APEM

Q-Series Panel Mount LED Indicators

ENG 2

APEM

Q-SERIES Panel Mounting LED Indicators

Apem is one of the world's largest manufacturers of professional switches and switch panels.
This has now been complemented with a NEW expanded range of panel mounting LED indicators.

The range comprises of seven different panel cut-out sizes (6mm, 8mm,12mm, 14mm, 16mm, 19mm and 22mm) Three different bezel shapes, prominent, recessed and flush manufactured from high quality Brass and ABS (16mm and 22mm only). Both bezel materials are available plated in Bright Chrome, Black Chrome, Satin Chrome and Gold (16mm and 22mm ABS only). Terminations can be supplied in 2.0/2.8mm Faston/ solder lug, pins or 200mm long wire. IP67 sealing can be achieved as an option.

The LEDs are available in five colour options, standard diffused red, green, yellow, blue and white, plus Bi-colour, Tri-colour and flashing LEDs. A complementary range of super bright, water clear LEDs are also available.

The LED indicators are available with integral resistors to permit direct connection to 6V, 12V, 24V, 28V, 110V and 220V. (Other voltages are available upon request).

To further complement their panel mount LED lighting products, Apem has designed and developed an extensive range of based LED Lamps.

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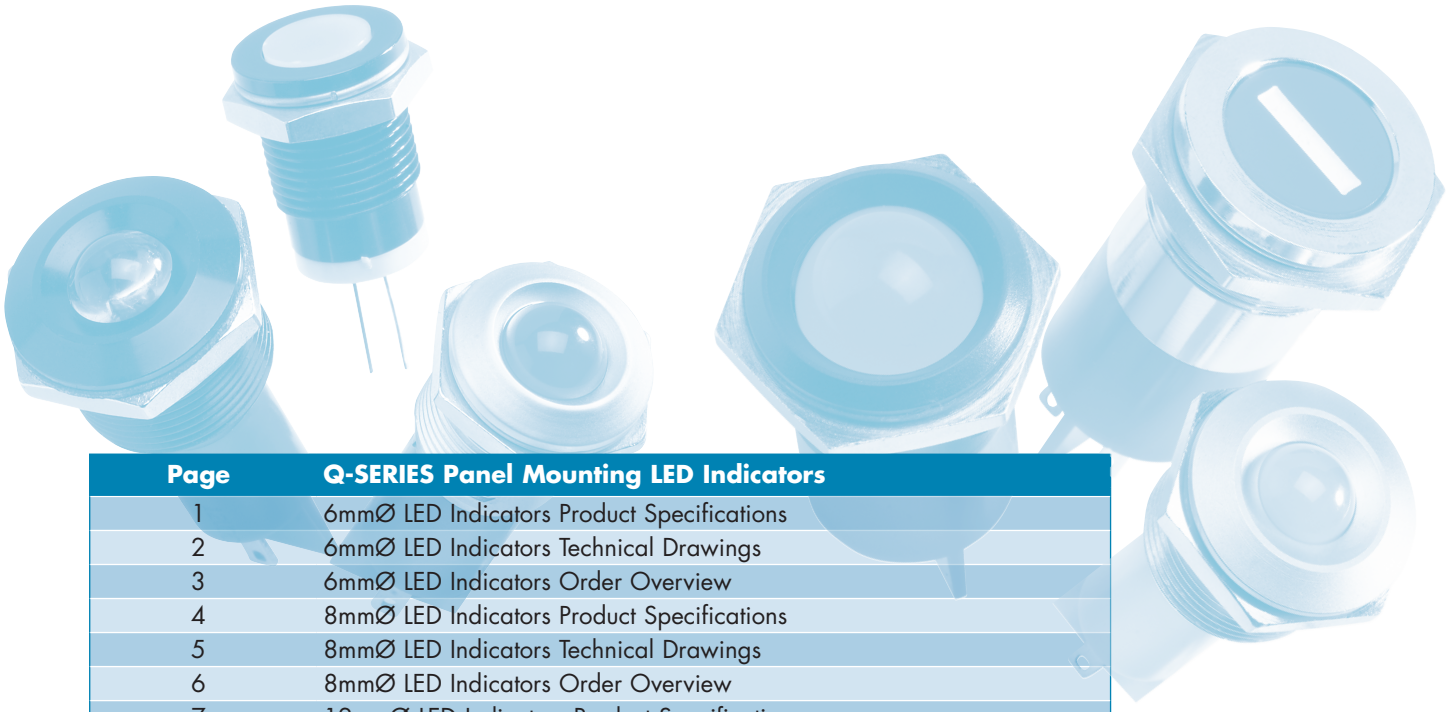

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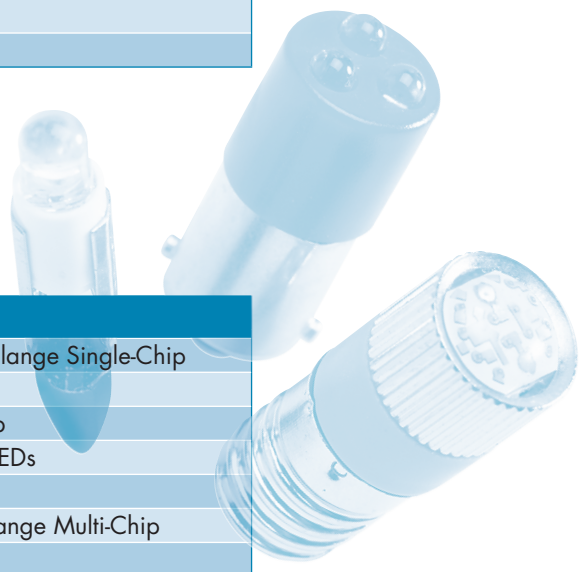

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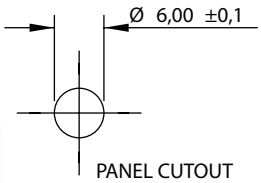
30	T5 Wedge Base Multi-Chip & T5.5 Telephone Slide Multi-Chip

Q-SERIES 6mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 6mm panel mounting LED indicator
- 3mm coloured diffused epoxy lens or 3mm water clear super bright LEDs
- Bright chrome, black chrome or satin grey bezel finish
- Prominent, recessed and flush bezel styles
- 2VDC – 28VDC
- (2.0 x 0.5) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



TECHNICAL SPECIFICATIONS

Switch Voltage	Operating Voltage Vop	Operating Current Iop
	(Min to Max)	(Typical All Types)
2VDC (No Resistor)	1.8 to 2.5VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA

Intensity (Typical) at Iop Standard	Prominent and Recessed	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	40mcd	10mcd	2.0V
Green	40mcd	8mcd	2.2V
Yellow	30mcd	8mcd	2.1V
Blue	65mcd	8mcd	3.8V
White	100mcd	15mcd	3.8V
Bi-colour (Typical) (Red/Green)	20/15mcd	10/8mcd	2.0V/2.2V
The colour is changed by reversing the polarity of the supply voltage.			

Super Bright	Prominent and Recessed	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	3,500mcd	500mcd	2.2V
Green	2,000mcd	350mcd	3.5V
Yellow	900mcd	140mcd	2.3V
Blue	550mcd	200mcd	3.7V
White	600mcd	150mcd	3.6V
Luminous intensity will be reduced with lower operating current.			

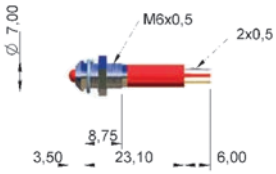
Max Reverse Voltage: 5V
Viewing Angle: 100° (dependant on model)
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

Q-SERIES 6mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

SOLDER LUG/FASTONS



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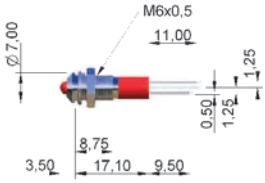

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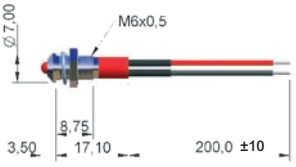

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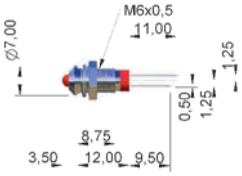

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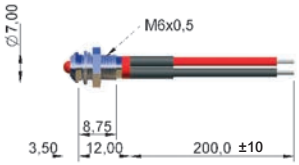
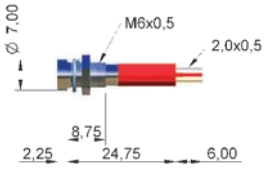


RECESSED BEZEL

SOLDER LUG/FASTONS



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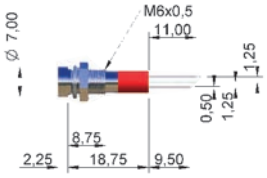

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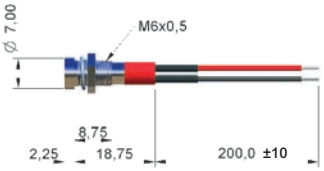

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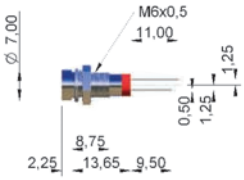

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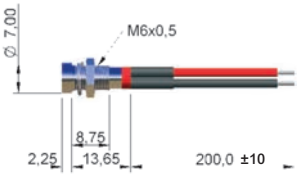
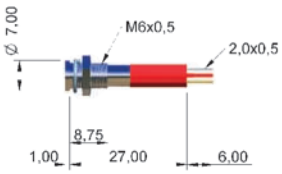


FLUSH BEZEL

SOLDER LUG/FASTONS



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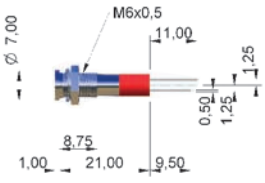

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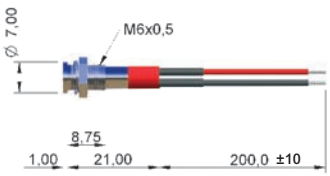
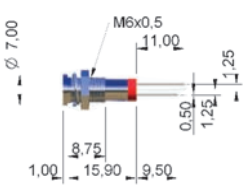


SHORT BODY PINS



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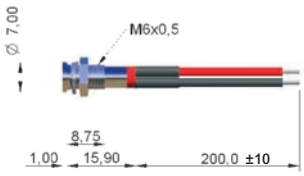


Note: The company reserves the right to change specifications without notice.

