

## Electrical Standard Products (ESP) Branch Offices:

### REGISTERED OFFICE AND HEAD OFFICE

L&T House, Ballard Estate  
P. O. Box 278  
**Mumbai 400 001**  
Tel: 022-6752 5656  
Fax: 022-6752 5858  
Website: www.Larsentoubro.com

### ELECTRICAL STANDARD PRODUCTS (ESP)

501, Sakar Complex I  
Opp. Gandhigram Rly. Station  
Ashram Road  
**Ahmedabad 380 009**  
Tel: 079-66304007-11  
Fax: 079-26580491  
e-mail: esp-ahm@LNTEBG.com

38, Cubbon Road, Post Box 5098  
**Bangalore 560 001**  
Tel: 080-25020100, 25593613  
Fax: 080-25580525  
e-mail: esp-blr@LNTEBG.com

131/1, Zone II  
Maharana Pratap Nagar  
**Bhopal 462 011**  
Tel: 0755-4233906, 4233907  
Fax: 0755-2769264  
e-mail: esp-bho@LNTEBG.com

Plot No. 559, Annapurna Complex  
Lewis Road  
**Bhubaneswar 751 014**  
Tel: 0674-6451342, 2436696  
Fax: 0674-2537309  
e-mail: esp-bbi@LNTEBG.com

SCO 32, Sector 26-D  
Madhya Marg, P. O. Box 14  
**Chandigarh 160 026**  
Tel: 0172-4646841 to 7  
Fax: 0172-4646802  
e-mail: esp-chd@LNTEBG.com

10, Club House Road  
**Chennai 600 002**  
Tel: 044-28462072 / 4 / 5  
Fax: 044-28462102  
e-mail: esp-maa@LNTEBG.com

67, Appuswamy Road  
Post Bag 7156  
Opp. Nirmala College  
**Coimbatore 641 045**  
Tel: 0422-2588120 / 1 / 5  
Fax: 0422-2588148  
e-mail: esp-cbe@LNTEBG.com

L&T House, Group MIG - 5  
Padmanabhpur  
**Durg 491 001**  
Tel: 0788-2213833 / 14 / 28 / 29  
Fax: 0788-2213820

A1/11, Astronauts Avenue  
Bidhan Nagar  
**Durgapur 713 212**  
Tel: 0343-2536891 / 8952 / 7844  
Fax: 0343-2536493  
e-mail: esp-dgp@LNTEBG.com

Milanpur Road, Bamuni Maidan  
**Guwahati 781 021**  
Tel: 0361-2651297  
Fax: 0361-2551308  
e-mail: esp-gau@LNTEBG.com

II Floor, Vasantha Chambers  
5-10- 173, Fateh Maidan Road  
**Hyderabad 500004**  
Tel: 040-66720250  
Fax: 040-23296468  
e-mail: esp-hyd@LNTEBG.com

D-24, Prithvi Raj Road, C-Scheme  
**Jaipur 302 001**  
Tel: 0141-2385913 / 19  
Fax: 0141-2373280  
e-mail: esp-jai@LNTEBG.com

Akashdeep Plaza, 2nd Floor  
P. O. Golmuri  
**Jamshedpur 831 003**  
Jharkhand  
Tel: 0657-2340864  
Fax: 0657-2341250  
e-mail: esp-jam@LNTEBG.com

Skybright Bldg. M. G. Road  
Ravipuram Junction, Ernakulam  
**Kochi 682 016**  
Tel: 0484-4409420 / 427  
Fax: 0484-4409426  
e-mail: esp-cok@LNTEBG.com

3-B, Shakespeare Sarani  
**Kolkata 700 071**  
Tel: 033-44002572 / 3 / 4  
Fax: 033-22822589  
e-mail: esp-ccu@LNTEBG.com

A28, Indira Nagar, Faizabad Road  
Uttar Pradesh,  
**Lucknow 226 016**  
Tel: 0522-2312904 / 5 / 6  
Fax: 0522-2311671  
e-mail: esp-lko@LNTEBG.com

Plot No. 518  
4th Main Road  
K. K. Nagar  
**Madurai 625 020**  
Tel: 0452-2537404, 2521068  
Fax: 0452-2537552  
e-mail: esp-mdu@LNTEBG.com

EBG North Wing Office - 2  
Powai Campus  
**Mumbai 400 072**  
Tel: 022-67052874 / 2737 / 1156  
Fax: 022-67051112  
e-mail: esp-bom@LNTEBG.com

8B, Farmland  
Ramdaspath  
Behind Hotel Radhika  
**Nagpur 440 010**  
Tel: 0712-2420641 / 24  
Fax: 0712-2420619  
e-mail: esp-ngp@LNTEBG.com

32, Shivaji Marg  
P. O. Box 6223  
**New Delhi 110 015**  
Tel: 011-41419500 / 1, 41419515  
Fax: 011-41419600  
e-mail: esp-del@LNTEBG.com

