MPS19
E22NS12	800E13BE110	ZA2BZ32308	P9ACP2N203	P22MPS17
E22NS50	800E13BE261	ZA2BZ32101+ custom text	P9ACP2N239	P22MPS81
E22NS15	800E13BE120	ZA2BZ32305	P9ACP2N214	P22MPS07
E22NS38	800E1BE253	ZA2BZ32101+ custom text	P9ACP2N231	P22MPS57
E22NS39	800E13BE127	ZA2BZ32101 + custom text	P9ACP2N243	P22MPS52
E22NS51	800E13BE128	ZA2BZ32387	P9ACP2N261	P22MPS80
E22NS41	800E13BE142	ZA2BZ32101 + custom text	P9ACP2N245	P22MPS65
E22NS81	800E13B	ZA2BZ32101 + custom text	P9ACP2NFEN	P22MPS38
E22NS82	800E13B	ZA2BZ32101 + custom text	P9ACP2NFEN	P22MPSBB + custom text
E22NS25	800E13BE166	ZA2BZ32311	P9ACP2R212	P22MPS01
E22NS26	800E13BE170	ZA2BZ32313	P9ACP2N206	P22MPS18
E22NS43	800E13BE171	ZA2BZ32101 + custom text	P9ACP2N234	P22MPS60
E22NS30	800E13BE188	ZA2BZ32306	P9ACP2N215	P22MPS08
E22NS31	800E13BE193	ZA2BZ32334	P9ACP2N211	P22MPS06
E22NS35	800E13BE22	ZA2BZ32307	P9ACP2N204	P22MPS16
E22NS48	800E13BE224	ZA2BZ32101 + custom text	P9ACP2N256	P22MPS61
E22NS13	800E13BE112	ZA2BZ32330	P9ACP2R229	P22MPS27
E22VA8	800E16Y	ZB2BY9303	080XTG802	3SX1348