Q-SERIES 6mmØ Panel Mounting LED Indicator
Order Overview

STANDARD OPTIONS

The Q6 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q	6	P	1	B	XX	G	12	E
SERIES	**MOUNTING HOLE**	**BEZEL STYLE**	**TERMINALS**	**BEZEL FINISH**	**TYPE OF ILLUMINATION**	**LED COLOUR**	**VOLTAGE**	**SEALING**
Q	6 = Ø6mm	P = Prominent	1 = Solder Lug/ Fastons (2.0 x 0.5)	C = Bright Chrome	XX = Fixed Light	R = Red	02 = 2VDC	(Blank) = Unsealed
		R = Recessed	2 = Pins	B = Black Chrome	KK = Flashing Light	G = Green	06 = 6VDC	E = IP67
		F = Flush	3 = Wires	G = Satin Grey	YY = Bi-colour	Y = Yellow	12 = 12VDC	
			6 = Short body Pins			B = Blue	12A = 12VAC/DC	
			7 = Short body Wires			W = White	24 = 24VDC	
							24A = 24VAC/DC	
						SR = Super Bright Red	28 = 28VDC	
						SG = Super Bright Green	28A = 28VAC/DC	
						SY = Super Bright Yellow		
						SB = Super Bright Blue		
						SW = Super Bright White		
						RG = Red/Green		
						RY = Red/Yellow		
						GY = Green/Yellow		

Example Q6P1BXXG12E
Ø6mm, prominent bezel, solder lug terminals, black chrome finish, fixed light, green, 12volt DC LED, IP67 Panel Seal

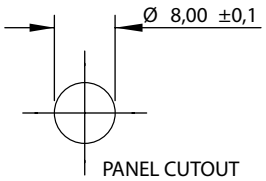
- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 24AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bi-colour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering to the Faston terminals
- Short body options are only available up to 24VDC
- Maximum panel thickness 7mm
- For behind panel epoxy sealed options please contact APEM

Q-SERIES 8mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 8mm panel mounting LED indicator
- 5mm coloured diffused epoxy lens or 5mm water clear super bright LEDs
- Bright chrome, black chrome or satin grey bezel finish
- Prominent, recessed and flush bezel styles
- 2VDC – 220VAC
- (2.8 x 0.8) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



TECHNICAL SPECIFICATIONS

Switch Voltage	Operating Voltage Vop	Operating Current Iop
	(Min to Max)	(Typical All Types)
2VDC (No Resistor)	1.8 to 2.5VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA
110VAC	99 to 121VDC	6mA
230VAC	207 to 253VDC	3mA

Intensity (Typical) at Iop Standard	Prominent and Recessed	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	50mcd	10mcd	2.0V
Green	40mcd	8mcd	2.2V
Yellow	40mcd	6mcd	2.1V
Blue	90mcd	4mcd	3.8V
White	150mcd	25mcd	3.8V
Bi-colour (Typical) (Red/Green)	20/10mcd	10/8mcd	2.0V/2.2V
Tri-colour (Typical) (Red/Green/Yellow)	20/10/10mcd	10/8/6mcd	2.0V/2.2V/2.1V
Bi-colour - The colour is changed by reversing the polarity of the supply voltage.			
Tri-colour - The indicator has red and green LEDs, when both connected yellow is produced.			

Super Bright	Prominent and Recessed	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	10,000mcd	600mcd	2.2V
Green	4,500mcd	350mcd	4.0V
Yellow	2,100mcd	140mcd	2.3V
Blue	1,400mcd	200mcd	3.7V
White	2,000mcd	150mcd	3.7V
Luminous intensity will be reduced with lower operating current.			

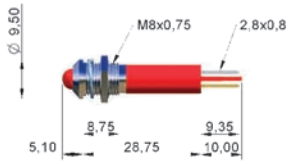
Max Reverse Voltage: 5V
Viewing Angle: 100° (dependant on model)
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

Q-SERIES 8mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

SOLDER LUG/FASTONS



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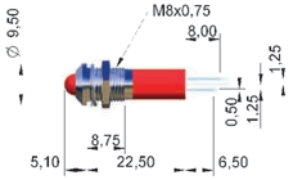
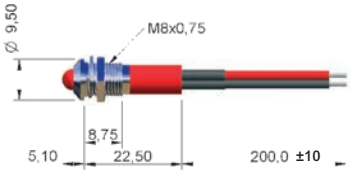
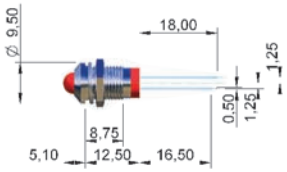


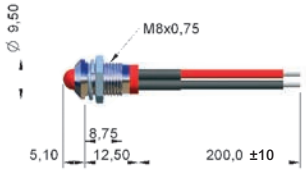
WIRES



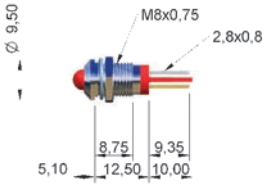
SHORT BODY PINS



SHORT BODY WIRES

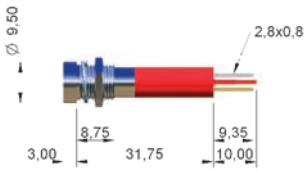


SHORT BODY SOLDER LUG/FASTONS



RECESSED BEZEL

SOLDER LUG/FASTONS



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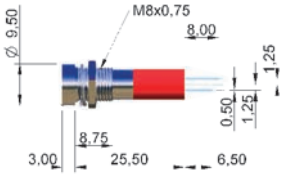

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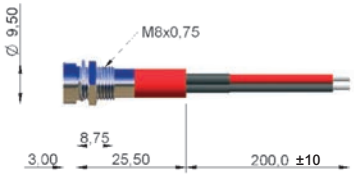

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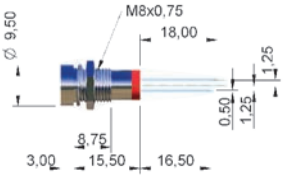

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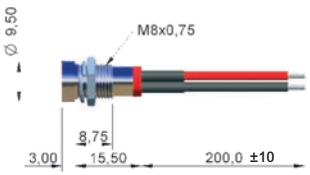
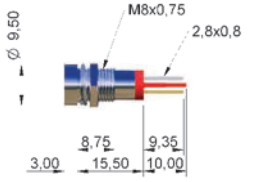
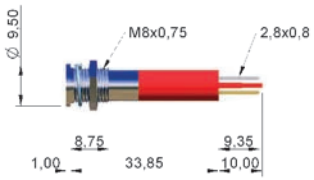


SHORT BODY SOLDER LUG/FASTONS



FLUSH BEZEL

SOLDER LUG/FASTONS



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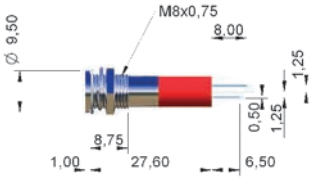

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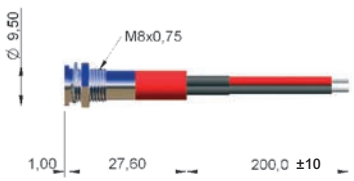
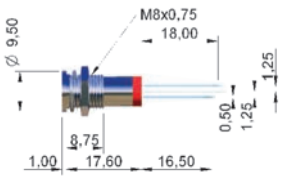


SHORT BODY PINS



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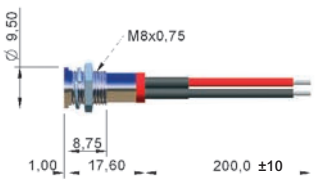
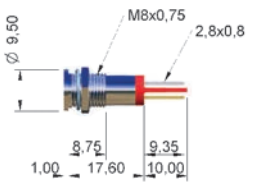


SHORT BODY SOLDER LUG/FASTONS



Note: The company reserves the right to change specifications without notice.

www.apem.com

Q-SERIES 8mmØ Panel Mounting LED Indicator
Order Overview

STANDARD OPTIONS

The Q8 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q	8	P	8	G	XX	Y	12	E

SERIES	MOUNTING HOLE	BEZEL STYLE	TERMINALS	BEZEL FINISH	TYPE OF ILLUMINATION	LED COLOUR	VOLTAGE	SEALING
Q	8 = Ø8mm	P = Prominent	1 = Solder Lug/ Fastons (2.8 x 0.8)	C = Bright Chrome	XX = Fixed Light	R = Red	02 = 2VDC	(Blank) = Unsealed
		R = Recessed	2 = Pins	B = Black Chrome	KK = Flashing Light (only up to 28VDC)	G = Green	06 = 6VDC	E = IP67
		F = Flush	3 = Wires	G = Satin Grey	YY = Bi-colour	Y = Yellow	12 = 12VDC	
			6 = Short body Pins		ZZ = Tri-colour	B = Blue	12A = 12VAC/DC	
			7 = Short body Wires			W = White	24 = 24VDC	
			8 = Short body Solder lug/ faston				24A = 24VAC/DC	
						SR = Super Bright Red	28 = 28VDC	
						SG = Super Bright Green	28A = 28VAC/DC	
						SY = Super Bright Yellow	110 = 110VAC	
						SB = Super Bright Blue	220 = 220VAC	
						SW = Super Bright White		
						RG = Red/Green		
						RY = Red/Yellow		
						GY = Green/Yellow		
						RYG = Red/Yellow/Green		

Example Q8P8GXXY02E
Ø8mm, prominent bezel, short body solder lug terminals, satin grey finish, fixed light, yellow, 2volt DC LED, IP67 Panel Seal