L&T House  
P. O. Box 119  
191/1, Dhole Patil Road  
**Pune 411 001**  
Tel: 020-26135048, 26135611  
Fax: 020-26129586, 26124910  
e-mail: esp-pnq@LNTEBG.com

3rd Floor  
Vishwakarma Chambers  
Majura Gate, Ring Road  
**Surat 395 002**  
Tel: 0261-2473726  
Fax: 0261-2477078  
e-mail: esp-sur@LNTEBG.com

Radhadaya Complex  
Old Padra Road  
Near Charotar Society  
**Vadodara 390 015**  
Tel: 0265-6613610 / 11 / 12  
Fax: 0265-2336184  
e-mail: esp-bar@LNTEBG.com

48-8-16, Dwarakanagar  
**Visakhapatnam 530 016**  
Tel: 0891-6620411-4  
Fax: 0891-6620416  
e-mail: esp-viz@LNTEBG.com

Product improvement is a continuous process. For the latest information and special applications, please contact any of our offices listed here.



Electrical Standard Products  
Larsen & Toubro Limited  
Powai Campus, Mumbai 400 072  
Tel: 022-6705 0505  
Fax: 022-6705 1746  
E-mail: ebg-esp@LNTEBG.com  
Website: www.LNTEBG.com



## MODULAR REMOTE CONTROL UNITS



Larsen & Toubro Limited is India's leading engineering company. The Electrical Business Group offers the countries widest range of low tension switchgear. In addition to high quality products from it's own factories. L&T seeks out the best in Power Control Technology and offers these products in the Indian Market. Push Button Actuators, Selector Actuators, LED Indication, Modular / Integral Indicators & Push Button Stations from ESBEE are part of the world class products offered byLarsen &Toubro Limited.

The Electrical Business Group of Larsen & Toubro Limited manufactures and markets a wide range of L. T. Switchgear & Accessories all over the country. L&T's marketing efforts are complimented by a strong service capability that extends nationwide. A network of more than 450 stockists in addition to L&T's own offices ensures that wherever you are in the country, ESBEI products are not far from you.



**Esbee Industrial Combines,** manufactures wide range of 22.5mm Push Button Switches and Pilot Lights (RemoteControl Signaling Units) and Appliance Switches for which there is technical collaboration with EMB Corporation, USA. The Company has **ISO 9001 : 2000** certified quality system.

A strong believer in Indian product quality, ESBEE exports to developed countries like USA, Canada, Germany etc.

ESBEE products have approvals from International testing agencies like VDE (Germany), UL (USA), CSA (Canada) etc.



# CONTENTS

## TEEKAY series

Technical Specifications of LED Indicators	2
LED Indicator & Filament Indicator	3
Modular Remote Control Unit	4

## H series

Push Button Actuators Ø 22.5 mm	5
Illuminated Actuators With LED	6
Selector Actuators	7
Accessories For Actuators & Selector Actuators	7
Spares	8/9

## J series

Push Button Stations	10
All Purpose Enclosures & Spares	11

## Technical Specifications

12-13

### GENERAL TERMS

#### For Inside Maharashtra :

- Prices are F.O.R. Pune and are inclusive of excise duty, but exclusive of Tax, Freight, Octroi, Levies and Duties.

#### For Outside Maharashtra :

- Prices are F.O.R. Pune and are inclusive of excise duty, Central Sales Tax but exclusive of any other Taxes, Freight, Octroi





### Features of Remote Control Units

- Actuators / Indicators with new design optimally meets end user requirement
- Can accommodate 1 NO Block OR 1 NC Block OR 1 Bulb Holder
- Designed for flexibility to change from 1 Block first row clip to 3 Block first row clip
- Screw less assembly
- Ease in mounting and wiring
- Good Aesthetics
- International approvals CE, CSA, UL, VDE, 'S' MARK for contact blocks and CE, CSA, UL, VDE for bulb holders

### Features of LEDs

- New sleek and compact design
- Lug wiring possible
- Uniform bright illumination
- Wide voltage range
- Operating life more than 1,00,000 hours,
- Can be assembled in push button stations
- IP30 protection with shroud

### Features of Modular block











- Snap fit for ease in assembly
- Finger proof shrouded terminals
- NO and NC block are colour coded for easy identification
- Captive screw and self lifting washer for easy insertion

### Technical Specifications of LED Indicators

Type of LED	TT	TS
RATED VOLTAGE	6 V AC / DC, 12 V AC / DC, 24 V AC / DC, 48 V AC / DC 110 V AC, 110V DC, 240 V AC, 220 V DC	
OPERATING VOLTAGE	-20% TO +10% OF RATED VOLTAGE	
POWER CONSUMPTION -24V / 110V / 240V	< 0.6W	
INSULATION RESISTANCE	100 M Ω AT 500 V DC	
DIELECTRIC STRENGTH	1.5 KV AC	
OPERATING TEMP.	-10°C TO 55°C	
STORAGE TEMP.	-25°C TO 70°C	
INDICATOR COLOURS	RED, GREEN, YELLOW, BLUE, ORANGE, WHITE	
PANEL CUT-OUT REQUIRED	22.5 mm, 30 mm with adapter ring	
OVERALL DIMENSION	29 X 56 mm (Approximately)	29 X 60 mm (Approximately)
WEIGHT	25 Grams.	
DEGREE OF PROTECTION	IP 30 - (FOR TERMINALS)	
	IP 65 - (TOP SURFACE OF INDICATORS)	
LIFE	1,00,000 (BURNING HRS.)	


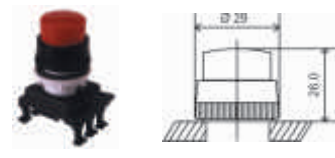

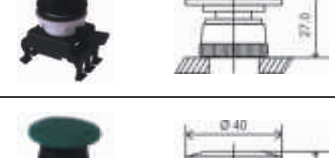
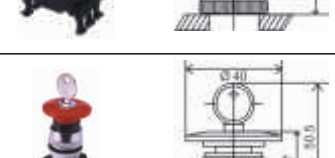
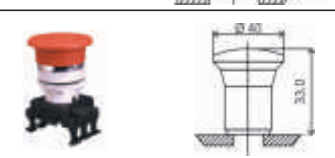

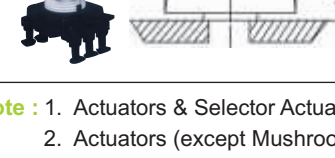
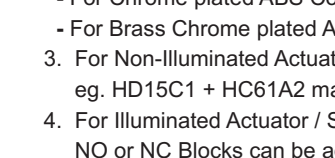
Type	Description	Cat. No.	Colour (4 <sup>th</sup> Digit)	Voltage (5 <sup>th</sup> & 6 <sup>th</sup> Digit)
	LED Indicator	TT0□□□		X1 - 240V AC X2 - 220V DC W1 - 110V AC W2 - 110V DC <b>Q1 - 63.5V AC / DC</b> V1 - 48V AC / DC U1 - 24V AC / DC T1 - 12V AC / DC S1 - 6V AC / DC
	LED Indicator	TS0□□□		
	LED Indicator	TS0□□□		Y1 - 415V AC
	Compact Integral Indicator	TL0□□1		W1 - 110V AC / DC V1 - 48V AC / DC U1 - 24V AC / DC T1 - 12V AC / DC S1 - 6V AC / DC
	Compact Integral Indicator with Resistor & Diode	TM0□X1		X1 - 240V AC
	Indicator with Filament bulb	TB0□□1		R1 - 6V - 110V AC/DC X1 - 240V AC W1 - 110V AC / DC V1 - 48V AC / DC U1 - 24 V AC / DC T1 - 12 V AC / DC S1 - 6 V AC / DC
	Universal Voltage LED Indicator	TP0□Z1 TP0□Z2		Z1 - 40V to 240V AC/DC Z2 - 24V to 240V AC/DC

**Note :** Colours available - 1 - Red, 2 - Green, 3 - Black, 4 - Yellow, 5 - White / Opal, 6 - Blue, 7 - Orange, 8 - Colourless

Type	Description	Cat. No.	Colour (4 <sup>th</sup> Digit)	Voltage (5 <sup>th</sup> Digit)
	Flush head Push Button with 1 NC Block	TD11B2	1	
	Flush head Push Button with 1 NO Block	TD1□A2	2 3 4 5 6 7	
	Projecting head Push Button with 1NC Block	TD41B2	1	
	Projecting head Push Button with 1NO Block	TD4□A2	2 3 4 5 6 7	
	Symmetrical head 2 position selector switch (NSR ) with 1 NC Block	TK63B2	3	
	Symmetrical head 2 position selector switch (NSR ) with 1 NO Block	TK63A2	3	
	Symmetrical head 2 position selector switch (SR) with 1 NC Block	TI63B2	3	
	Symmetrical head 2 position selector switch (SR) with 1 NO Block	TI63A2	3	
	Push Button Station with Push Pull Emergency Switch, Red with 1 NC	TJ51B2	1	
	Mushroom Head Push Turn Actuator with 1 NO or NC Block	TH5□B2 TH5□A2	1 2 3 4	B2 for NC A2 for NO

Note : Colours available - 1 - Red, 2 - Green, 3 - Black, 4 - Yellow, 5 - White / Opal, 6 - Blue, 7 - Orange, 8 - Colourless