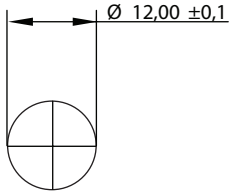
- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 24AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bi-colour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC. [AC products not available]
- Take care when soldering to the Faston terminals
- Short body pins and wires are only available up to 28VDC
- Short body Fastons are only available without integral resistor (2VDC)
- The Tri-colour LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-colour Faston terminals are two Anodes (+) and one Cathode (-)
- Tri-colour wires are one red (+) and one green (+) Anode and one black (-) Cathode
- Tri-colour pins are centre (–) cathode, shortest (+) anode pin green, longest (+) anode pin red
- Tri-colours are only available up to 28VAC/DC
- Maximum panel thickness 7mm
- For behind panel epoxy sealed options please consult Apem
- We recommend using Superbright LEDs for use at 220VAC

Q-SERIES 12mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 12mm panel mounting LED indicator
- 8mm coloured diffused epoxy lens or 8mm water clear super bright LEDs
- Bright chrome, black chrome or satin grey bezel finish
- Prominent bezel style
- 2VDC – 220VAC
- (2.8 x 0.8) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



PANEL CUTOUT

TECHNICAL SPECIFICATIONS

Switch Voltage	**Operating Voltage Vop**	**Operating Current Iop**
	(Min to Max)	(Typical All Types)
2VDC (No Resistor)	1.8 to 2.5VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA
110VAC	99 to 121VDC	6mA
230VAC	207 to 253VDC	3mA

Intensity (Typical) at Iop Standard	**Prominent**	**Forward Voltage**
	(all voltages)	
HE Red	100mcd	1.9V
Green	50mcd	2.2V
Yellow	50mcd	2.1V
Blue	500mcd	3.3V
White	350mcd	3.3V
Bi-colour (Typical) (Red/Green)	80/50mcd	2.0V/2.2V
Bi-colour - The colour is changed by reversing the polarity of the supply voltage.		
Tri-colour versions are available upon request, please consult Apem.		

Super Bright	**Prominent**	**Forward Voltage**
	(all voltages)	
HE Red	2,700mcd	1.9V
Green	4,200mcd	3.2V
Yellow	1,400mcd	2.1V
Blue	1,500mcd	3.6V
White	550mcd	3.3V
Luminous intensity will be reduced with lower operating current.		

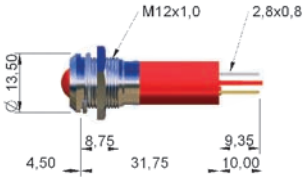
Max Reverse Voltage: 5V
Viewing Angle: 60°
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

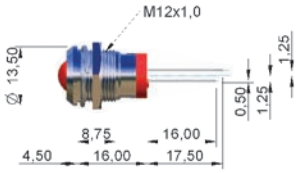
Q-SERIES 12mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

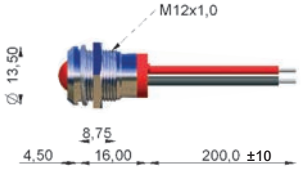
SOLDER LUG/FASTONS



PINS



WIRES



Note: The company reserves the right to change specifications without notice.

Q-SERIES 12mmØ Panel Mounting LED Indicator
Order Overview

STANDARD OPTIONS

The Q12 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q	12	P	1	B	XX	G	12	E
SERIES	**MOUNTING HOLE**	**BEZEL STYLE**	**TERMINALS**	**BEZEL FINISH**	**TYPE OF ILLUMINATION**	**LED COLOUR**	**VOLTAGE**	**SEALING**
Q	12 = Ø12mm	P = Prominent	1 = Solder Lug/ Fastons (2.0 x 0.8)	C = Bright Chrome	XX = Fixed Light	R = Red	02 = 2VDC	(Blank) = Unsealed
			2 = Pins	B = Black Chrome	KK = Flashing Light (only up to 28VDC)	G = Green	06 = 6VDC	E = IP67
			3 = Wires	G = Satin Grey	YY = Bi-colour	Y = Yellow	12 = 12VDC	
			6 = Short body Pins		ZZ = Tri-colour	B = Blue	12A = 12VAC/DC	
			7 = Short body Wires			W = White	24 = 24VDC	
							24A = 24VAC/DC	
						SR = Super Bright Red	28 = 28VDC	
						SG = Super Bright Green	28A = 28VAC/DC	
						SY = Super Bright Yellow	110 = 110VAC	
						SB = Super Bright Blue	220 = 220VAC	
						SW = Super Bright White		
						RG = Red/Green		
						RY = Red/Yellow		
						GY = Green/Yellow		
						RYG = Red/Yellow/Green		

Example Q12P1BXXG12E
Ø12mm, prominent bezel, solder lug terminals, black chrome finish, fixed light, green, 12volt DC LED, IP67 Panel Seal

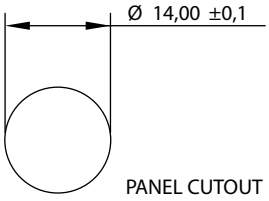
- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 24AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltage consult APEM
- Bi-colour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering to the Faston terminals
- Max voltage for pins and wires is 28V
- Maximum panel thickness 7mm
- For behind panel epoxy sealed options please consult APEM
- Tri-colours are only available behind panel epoxy sealed with wires or pins
- 110VAC and 220VAC only available with solder lug/Faston terminals
- We recommend using Superbright LEDs for use at 220VAC

Q-SERIES 14mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 14mm panel mounting LED indicator
- 10mm coloured diffused epoxy lens or 10mm water clear super bright LEDs
- Bright chrome, black chrome or satin grey bezel finish
- Prominent and flush bezel styles
- 2VDC – 220VAC
- (2.8 x 0.8) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



TECHNICAL SPECIFICATIONS

Switch Voltage	Operating Voltage Vop	Operating Current Iop
	(Min to Max)	(Typical All Types)
2VDC (No Resistor)	1.8 to 2.5VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA
110VAC	99 to 121VDC	6mA
230VAC	207 to 253VDC	3mA

Intensity (Typical) at Iop Standard	Prominent	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	80mcd	10mcd	2.0V
Green	40mcd	5mcd	2.2V
Yellow	30mcd	4mcd	2.1V
Blue	280mcd	10mcd	3.2V
White	350mcd	20mcd	3.2V
Bi-colour (Typical) (Red/Green)	80/50mcd	14/10mcd	2.0V/2.2V
Tri-colour (Typical) (Red/Green/Yellow)	80/50/50mcd	14/10/10mcd	2.0V/2.2V/2.1V
Bi-colour - The colour is changed by reversing the polarity of the supply voltage.			
Tri-colour - The indicator has red and green LEDs, when both connected yellow is produced.			

Super Bright	Prominent	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	7,500mcd	2000mcd	2.2V
Green	4,100mcd	250mcd	3.5V
Yellow	2,500mcd	350mcd	2.3V
Blue	1,300mcd	300mcd	3.7V
White	1,900mcd	200mcd	3.7V
Luminous intensity will be reduced with lower operating current.			

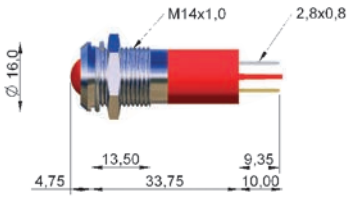
Max Reverse Voltage: 5V
Viewing Angle: 100° (dependant on model)
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

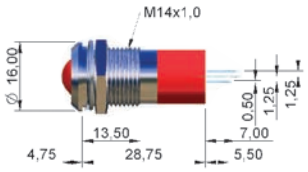
Q-SERIES 14mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

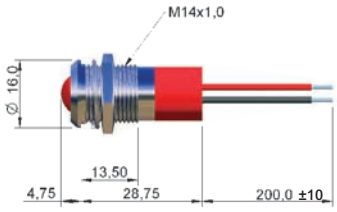
SOLDER LUG/FASTONS



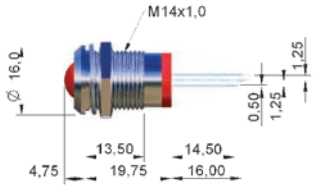
PINS



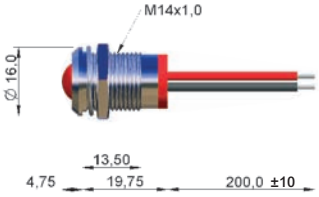
WIRES



SHORT BODY PINS

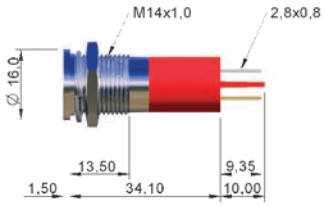


SHORT BODY WIRES

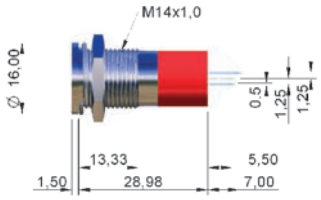


FLUSH BEZEL

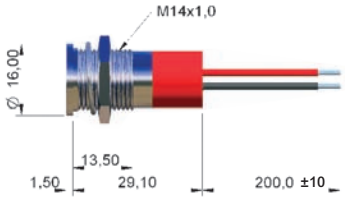
SOLDER LUG/FASTONS



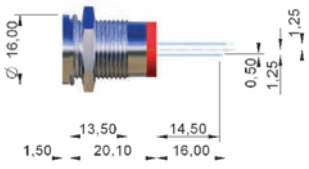
PINS



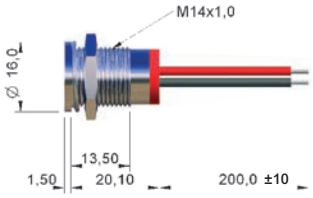
WIRES



SHORT BODY PINS



SHORT BODY WIRES



CUSTOM ENGRAVING

Custom engraving available on flush bezel versions, contact APEM for further details.