## H series

	Description	Cat. No.	Cours Available 6 <sup>th</sup> Digit in Cat. No.
	Flush Head Non Illuminated	HD15C□	1 2 3 4 5 6 7
	Flush Head Illuminated	HD16C□	1 2 4 5 6 7 8
	Projecting Head 'Push Function' Non Illuminated	HD45C□	1 2 3 4 5 6 7
	Illuminated Projecting Head 'Push Function'	HD46C□	1 2 4 5 6 7 8
	Projecting Head 'Push -Push Function' Non (Illuminated)	HF45C□	1 2 3 4 5 6 7
	Projecting Head 'Push- Push Function' Illuminated	HF46C□	1 2 4 5 6 7 8
	Mushroom Head Ø 40 mm 'Push Function' Non Illuminated	HD55C□	1 2 3 4
	Mushroom Head 'Push Turn' Non Illuminated	HH55C□	1 2 3 4
	Mushroom Head With Lock & Key Non Illuminated	HQ55C□	1 2 3 4
	Mushroom Head 'Push Pull' Non Illuminated	HG55B□	1 2 3 4
	Twin Touch Non Illuminated	HD15GO	
	Twin Touch Non Illuminated	HD15G3	3
	Twin Touch With Pilot Lamp Illuminated	HD16G□	4 7 8 (Colour of Center Indication Strip)

Note : 1. Actuators & Selector Actuators with black ABS collar are offered as Standard Eg. : HD15C1

2. Actuators (except Mushroom Head Push - Pull & all types of twin touch Actuators) are also available with chrome plated ABS & Brass collar

- For Chrome plated ABS Collar replace 5 th digit C by A Eg. : HD15A1





- For Brass Chrome plated ABS Collar replace C by B Eg. : HD15B1

3. For Non-Illuminated Actuator / Selector Actuator at least 1 NO or NC Block required to make a complete Assembly eg. HD15C1 + HC61A2 makes complete assembly of flush head actuator with 1 NO Block








4. For Illuminated Actuator / Selector Actuator at least 1 Bulb Holder required to make a complete Assembly NO or NC Blocks can be added as per the scheme required.



5. Colours available - 1 - Red, 2 - Green, 3 - Black, 4 - Yellow, 5 - White/Opal, 6 - Blue, 7 - Orange, 8 - Colourless

ILLUMINATED ACTUATORS WITH LED

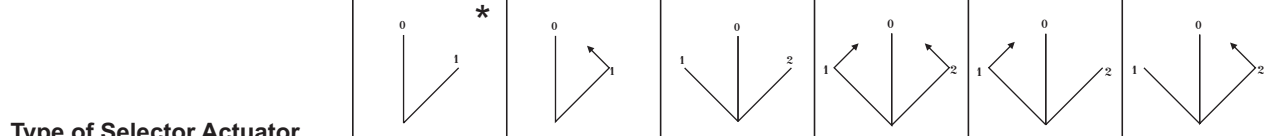
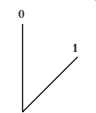
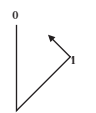
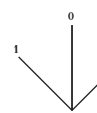
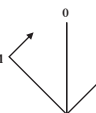
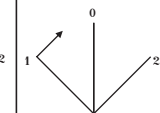
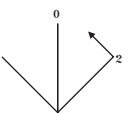


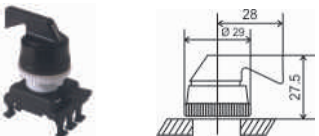
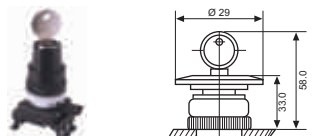
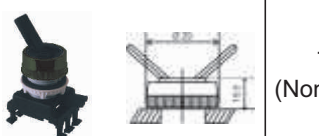
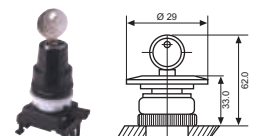
Type	Description	Cat. No.	Colour (6 <sup>th</sup> Digit)	Voltage (7 <sup>th</sup> & 8 <sup>th</sup> Digit)
	Flush Head	HD19C□□□	1 2 4 7 6	T1 - 12 VAC / DC U1 - 24 VAC / DC V1 - 48 VAC / DC W1 - 110 VAC X1 - 240 VAC
	Projecting Head (Push Function)	HD49C□□□	1 2 4 7 6	T1 - 12 VAC / DC U1 - 24 VAC / DC V1 - 48 VAC / DC W1 - 110 VAC X1 - 240 VAC
	Projecting Head (Push - Push Function)	HF49C□□□	1 2 4 7 6	T1 - 12 VAC / DC U1 - 24 VAC / DC V1 - 48 VAC / DC W1 - 110 VAC X1 - 240 VAC
	Twin Touch	HD19G□□□	4 7	T1 - 12 VAC / DC U1 - 24VAC / DC V1 - 48 VAC / DC W1 - 110 VAC X1 - 240 VAC



SELECTOR ACTUATOR WITH LED

	Voltage (7 <sup>th</sup> & 8 <sup>th</sup> Digit)		Colour (6 <sup>th</sup> Digit)			
	T1, U1, V1, W1, X1		1 2			
	2 POSITION		3 POSITION			
	Non Spring Return	Spring Return	Non Spring Return	Spring Return	Spring Return From L. H.	Spring Return from R. H.
						