Note: The company reserves the right to change specifications without notice.

Q-SERIES 14mmØ Panel Mounting LED Indicator
Order Overview

STANDARD OPTIONS

The Q14 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q		14		P		1		C		XX		B		28		E
SERIES		**MOUNTING HOLE**		**BEZEL STYLE**		**TERMINALS**		**BEZEL FINISH**		**TYPE OF ILLUMINATION**		**LED COLOUR**		**VOLTAGE**		**SEALING**
Q		14 = Ø14mm		P = Prominent		1 = Solder Lug/ Fastons (2.8 x 0.8)		C = Bright Chrome		XX = Fixed Light		R = Red		02 = 2VDC		(Blank) = Unsealed
				F = Flush		2 = Pins		B = Black Chrome		KK = Flashing Light (only up to 28VDC)		G = Green		06 = 6VDC		E = IP67
						3 = Wires		G = Satin Grey		YY = Bi-colour		Y = Yellow		12 = 12VDC		
						6 = Short body Pins				ZZ = Tri-colour		B = Blue		12A = 12VAC/DC		
						7 = Short body Wires						W = White		24 = 24VDC		
														24A = 24VAC/DC		
												SR = Super Bright Red		28 = 28VDC		
												SG = Super Bright Green		28A = 28VAC/DC		
												SY = Super Bright Yellow		110 = 110VAC		
												SB = Super Bright Blue		220 = 220VAC		
												SW = Super Bright White				
												RG = Red/Green				
												RY = Red/Yellow				
												GY = Green/Yellow				
												RYG = Red/Yellow/Green				

Example Q14P1CXXB28E
Ø14mm, prominent bezel, solder lug terminals, bright chrome finish, fixed light, blue, 28volt DC LED, IP67 Panel Seal

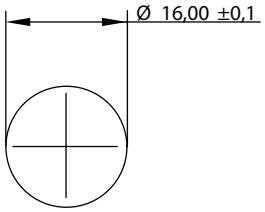
- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 22AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bicolour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering to the Faston terminals
- Short body pins and wires are only available up to 28VDC
- The Tri-colour LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-colour Faston terminals are two Anodes (+) and one Cathode (-)
- Tri-colour wires are one red (+) and one green (+) Anode and one black (-) Cathode
- Tri-colour pins are centre (–) cathode, shortest (+) anode pin green, longest (+) anode pin red
- Maximum panel thickness 11mm
- For behind panel epoxy sealed options please consult Apem
- We recommend using Superbright LEDs for use at 220VAC

Q-SERIES 16mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 16mm panel mounting LED indicator
- 10mm coloured diffused epoxy lens or 10mm water clear super bright LEDs
- Bright chrome, black chrome, satin grey, plated brass bezel finish
- Bright chrome, satin grey, gold and black ABS plastic bezel finish
- Prominent and flush bezel styles
- 2VDC – 220VAC
- (2.8 x 0.8) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



PANEL CUTOUT

TECHNICAL SPECIFICATIONS

Switch Voltage	**Operating Voltage Vop**	**Operating Current Iop**
	(Min to Max)	(Typical All Types)
2VDC (No Resistor)	1.8 to 2.5VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA
110VAC	99 to 121VDC	6mA
230VAC	207 to 253VDC	3mA

Intensity (Typical) at Iop Standard	**Prominent**	**Flush**	**Forward Voltage**
	(all voltages)	(all voltages)	
HE Red	80mcd	10mcd	2.0V
Green	40mcd	5mcd	2.2V
Yellow	30mcd	4mcd	2.1V
Blue	280mcd	10mcd	3.2V
White	350mcd	20mcd	3.2V
Bi-colour (Typical) (Red/Green)	80/50mcd	14/10mcd	2.0V/2.2V
Tri-colour (Typical) (Red/Green/Yellow)	80/50/50mcd	14/10/10mcd	2.0V/2.2V/2.1V
Bi-colour - The colour is changed by reversing the polarity of the supply voltage.			
Tri-colour - The indicator has red and green LEDs, when both connected yellow is produced.			

Super Bright	**Prominent**	**Flush**	**Forward Voltage**
	(all voltages)	(all voltages)	
HE Red	7,500mcd	2000mcd	2.2V
Green	4,100mcd	250mcd	3.5V
Yellow	2,500mcd	350mcd	2.3V
Blue	1,300mcd	300mcd	3.7V
White	1,900mcd	200mcd	3.7V
Luminous intensity will be reduced with lower operating current.			

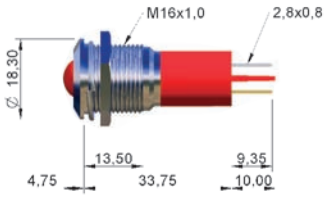
Max Reverse Voltage: 5V
Viewing Angle: 100° (dependant on model)
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

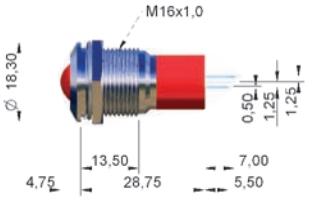
Q-SERIES 16mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

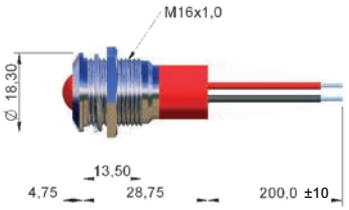
SOLDER LUG/FASTONS



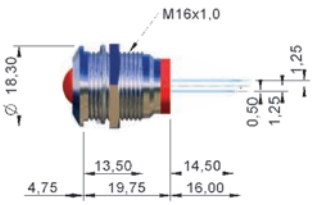
PINS



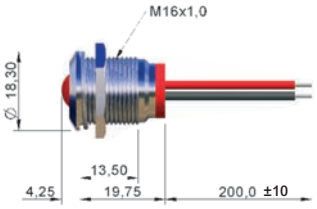
WIRES



SHORT BODY PINS

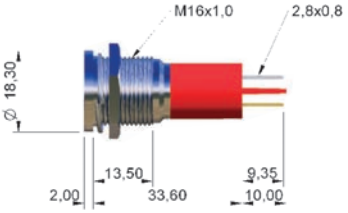


SHORT BODY WIRES

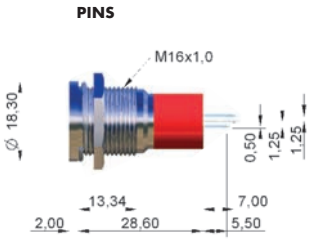


FLUSH BEZEL

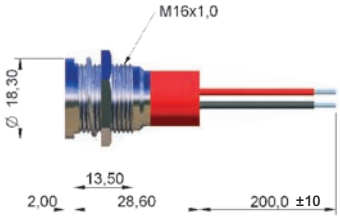
SOLDER LUG/FASTONS



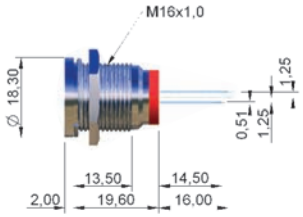
PINS



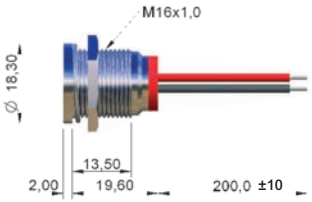
WIRES



SHORT BODY PINS



SHORT BODY WIRES



Note: The company reserves the right to change specifications without notice.

Q-SERIES 16mmØ Panel Mounting LED Indicator
Ordering Overview

STANDARD OPTIONS

The Q16 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q	16	F	1	G	XX	Y	24	E

SERIES	MOUNTING HOLE	BEZEL STYLE	TERMINALS	BEZEL FINISH	TYPE OF ILLUMINATION	LED COLOUR	VOLTAGE	SEALING
Q	16 = Ø16mm	Metal	1 = Solder Lug/ Fastons (2.8 x 0.8)	Metal	XX = Fixed Light	R = Red	02 = 2VDC	(Blank) = Unsealed
		P = Prominent	2 = Pins	C = Bright Chrome	KK = Flashing Light (only up to 28VDC)	G = Green	06 = 6VDC	E = IP67
		F = Flush	3 = Wires	B = Black Chrome	YY = Bi-colour	Y = Yellow	12 = 12VDC	
		Plastic	6 = Short body Pins	G = Satin Grey	ZZ = Tri-colour	B = Blue	12A = 12VAC/DC	
		PP = Prominent	7 = Short body Wires	Plastic		W = White	24 = 24VDC	
		FP = Flush		CP = Bright Chrome			24A = 24VAC/DC	
				BP = Black		SR = Super Bright Red	28 = 28VDC	
				GP = Satin Grey		SG = Super Bright Green	28A = 28VAC/DC	
				AU = Gold		SY = Super Bright Yellow	110 = 110VAC	
						SB = Super Bright Blue	220 = 220VAC	
						SW = Super Bright White		
						RG = Red/Green		
						RY = Red/Yellow		
						GY = Green/Yellow		
						RYG = Red/Yellow/Green		

Example Q16F1GXXY24E
Ø16mm, flush metal bezel, solder lug terminals, satin grey finish, fixed light, yellow, 24volt DC LED, IP67 Panel Seal

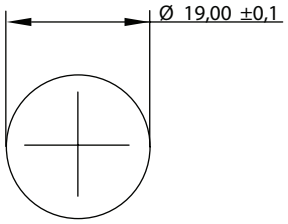
- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 22AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bi-colour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering to the Faston terminals
- Short body pins and wires are only available up to 28VDC
- The Tri-colour LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-colour Faston terminals are two Anodes (+) and one Cathode (-)
- Tri-colour wires are one red (+) and one green (+) Anode and one black (-) Cathode
- Tri-colour pins are centre (–) cathode, shortest (+) anode pin green, longest (+) anode pin red
- Maximum panel thickness 11mm
- For behind panel epoxy sealing option please consult APEM
- We recommend using Superbright LEDs for use at 220VAC

Q-SERIES 19mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 19mm panel mounting LED indicator
- 10mm coloured diffused epoxy lens or 10mm water clear super bright LEDs
- Bright chrome, black chrome and satin grey bezel finish
- Prominent bezel styles
- 2VDC – 220VAC
- (2.8 x 0.8) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



PANEL CUTOUT

TECHNICAL SPECIFICATIONS

Switch Voltage	**Operating Voltage Vop**	**Operating Current Iop**
	(Min to Max)	(Typical All Types)
2VDC (No Resistor)	1.8 to 2.5VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA
110VAC	99 to 121VDC	6mA
230VAC	207 to 253VDC	3mA
Intensity (Typical) at Iop Standard	**Prominent**	**Forward Voltage**
	(all voltages)	
HE Red	80mcd	2.0V
Green	40mcd	2.2V
Yellow	30mcd	2.1V
Blue	280mcd	3.2V
White	350mcd	3.2V
Bi-colour (Typical) (Red/Green)	80/50mcd	2.0V/2.2V
Tri-colour (Typical) (Red/Green/Yellow)	80/50/50mcd	2.0V/2.2V/2.1V
Bi-colour - The colour is changed by reversing the polarity of the supply voltage.		
Tri-colour - The indicator has red and green LEDs, when both connected yellow is produced.		
Super Bright	**Prominent**	**Forward Voltage**
	(all voltages)	
HE Red	7,500mcd	2.2V
Green	4,100mcd	3.5V
Yellow	2,500mcd	2.3V
Blue	1,300mcd	3.7V
White	1,900mcd	3.7V
Luminous intensity will be reduced with lower operating current.		

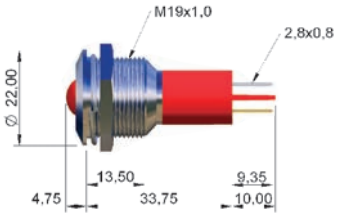
Max Reverse Voltage: 5V
Viewing Angle: 60° (dependant on model)
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

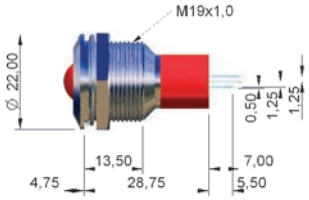
Q-SERIES 19mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

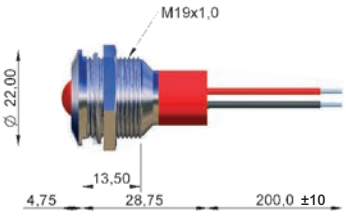
SOLDER LUG/FASTONS



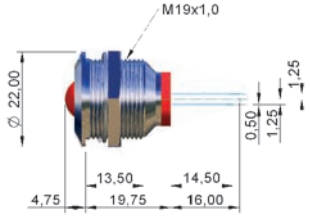
PINS



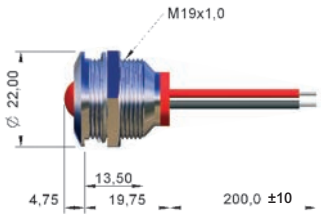
WIRES



SHORT BODY PINS



SHORT BODY WIRES



Note: The company reserves the right to change specifications without notice.

Q-SERIES 19mmØ Panel Mounting LED Indicator
Ordering Overview

STANDARD OPTIONS

The Q19 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q	19	P	1	B	XX	G	12	E
SERIES	**MOUNTING HOLE**	**BEZEL STYLE**	**TERMINALS**	**BEZEL FINISH**	**TYPE OF ILLUMINATION**	**LED COLOUR**	**VOLTAGE**	**SEALING**
Q	19 = Ø19mm	Metal	1 = Solder Lug/ Fastons (2.8 x 0.8)	Metal	XX = Fixed Light	R = Red	02 = 2VDC	(Blank) = Unsealed
		P = Prominent	2 = Pins	C = Bright Chrome	KK = Flashing Light (only up to 28VDC)	G = Green	06 = 6VDC	E = IP67
			3 = Wires	B = Black Chrome	YY = Bi-colour	Y = Yellow	12 = 12VDC	
			6 = Short body Pins	G = Satin Grey	ZZ = Tri-colour	B = Blue	12A = 12VAC/DC	
			7 = Short body Wires			W = White	24 = 24VDC	
							24A = 24VAC/DC	
						SR = Super Bright Red	28 = 28VDC	
						SG = Super Bright Green	28A = 28VAC/DC	
						SY = Super Bright Yellow	110 = 110VAC	
						SB = Super Bright Blue	220 = 220VAC	
						SW = Super Bright White		
						RG = Red/Green		
						RY = Red/Yellow		
						GY = Green/Yellow		
						RYG = Red/Yellow/Green		

Example Q19P1BXXG12E
Ø19mm, prominent bezel, solder lug terminals, black chrome finish, fixed light, green, 12volt DC LED, IP67 Panel Seal

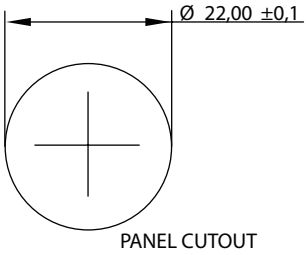
- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 22AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bi-colour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering to the Faston terminals
- Short body pins and wires are only available up to 28VDC
- The Tri-colour LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-colour Faston terminals are two Anodes (+) and one Cathode (-)
- Tri-colour wires are one red (+) and one green (+) Anode and one black (-) Cathode
- Tri-colour pins are centre (–) cathode, shortest (+) anode pin green, longest (+) anode pin red
- Maximum panel thickness 11mm
- For behind panel epoxy sealing option please consult APEM
- We recommend using Superbright LEDs for use at 220VAC

Q-SERIES 22mmØ Panel Mounting LED Indicator
Product Specification

Distinctive Features and Specifications

- 22mm panel mounting LED indicator
- 18mm coloured diffused epoxy lens
- Bright chrome, black chrome and satin grey, plated brass bezel finish
- Bright chrome, satin grey, gold and black ABS plastic bezel finish
- Prominent and flush bezel styles
- 5.5VDC – 220VAC
- (2.8 x 0.8) terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- Supplied with fixing nut and spring washer

NB: UL Recognised Component



TECHNICAL SPECIFICATIONS

Switch Voltage	Operating Voltage Vop	Operating Current Iop
	(Min to Max)	(Typical All Types)
5.5VDC (No Resistor)	5.0 to 6.0VDC	20mA
12VDC	10.8 to 13.2VDC	20mA
24VDC	21.6 to 26.4VDC	20mA
28VDC	25.2 to 30.8VDC	20mA
110VAC	99 to 121VDC	6mA
230VAC	207 to 253VDC	3mA

Intensity (Typical) at Iop Standard	Prominent	Flush	Forward Voltage
	(all voltages)	(all voltages)	
HE Red	80mcd	70mcd	5.7V
Green	95mcd	70mcd	5.9V
Yellow	60mcd	60mcd	5.9V
Blue	120mcd	100mcd	9.9V
White	350mcd	200mcd	3.6V
Bi-colour (Typical) (Red/Green)	80/50mcd	80/50mcd	2.0V/2.2V
Tri-colour (Typical) (Red/Green/Yellow)	80/50/50mcd	80/50/50mcd	2.0V/2.2V/2.1V

Bi-colour - The colour is changed by reversing the polarity of the supply voltage.
Tri-colour - The indicator has red and green LEDs, when both connected yellow is produced.
Luminous intensity will be reduced with lower operating current.
For super bright versions please consult APEM

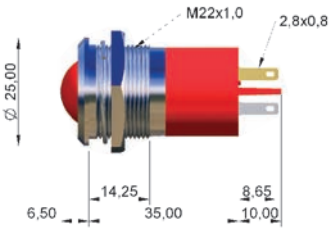
Max Reverse Voltage: 5V
Viewing Angle: 100° (dependant on model)
Life Expectancy: 100,000 hours
Operating Temperature Range: –40 to +85°C

Note: The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy.
The company reserves the right to change specifications without notice.

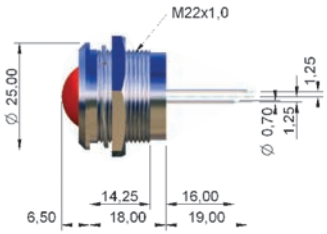
Q-SERIES 22mmØ Panel Mounting LED Indicator
Technical Drawings

PROMINENT BEZEL

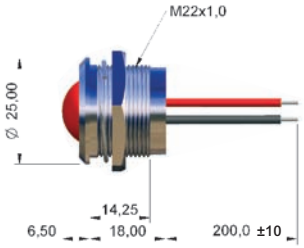
SOLDER LUG/FASTONS



PINS (Epoxy Filled)

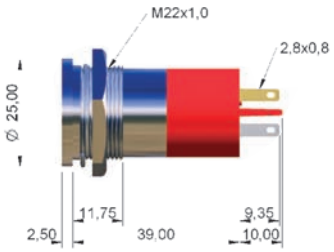


WIRES (Epoxy Filled)

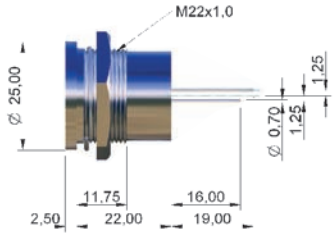


FLUSH BEZEL

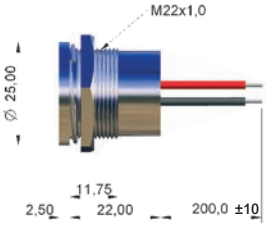
SOLDER LUG/FASTONS



PINS (Epoxy Filled)



WIRES (Epoxy Filled)



Note: The company reserves the right to change specifications without notice.