	HK69C□□□	HI69C□□□	HL69C□□□	HJ69C□□□	HM69C□□□	HN69C□□□



Note \* - In 2 position selector actuator, for operating style  replace 2nd digit from K to R and for operating style  replace 2nd digit from K to T

SELECTOR ACTUATORS




POSITION	2 POSITION		3 POSITION				
	Non Spring Return	Spring Return	Non Spring Return	Spring Return	Spring Return From L. H.	Spring Return from R. H.	
							
<b>Type of Selector Actuator</b>	<b>Symmetric Head (Non Illuminated)</b>						
	HK65C□	HI65C□	HL65C□	HJ65C□	HM65C□	HN65C□	
	Colours Available (6 <sup>th</sup> Digit in Cat. No.) 1 2 3 5						
	<b>Symmetric Head (Illuminated)</b>						
	HK66C□	HI66C□	HL66C□	HJ66C□	HM66C□	HN66C□	
	Colours Available (6 <sup>th</sup> Digit in Cat. No.) 1 2 5 8						
	<b>Lever Head (Non Illuminated)</b>						
	HK75C□	HI75C□	HL75C□	HJ75C□	HM75C□	HN75C□	
	Colours Available (6 <sup>th</sup> Digit in Cat. No.) 1 3 5						
	<b>Lock &amp; Key Rotary Type (Non Illuminated)</b>						
	HK85C3	HI85C3	HL85C3	HJ85C3	HM85C3	HN85C3	
	Colour Available 3						
	Tip Head (Non Illuminated)	HP95C□					Lock & Key (Push Turn)
	Colours Available (6 <sup>th</sup> Digit in Cat. No.) 1 2 3 5		Colour Available 3				

Note \* - In 2 position selector actuator, for operating style  replace 2nd digit from K to R and for operating style  replace 2nd digit from K to T

ACCESSORIES FOR ACTUATORS & SELECTOR ACTUATORS

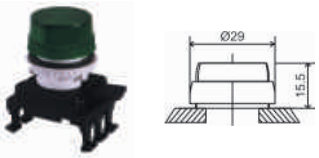
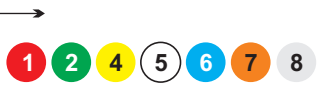
MODULAR CONTACT BLOCK				
	Description	Cat. No.		Description
	'NO' BLOCK	HC61A2		BULB HOLDER WITH BUILT IN RESISTOR & DIODE (240 V AC)
	'NC' BLOCK	HC61B2		HC61X1

Note : For Non-Illuminated Actuators / Selector Actuators at least 1 NO or NC Block is required for electrical connection. For Illuminated Actuators / Selector Actuators at least 1 Bulb Holder is required for electrical connection.

CLIPS FOR MODULAR BLOCKS				
	HC122030		HC929002	
Second Row Clip (For Vertical Cascading)		Side Row Clip (For Horizontal Cascading)		First Row Clip

Note : First Row Clip is Included in the Actuators and Selector Actuators Assembly.







MODULAR INDICATORS			
	Description	Cat. No.	Colours Available 6 <sup>th</sup> Digit in Cat. No.
	Ribbed Lens (Without Trim Collar) (Standard)	HB07F □	
Ribbed Lens (With Trim Collar)	HB07E □		

**EC1 SPARE LENS FOR MODULAR/ INTEGRAL INDICATORS (RIBBED LENS)**


	Colour	WITHOUT TRIM COLLAR	WITH TRIM COLLAR
		Cat. No.	Cat. No.
	Red	HE103108	HE903108
	Green	HE104109	HE904109
	Yellow	HE105110	HE905110
	Opal	HE101111	HE901111
	Blue	HE107112	HE907112
	Orange	HE108113	HE908113
	Colourless	HE100101	HE900101

**EC2 MODULAR BLOCKS (BULB HOLDERS WITH SERIES RESISTOR)**



	Bulb Rating	6V,2W	12V,2W	24V,2W	48V,2W	130V,20mA
	Supply Voltage	6V AC/DC	12V AC/DC	24V AC/DC	48V AC/DC	110V AC/DC
	Cat. No.	HC61S1	HC61T1	HC61U1	HC61V1	HC61W1
BULB HOLDER WITH BUILT IN RESISTOR & DIODE		BULB HOLDER WITHOUT RESISTOR / DIODE				
Bulb Rating	130V, 20mA BULB	Supply Voltage		6V / 12V / 24V / 48V 110V AC / DC		
Supply Voltage	240V AC SUPPLY	(Please specify while ordering)				
Cat. No.	HC61X1	Cat. No.		HC61R1		