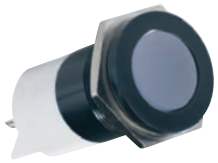
Q-SERIES 22mmØ Panel Mounting LED Indicator
Ordering Overview

STANDARD OPTIONS

The Q22 Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

Q	22	F	1	BP	XX	W	28	E	DL
SERIES	**MOUNTING HOLE**	**BEZEL STYLE**	**TERMINALS**	**BEZEL FINISH**	**TYPE OF ILLUMINATION**	**LED COLOUR**	**VOLTAGE**	**SEALING**	**OPTIONS**
Q	22 = Ø22mm	Metal	1 = Solder Lugs/Fastons (2.8 x 0.8)	Metal	XX = Fixed Light	R = Red	05 = 5VDC	(Blank) = Unsealed	DL = Daisy Chain
		P = Prominent	4 = Pins	C = Bright Chrome	KK = Flashing Light (only up to 28VDC)	G = Green	12 = 12VDC	E = IP67	LT = Lamp Test
		F = Flush	5 = Wires	B = Black Chrome	YY = Bi-colour	Y = Yellow	12A = 12VAC/DC		
		Plastic		G = Satin Grey	ZZ = Tri-colour	B = Blue	24 = 24VDC		
		PP = Prominent		Plastic		W = White	24A = 24VAC/DC		
		FP = Flush		CP = Bright Chrome			28 = 28VDC		
				BP = Black		SR = Super Bright Red	28A = 28VAC/DC		
				GP = Satin Grey		SG = Super Bright Green	110 = 110VAC		
				AU = Gold		SY = Super Bright Yellow	220 = 220VAC		
						RG = Red/Green			
						RY = Red/Yellow			
						GY = Green/Yellow			
						RYG = Red/Yellow/ Green			

Example Q22F1BPXXW28EDL
Ø22mm, flush bezel, solder lug terminals, black plastic finish, fixed light, white, 28volt DC LED, IP67 Panel Seal, Daisy Chain



- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 22AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bi-colour LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering to the Faston terminals
- Pin and Wire options are epoxy sealed at the rear of the bezels
- The Tri-colour LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-colour Faston terminals are two Anodes (+) and one Cathode (-)
- Tri-colour wires are one red (+) and one green (+) Anode and one black (-) Cathode
- Tri-colour pins are centre (–) cathode, shortest (+) anode pin green, longest (+) anode pin red
- Maximum panel thickness: Prominent = 12mm, Flush = 10mm
- Plastic bezel material: ABS
- Daisy chaining option - has negative (Cathode) terminals linked (3 x Fastons), solder lugs only
- Lamp test facility option (4 x Faston), solder lugs only
- We recommend using Superbright LEDs for use at 220VAC

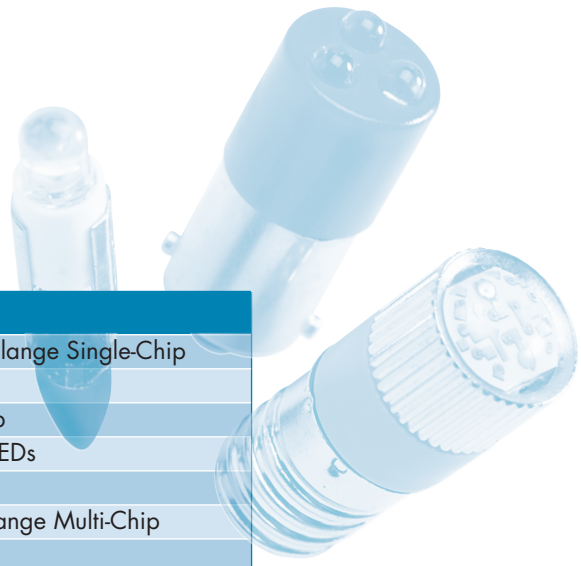
Based LEDs
Contents

Apem is continuing its developments within the Optoelectronics market by introducing a range of based LED lamps. These based LED lamps are drop in replacements for the less efficient filament lamps, typically used within pushbutton switches and indicators.

Based LED lamps have many features and benefits over filament lamps, long lifetime (typically 100,000 hours), low power consumption, low heat generation, shock and vibration resistance, long service life (low cost of ownership), high reliability – ideal for critical applications where the presence of indication is important or where lamp replacement is difficult or costly.

The Apem based LED range consists of the most common bases associated with filament lamps, T1 ¾ Midget Groove, T1 ¾ Midget Flange, BA9s, E10, T5.5 telephone slide, T6.8 telephone slide, T1 Bi-Pin, Wedge base and BA15d (for use in application such as stacking towers).

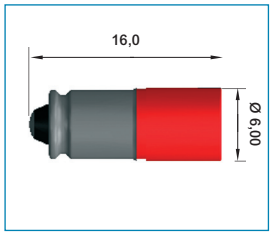
The Apem range of based LEDs have the option of a High Intensity Single-Chip LED, Cluster (typically 3 high intensity LEDs) and Multi-Chip (typically 6 or 8 chip devices). Integral resistors allow direct connection (depending on model) from 6V through to 230V. Some models are also fitted with bridge rectifiers for AC/DC operation.



Page	Based LEDs
23	T1 ¾ Midget Groove Single-Chip & T1 ¾ Midget Flange Single-Chip
24	MBC Ba9s Single-Chip & E10 Single-Chip
25	T1 Bi-Pin Single-Chip & T5 Wedge Base Single-Chip
26	T5.5 Telephone Slide Single-Chip & Ba15d Tower LEDs
27	Ba9s LED Cluster & E10 LED Cluster
28	T1 ¾ Midget Groove Multi-Chip & T1 ¾ Midget Flange Multi-Chip
29	Ba9s Multi-Chip & E10 Multi-Chip
30	T5 Wedge Base Multi-Chip & T5.5 Telephone Slide Multi-Chip

Based LEDs
Single-Chip

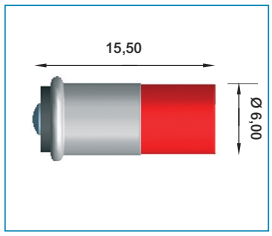
T1 ¾ Midget Groove Single-Chip



Part Number	Colour	Voltage (VDC)	Current (mA)	Luminous Intensity (mcd)
MGSR12	Red	12V	14	1750
MGSG12	Green	12V	14	1610
MGSY12	Yellow	12V	14	630
MGSB12	Blue	12V	14	490
MGSW12	White	12V	14	2070
MGSR24	Red	24V	14	1750
MGSG24	Green	24V	14	1610
MGSY24	Yellow	24V	14	630
MGSB24	Blue	24V	14	490
MGSW24	White	24V	14	2070
MGSR28	Red	28V	14	1750
MGSG28	Green	28V	14	1610
MGSY28	Yellow	28V	14	630
MGSB28	Blue	28V	14	490
MGSW28	White	28V	14	2070

For other voltage options please contact APEM
For AC/DC versions please specify "A" at the end of the part number
Example MGSR12A = Red 12VAC/DC

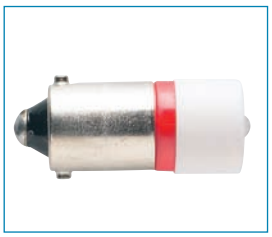
T1 ¾ Midget Flange Single-Chip

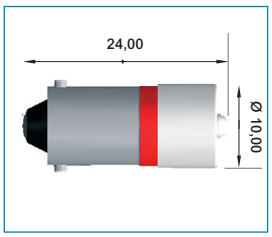


Part Number	Colour	Voltage (VDC)	Current (mA)	Luminous Intensity (mcd)
MFSR12	Red	12V	14	1750
MFSG12	Green	12V	14	1610
MFSY12	Yellow	12V	14	630
MFSB12	Blue	12V	14	490
MFSW12	White	12V	14	2070
MFSR24	Red	24V	14	1750
MFSG24	Green	24V	14	1610
MFSY24	Yellow	24V	14	630
MFSB24	Blue	24V	14	490
MFSW24	White	24V	14	2070
MFSR28	Red	28V	14	1750
MFSG28	Green	28V	14	1610
MFSY28	Yellow	28V	14	630
MFSB28	Blue	28V	14	490
MFSW28	White	28V	14	2070

For other voltage options please contact APEM
For AC/DC versions please specify "A" at the end of the part number
Example MFSR12A = Red 12VAC/DC

Based LEDs
Single-Chip

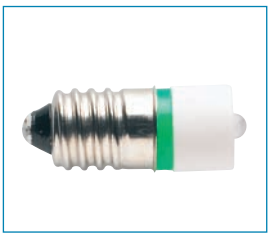


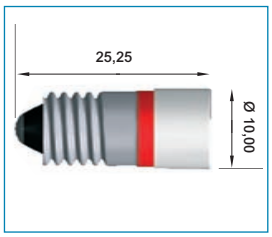


MBC Ba9s Single-Chip

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
BA9SR6A	Red	6V	9/17	1750
BA9SG6A	Green	6V	9/17	1610
BA9SY6A	Yellow	6V	9/17	630
BA9SB6A	Blue	6V	9/17	490
BA9SW6A	White	6V	9/17	2070
BA9SR12A	Red	12V	9/17	1750
BA9SG12A	Green	12V	9/17	1610
BA9SY12A	Yellow	12V	9/17	630
BA9SB12A	Blue	12V	9/17	490
BA9SW12A	White	12V	9/17	2070
BA9SR24A	Red	24V	9/17	1750
BA9SG24A	Green	24V	9/17	1610
BA9SY24A	Yellow	24V	9/17	630
BA9SB24A	Blue	24V	9/17	490
BA9SW24A	White	24V	9/17	2070
BA9SR28A	Red	28V	9/17	1750
BA9SG28A	Green	28V	9/17	1610
BA9SY28A	Yellow	28V	9/17	630
BA9SB28A	Blue	28V	9/17	490
BA9SW28A	White	28V	9/17	2070
BA9SR48A	Red	48V	9/8	990
BA9SG48A	Green	48V	9/8	920
BA9SY48A	Yellow	48V	9/8	360
BA9SB48A	Blue	48V	9/8	280
BA9SW48A	White	48V	9/8	1180
BA9SR130A	Red	130VAC	9	685
BA9SG130A	Green	130VAC	9	570
BA9SY130A	Yellow	130VAC	9	225
BA9SB130A	Blue	130VAC	9	175
BA9SW130A	White	130VAC	9	710
BA9SR230A	Red	230VAC	9	375
BA9SG230A	Green	230VAC	9	345
BA9SY230A	Yellow	230VAC	9	135
BA9SB230A	Blue	230VAC	9	105
BA9SW230A	White	230VAC	9	410
For other voltage options please contact APEM				

Note: 130V, 230V only available AC





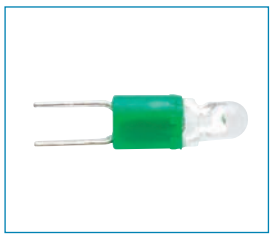
E10 Single-Chip

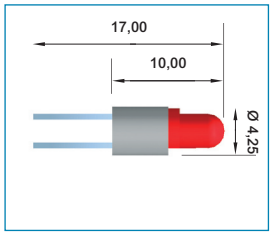
Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
E10SR6A	Red	6V	9/17	1750
E10SG6A	Green	6V	9/17	1610
E10SY6A	Yellow	6V	9/17	630
E10SB6A	Blue	6V	9/17	490
E10SW6A	White	6V	9/17	2070
E10SR12A	Red	12V	9/17	1750
E10SG12A	Green	12V	9/17	1610
E10SY12A	Yellow	12V	9/17	630
E10SB12A	Blue	12V	9/17	490
E10SW12A	White	12V	9/17	2070
E10SR24A	Red	24V	9/17	1750
E10SG24A	Green	24V	9/17	1610
E10SY24A	Yellow	24V	9/17	630
E10SB24A	Blue	24V	9/17	490
E10SW24A	White	24V	9/17	2070
E10SR28A	Red	28V	9/17	1750
E10SG28A	Green	28V	9/17	1610
E10SY28A	Yellow	28V	9/17	630
E10SB28A	Blue	28V	9/17	490
E10SW28A	White	28V	9/17	2070
E10SR48A	Red	48V	9/8	990
E10SG48A	Green	48V	9/8	920
E10SY48A	Yellow	48V	9/8	360
E10SB48A	Blue	48V	9/8	280
E10SW48A	White	48V	9/8	1180
E10SR130A	Red	130VAC	9	685
E10SG130A	Green	130VAC	9	570
E10SY130A	Yellow	130VAC	9	225
E10SB130A	Blue	130VAC	9	175
E10SW130A	White	130VAC	9	710
E10SR230A	Red	230VAC	9	375
E10SG230A	Green	230VAC	9	345
E10SY230A	Yellow	230VAC	9	135
E10SB230A	Blue	230VAC	9	105
E10SW230A	White	230VAC	9	410
For other voltage options please contact APEM				

Note: 130V, 230V only available AC

Based LEDs
Single-Chip

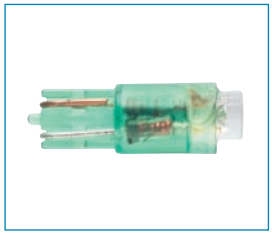
T1 Bi-Pin Single-Chip

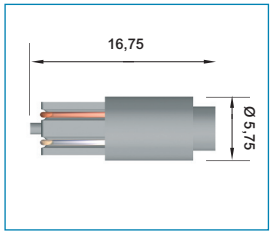




Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
T1SR12A	Red	12V	6/12	85
T1SG12A	Green	12V	6/12	95
T1SY12A	Yellow	12V	6/12	85
T1SB12A	Blue	12V	6/12	500
T1SW12A	White	12V	6/12	850
T1SR24A	Red	24V	5/10	85
T1SG24A	Green	24V	5/10	95
T1SY24A	Yellow	24V	5/10	85
T1SB24A	Blue	24V	5/10	500
T1SW24A	White	24V	5/10	850
T1SR28A	Red	28V	5/10	85
T1SG28A	Green	28V	5/10	95
T1SY28A	Yellow	28V	5/10	85
T1SB28A	Blue	28V	5/10	500
T1SW28A	White	28V	5/10	850
For other voltage options please contact APEM				

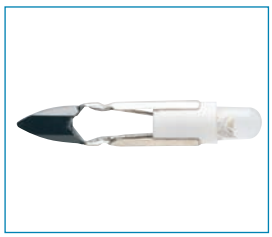
T5 Wedge Base Single-Chip

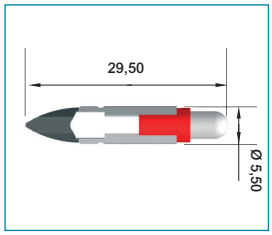




Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
T5WBSR12A	Red	12V	9/15	90
T5WBSG12A	Green	12V	9/15	1400
T5WBSY12A	Yellow	12V	9/15	85
T5WBSB12A	Blue	12V	9/15	600
T5WBSW12A	White	12V	9/15	900
T5WBSR24A	Red	24V	6/12	90
T5WBSG24A	Green	24V	6/12	1400
T5WBSY24A	Yellow	24V	6/12	85
T5WBSB24A	Blue	24V	6/12	600
T5WBSW24A	White	24V	9/15	900
T5WBSR28A	Red	28V	6/12	90
T5WBSG28A	Green	28V	6/12	1400
T5WBSY28A	Yellow	28V	6/12	85
T5WBSB28A	Blue	28V	6/12	600
T5WBSW28A	White	28V	9/15	900
For other voltage options please contact APEM				

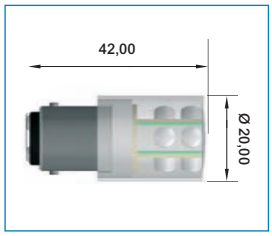
Based LEDs
Single-Chip/Cluster





T5.5 Telephone Slide Single-Chip

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
T5.5SR12A	Red	12V	9/15	250
T5.5SG12A	Green	12V	9/15	2100
T5.5SY12A	Yellow	12V	9/15	300
T5.5SB12A	Blue	12V	9/15	1200
T5.5SW12A	White	12V	9/15	1500
T5.5SR24A	Red	24V	6/12	250
T5.5SG24A	Green	24V	6/12	2100
T5.5SY24A	Yellow	24V	6/12	300
T5.5SB24A	Blue	24V	6/12	1200
T5.5SW24A	White	24V	6/12	1500
T5.5SR28A	Red	28V	6/12	250
T5.5SG28A	Green	28V	6/12	2100
T5.5SY28A	Yellow	28V	6/12	300
T5.5SB28A	Blue	28V	6/12	1200
T5.5SW28A	White	28V	6/12	1500
For other voltage options please contact APEM				

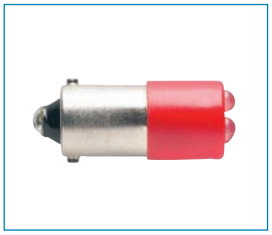


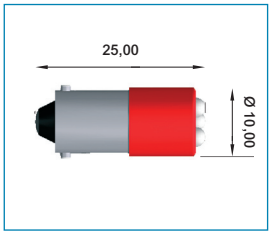
Ba15d Tower LEDs

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
TLR24A	Red	24V	20	130
TRG24A	Green	24V	20	100
TLY24A	Yellow	24V	20	150
TLB24A	Blue	24V	20	50
TLW24A	White	24V	20	150
TLR130A	Red	130VAC	20	130
TLG130A	Green	130VAC	20	100
TLY130A	Yellow	130VAC	20	150
TLB130A	Blue	130VAC	20	50
TLW130A	White	130VAC	20	150
TLR230A	Red	230VAC	20	130
TLG230A	Green	230VAC	20	100
TLY230A	Yellow	230VAC	20	150
TLB230A	Blue	230VAC	20	50
TLW230A	White	230VAC	20	150
For other voltage options please contact APEM				

Note: 130V, 230V only available AC

Based LEDs
Cluster

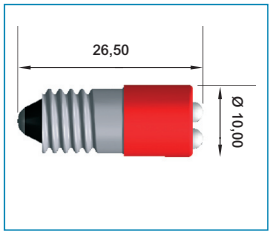




Ba9s LED Cluster

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
BA9CR24A	Red	24V	9/17	3 x 1750
BA9CG24A	Green	24V	9/17	3 x 1610
BA9CY24A	Yellow	24V	9/17	3 x 630
BA9CB24A	Blue	24V	9/17	3 x 490
BA9CW24A	White	24V	9/17	3 x 2070
BA9CR28A	Red	28V	9/17	3 x 1750
BA9CG28A	Green	28V	9/17	3 x 1610
BA9CY28A	Yellow	28V	9/17	3 x 630
BA9CB28A	Blue	28V	9/17	3 x 490
BA9CW28A	White	28V	9/17	3 x 2070
BA9CR48A	Red	48V	8	3 x 990
BA9CG48A	Green	48V	8	3 x 920
BA9CY48A	Yellow	48V	8	3 x 360
BA9CB48A	Blue	48V	8	3 x 280
BA9CW48A	White	48V	8	3 x 1180
BA9CR130A	Red	130VAC	5	3 x 685
BA9CG130A	Green	130VAC	5	3 x 570
BA9CY130A	Yellow	130VAC	5	3 x 225
BA9CB130A	Blue	130VAC	5	3 x 175
BA9CW130A	White	130VAC	5	3 x 710
BA9CR230A	Red	230VAC	3	3 x 375
BA9CG230A	Green	230VAC	3	3 x 345
BA9CY230A	Yellow	230VAC	3	3 x 135
BA9CB230A	Blue	230VAC	3	3 x 105
BA9CW230A	White	230VAC	3	3 x 470