EC3	FILAMENT LAMPS (BA 9S TYPE)		EC4.	FIXING DEVICE
	Cat. No.	Voltages		Cat. No.
	HC550001	6V AC / DC		HH192000
	HC550002	12V AC / DC		
	HC550003	24V AC / DC		
	HC550004	48V AC / DC		
	HC550005	130V AC / DC		
			EC5.	LAMP EXTRACTOR
				Cat. No.
				HH157000


**EC6 SPARE LENS CAP**

	Colour	NON ILLUMINATED	ILLUMINATED
		Cat. No.	Cat. No.
	Red	HB103002	HB103103
	Green	HB104000	HB104101
	Black	HB102006	NA
	Yellow	HB105008	HB105109
	White/Opal	HB101004	HB101105
	Blue	HB107010	HB107111
	Orange	HB108012	HB108113
	Colourless	NA	HB100107


**EC7 SHROUD FOR ACTUATOR**

	Colour	Cat. No.		Colour	Cat. No.
	Red	HH152002		Black Chrome Plated	HB192000
Green	HH153003	- 'ABS'	HB196000		
Black	HH154004	- 'BRASS'	HB326000		
Yellow	HH155005				
Colourless	HH150100				


**EC9 ADAPTOR RING (For 30 to 22mm in Panel Cutout conversion)**

	Colour	Cat. No.
	Gray	HH180000
	Black Chrome Plated :	HH182004
	- 'ABS'	HH196006

**EC10 BLANKING PLUGS**

	Colour	Cat. No.
	Gray	HH180002
	Black	HH182009
	Chrome Plated 'ABS'	HH196010



**EC11 CENTER INDICATION STRIP (for Twin Touch Actuator)**

	Colour	Cat. No.
	Black	HB102058
	Yellow	HB105163
	Orange	HB108169
	Colourless	HB100161

# J series


ED1

## PUSH BUTTON STATIONS (in grey ABS)

Type	Function	Cat. No.	Type	Function	Cat. No.
	Flush Head Actuator - Red with Legend - STOP Contact - 1 'NC'	JAA10000		Mushroom Head Actuator with Lock & Key and Legend - STOP Contact - 1 'NC' for Stop	JAG10000
	Flush Head Actuator - Green with Legend - START Contact - 1 'NO'	JAB20000			
	Illuminated Actuator - Red with Legend - OFF Contact - 1 'NC' Bulb Holder with Bulb 240V AC	JAC50000		Flush Head Actuator - Green with Legend - START Contact - 1 'NO' (Station One)	JBB2A100
	Illuminated Actuator - Green with Legend - ON Contact - 1 'NO' Bulb Holder with Bulb 240V AC	JAD60000		Flush Head Actuator - Red with Legend - STOP Contact - 1 'NC' (Station Two)	
	Two Position Symmetric Head Selector Switch - Black with Legend - OFF / ON Contact - 1 'NO'	JAH20000		Pilot Light 240V AC Colourless Lens (Station One)	JCZ4B2A1
				Flush Head Actuator - Green with Legend - START Contact - 1 'NO' (Station Two)	
				Flush Head Actuator - Red with Legend - STOP Contact - 1 'NC' (Station Three)	
	Two Position Lock & Key Rotary Switch with Legend - OFF / ON Contact - 1 'NO'	JAI20000		Flush Head Actuator - Green with Legend - FORWARD Contact - 1 'NO' (Station One)	JDB2A1B2
				Flush Head Actuator - Red with Legend - STOP Contact - 1 'NC' (Station Two)	
				Flush Head Actuator - Green with Legend - REVERSE Contact - 1 'NO' (Station Three)	
	Mushroom Head Actuator 'Push Function' with Legend - STOP Contact - 1 'NC' for Stop	JAE10000		Flush Head Actuator - Green with Legend - UP Contact - 1 'NO' (Station One)	JEB2A1B2
				Flush Head Actuator - Red with Legend - STOP Contact - 1 'NC' (Station Two)	
				Flush Head Actuator - Green with Legend - DOWN Contact - 1 'NO' (Station Three)	
	Mushroom Head Actuator 'Push Turn Type' with Legend - STOP Contact - 1 'NC' for Stop	JAF10000		Flush Head Actuator - Green with Legend - START Contact - 1 'NO' (Station One)	JBB2F100
				Mushroom Head Actuator 'Push Turn Type' with Legend - STOP Contact - 1 'NC' (Station Two)	


ED2

## ALL PURPOSE ENCLOSURES

Type	Description	Cat. No./ Price
	All Gray Without hole	HF999000
	All Gray & 1 hole of 22.5	HF999001
	All Gray & 2 holes of 22.5	HF999002





ED3

## PUSH BUTTON STATION ENCLOSURES

Type	Description	Cat. No./ Price
	All Gray single hole	HF999004
	All Gray & 2 hole of 22.5	HF999005
	All Gray & 3 holes of 22.5	HF999003
	Single hole yellow cover & Gray Base	HF995001

ED4

## SPARE CONTACT BLOCK (for Push Button Stations)

for Push Button Stations			1NO + 1NC		
	'NO' Contact Block	'NC' Contact Block		1'NO' + 1'NC' Contact Block	
	HC42A2	HC42B2		HC42C2	
Bulb Holder with Bulb 240V AC+Contact Block			with 2'NO' or 2'NC'		
	'NO' Contact Block	'NC' Contact Block		2'NO' Contact Block	2'NC' Contact Block
	HC22N1	HC22O1		HC42D2	HC42E2

ED5

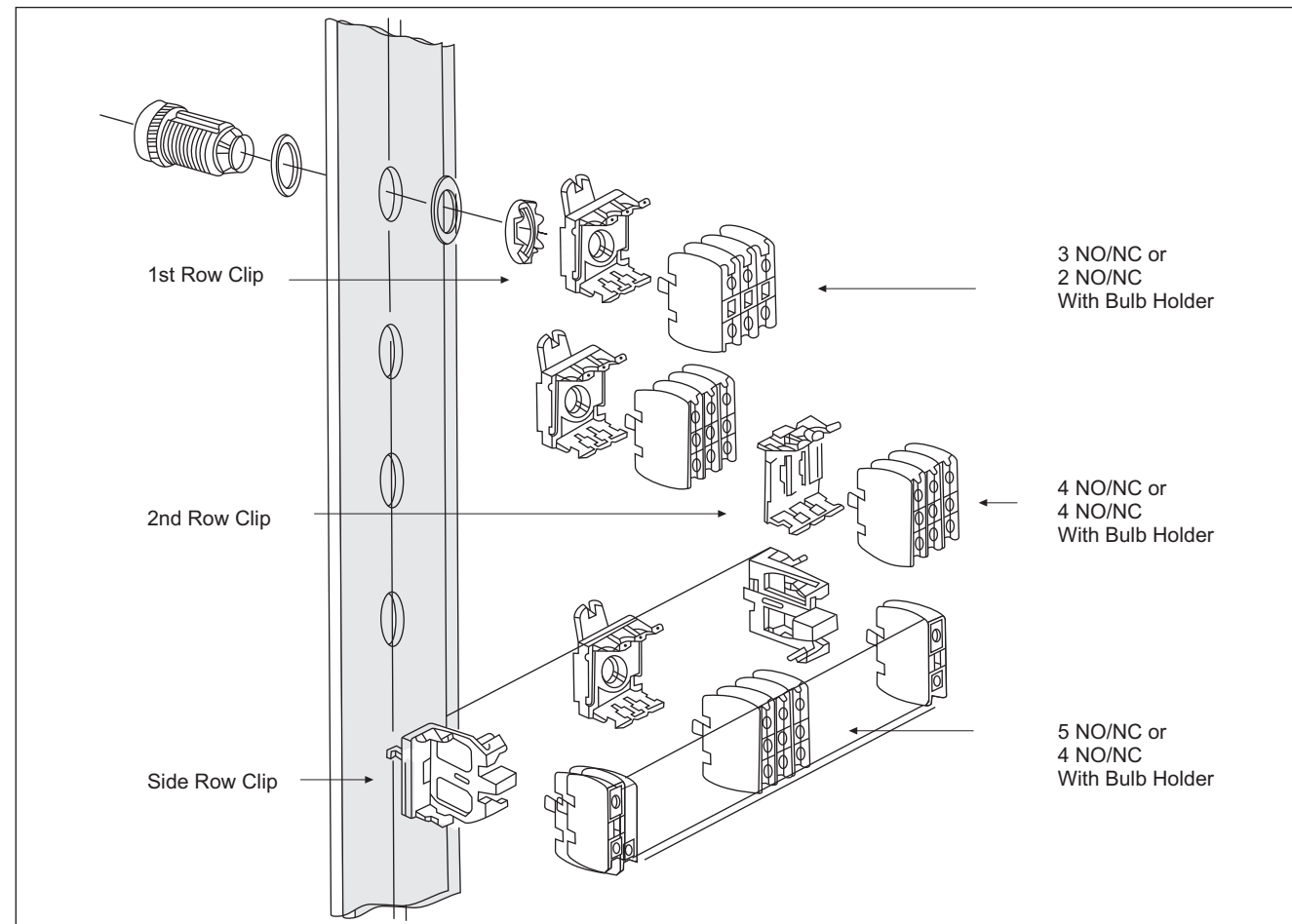
## METAL PLATES - SPARE

Description	Cat. No.		
	Small	Large	Square
OFF - ON	HH242001	HH242016	HH242031
FORW. - OFF-REV.	HH242002	HH242017	HH242032
HAND - OFF - AUTO	HH242003	HH242018	HH242033
STOP - START	HH242004	HH242019	HH242034
FAST - OFF - SLOW	HH242005	HH242020	HH242035
O - I	HH242006	HH242021	HH242036
I - O - II	HH242007	HH242022	HH242037