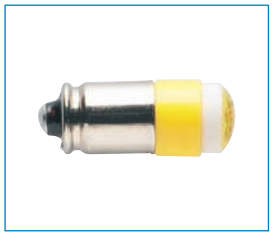
Note: 130V, 230V only available AC

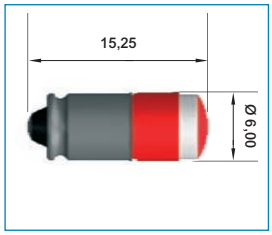


E10 LED Cluster

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
E10CR24A	Red	24V	9/17	3 x 1750
E10CG24A	Green	24V	9/17	3 x 1610
E10CY24A	Yellow	24V	9/17	3 x 630
E10CB24A	Blue	24V	9/17	3 x 490
E10CW24A	White	24V	9/17	3 x 2070
E10CR28A	Red	28V	9/17	3 x 1750
E10CG28A	Green	28V	9/17	3 x 1610
E10CY28A	Yellow	28V	9/17	3 x 630
E10CB28A	Blue	28V	9/17	3 x 490
E10CW28A	White	28V	9/17	3 x 2070
E10CR48A	Red	48V	8	3 x 990
E10CG48A	Green	48V	8	3 x 920
E10CY48A	Yellow	48V	8	3 x 360
E10CB48A	Blue	48V	8	3 x 280
E10CW48A	White	48V	8	3 x 2070
E10CR130A	Red	130VAC	5	3 x 685
E10CG130A	Green	130VAC	5	3 x 570
E10CY130A	Yellow	130VAC	5	3 x 225
E10CB130A	Blue	130VAC	5	3 x 175
E10CW130A	White	130VAC	5	3 x 710
E10CR230A	Red	230VAC	3	3 x 375
E10CG230A	Green	230VAC	3	3 x 345
E10CY230A	Yellow	230VAC	3	3 x 135
E10CB230A	Blue	230VAC	3	3 x 105
E10CW230A	White	230VAC	5	3 x 470

Note: 130V, 230V only available AC

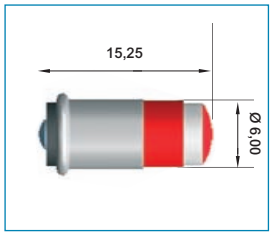




T1 ¾ Midget Groove Multi-Chip

Part Number	Colour	Voltage (VDC)	Current (mA)	Luminous Intensity (mcd)
MGMR12	Red	12V	30	40
MGMG12	Green	12V	30	35
MGMY12	Yellow	12V	30	45
MGMR24	Red	24V	14	40
MGMG24	Green	24V	14	35
MGMY24	Yellow	24V	14	45
MGMR28	Red	28V	14	40
MGMG28	Green	28V	14	35
MGMY28	Yellow	28V	14	45

For other voltage options please contact APEM
For AC/DC versions please specify "A" at the end of the part number
Example MGMR12A = Red 12VAC/DC

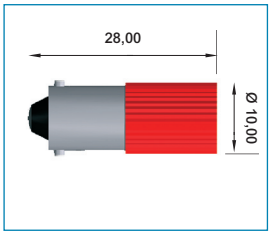


T1 ¾ Midget Flange Multi-Chip

Part Number	Colour	Voltage (VDC)	Current (mA)	Luminous Intensity (mcd)
MFMR12	Red	12V	30	40
MFMG12	Green	12V	30	35
MFMY12	Yellow	12V	30	45
MFMR24	Red	24V	14	40
MFMG24	Green	24V	14	35
MFMY24	Yellow	24V	14	45
MFMR28	Red	28V	14	40
MFMG28	Green	28V	14	35
MFMY28	Yellow	28V	14	45

For other voltage options please contact APEM
For AC/DC versions please specify "A" at the end of the part number
Example MFMR12A = Red 12VAC/DC

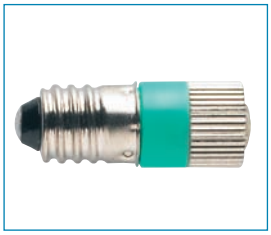
Based LEDs
Multi-Chip

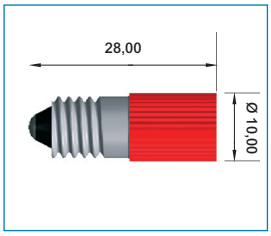


For short bodied 21mm devices contact APEM

Ba9s Multi-Chip

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
BA9MR06A	Red	6VAC	35	110
BA9MG06A	Green	6VAC	27	95
BA9MY06A	Yellow	6VAC	27	95
BA9MR12A	Red	12V	38/25	110/105
BA9MG12A	Green	12V	38/25	170/160
BA9MY12A	Yellow	12V	38/25	120/110
BA9MR24A	Red	24V	19/15	110/105
BA9MG24A	Green	24V	19/15	170/160
BA9MY24A	Yellow	24V	19/15	120/110
BA9MR28A	Red	28V	19/15	110/105
BA9MG28A	Green	28V	19/15	170/160
BA9MY28A	Yellow	28V	19/15	120/110
BA9MR48A	Red	48V	13/12	70/70
BA9MG48A	Green	48V	13/12	70/70
BA9MY48A	Yellow	48V	13/12	70/70
For other voltage options please contact APEM				
For flashing LED options please contact APEM				





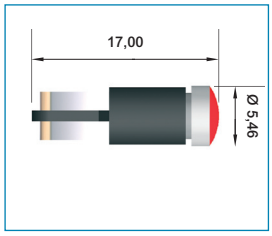
For short bodied 21mm devices contact APEM

E10 Multi-Chip

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
E10MR06A	Red	6VAC	35	110
E10MG06A	Green	6VAC	27	95
E10MY06A	Yellow	6VAC	27	95
E10MR12A	Red	12V	38/25	110/105
E10MG12A	Green	12V	38/25	170/160
E10MY12A	Yellow	12V	38/25	120/110
E10MR24A	Red	24V	19/15	110/105
E10MG24A	Green	24V	19/15	170/160
E10MY24A	Yellow	24V	19/15	120/110
E10MR28A	Red	28V	19/15	110/105
E10MG28A	Green	28V	19/15	170/160
E10MY28A	Yellow	28V	19/15	120/110
E10MR48A	Red	48V	13/12	70/70
E10MG48A	Green	48V	13/12	70/70
E10MY48A	Yellow	48V	13/12	70/70
For other voltage options please contact APEM				
For flashing LED options please contact APEM				

Note: 6V only available AC

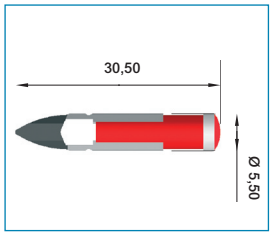
Based LEDs
Multi-Chip



T5 Wedge Base Multi-Chip

Part Number	Colour	Voltage (V)AC/DC	Current (mA) AC/DC	Luminous Intensity (mcd)
T5WBMR12A	Red	12V	26/20	24
T5WBMG12A	Green	12V	26/20	60
T5WBMY12A	Yellow	12V	26/20	42
T5WBMR24A	Red	24V	13/10	24
T5WBMG24A	Green	24V	13/10	60
T5WBMY24A	Yellow	24V	13/10	42
T5WBMR28A	Red	28V	13/10	24
T5WBMG28A	Green	28V	13/10	60
T5WBMY28A	Yellow	28V	13/10	42

For other voltage options please contact APEM



T5.5 Telephone Slide Multi-Chip

Part Number	Colour	Voltage (VDC)	Current (mA)	Luminous Intensity (mcd)
T5.5MR12	Red	12V	30	36
T5.5MG12	Green	12V	30	90
T5.5MY12	Yellow	12V	30	63
T5.5MR24	Red	24V	15	36
T5.5MG24	Green	24V	15	90
T5.5MY24	Yellow	24V	15	63
T5.5MR28	Red	28V	15	36
T5.5MG28	Green	28V	15	90
T5.5MY28	Yellow	28V	15	63

For other voltage options please contact APEM

Other APEM Indicators

AO1 Series = Ø16mm round, square and rectangular screw in indicators. Filament, LED and neon bulb illumination. Various coloured lens. IP65 sealed.

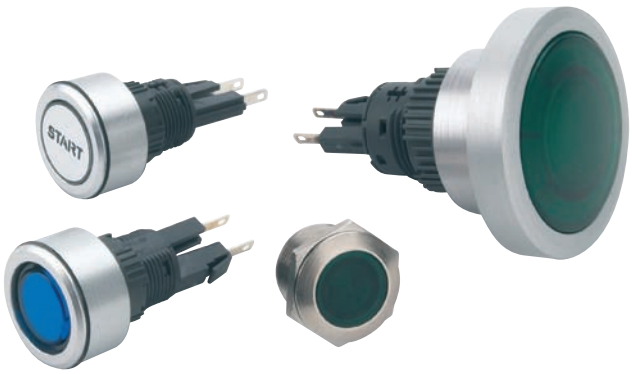
AO2 Series = Ø22mm, Ø30mm, 21.5 x 29.5mm round, square and rectangular screw in indicators. Filament, LED and neon bulb illumination. Various coloured lens. IP65 sealed.

AO3 Series = Ø22mm or Ø30mm round screw in indicators. Filament, LED and neon bulb illumination. Various coloured lens. IP65 sealed.

A1 Series = Ø22mm round flush mounting indicator. Filament, LED and neon bulb illumination. Aluminium screens and bezel. IP65 sealed.

A9 Series = Ø30mm round indicator. Filament, LED and neon bulb illumination. Metal bezel. Various coloured mushroom lens. IP65 sealed.

AV Series = Ø19mm round flush mounting indicator. Robust stainless steel bezel.



EL Series = Ø6mm, Ø8mm and Ø10mm round snap in or screw in indicators. Filament, neon and fluorescent illumination.

109 Series = 13 x 19mm snap in indicators. Filament, neon and fluorescent illumination.

1809 Series = 27.2 x 12.2mm snap in indicators. Filament, neon and fluorescent illumination.

RT Series = Ø8mm, Ø12mm and Ø14mm round snap in plastic LED indicators.

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