# TECHNICAL SPECIFICATIONS

EF1

## EXPLODED VIEW OF MODULAR BLOCK ASSEMBLIES



## EF2 TECHNICAL SPECIFICATIONS (Push Button Stations & all Purpose Enclosures)

### Degree of Protection :

Ingress Protection IP65 for Push Button Station with Indicators / Non Illuminated Push Function Actuators & all Purpose Enclosure

### Safety :

Fully insulated to house electrical and electronic equipment with respect to protection against electrical shock

### Materials :

Base : Tough, impact resistant, ABS  
 Cover : Tough, impact resistant, ABS  
 Cover Screws : Slotted head, metal screws for Push Button Stations and tough, low friction PA6 captive cross slot head screws for all purpose enclosures  
 Gasket : Oil and acid resistant nitrile rubber

### Terminal Capacity :

1 to 2.5 mm square flexible wire

### Mounting :

Directly through base, in cover screw cavity, outside gasketed area with No.4 size, sheet metal screws

### Machining :

Machining is easy with normal tools. Enclosures can be drilled, sawed, filed, punched etc. They can be welded with ultrasonic equipment

### Dimensions :

	1 Station	2 Station	3 Station	All Purpose Enclosure
Base size mm	74 x 70	107 x 70	140 x 70	110 x 80
Cover Depth mm	16.50	16.50	16.50	20.00
Base Depth mm	32.00	30.00	32.00	45.00

### Maintenance :

Do not need any particular maintenance. If necessary, soap and water can be used for cleaning. If detergent is used, enclosure should be rinsed well with clean water. **Do not use any solvents to clean the enclosures**

### Chemical resistance :

ABS products are almost completely resistant to aqueous acids, alkalis and salts. Concentrated phosphoric and hydrochloric acids have little effect. Low KB solvents, alcohols and animal / vegetable / mineral oils produce insignificant changes. Aromatic or chlorinated hydrocarbons and high KB solvents cause marked swelling. Esters Ketones and Unsaturated alkalis are solvents for ABS and should not be used.

### Chemical resistance :

Long term exposure to temperatures above 70°C should be avoided. No significant change in impact strength is noticed up to -20°C.

EF3

## ACTUATOR, INDICATORS, MODULAR & FRONT CONNECTION BLOCKS

### VDE, CE Electrical Ratings (IEC 947-3, 947-5-1, VDE 0660 Part 200, EN 60947-3, EN 60947-5-1)

Alternating Current	Rated Operational Voltage (50-60 Hz)		V	110	230	440	500
		Rated Operational Current (IEC 947-3)		AC21	Amp	16	14.0
	Rated Operational Current (IEC 947-5-1)	AC15	Amp	8	6.0	3.0	2.0
Direct Current	Rated Operational Voltage		V	24	48	110	220
		Rated Operational Current (IEC 947-5-1)		DC13	Amp	1.5	1.0

### UL, CSA Electrical Ratings (CAN/CSA-C22.2 NO 14-M91, UL 508)

Contact Rating Code Designation, AC	Thermal Continuous Test Current, Amp	Maximum Current								Maximum VA	
		120 V		240 V		480 V		600 V		Make	Break
		Make	Break	Make	Break	Make	Break	Make	Break		
A 600	10	60	6.0	30	3.0	15	1.50	12	1.20	7200	720

Contact Rating Code Designation, DC	Thermal Continuous Test Current, Amp	Maximum Make & Break Current, Amp				Maximum Make & Break at 300 V or less, VA
		125 V		250 V		
P 300	5.0	1.1		0.55		138

**Electrical Life** at 230 V, 50-60Hz, AC, utilisation category AC21 to IEC 947-3

Rated current Amps	Operations (x10 <sup>6</sup> )
6	0.5
2	1

**Rated Thermal Current** 16Amp with, 2.5mm<sup>2</sup> flexible conductor

**Mechanical Life** 1 x 10<sup>6</sup> operations

**Terminals** Suitable for flexible or solid conductors from 2 x 1 mm<sup>2</sup>

**Degree of Protection** IP 65  
IP67 with rubber / vinyl shroud

**Operational Temperature Limits** (without shroud)

Non-illuminated	Illuminated
-30 to + 60°C	-30 to + 40°C

**Rated Insulation Voltage** 600 V AC.

**Dielectric / H. V. Test Voltage** at 2.5 KVAC FOR 60. Sec.

### Disposition of Contacts for Modular Blocks

- Contact Open
- Contact Close

