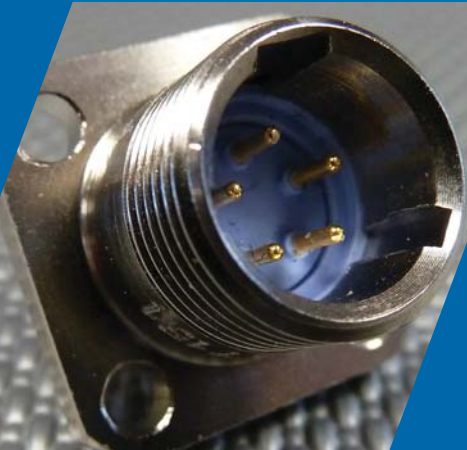
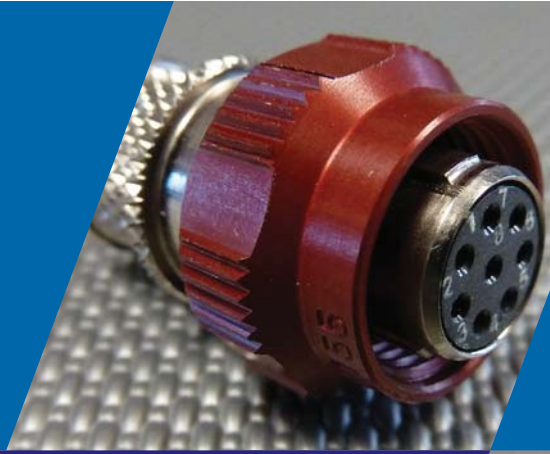


NEW!

# PH Micro Series

- IP 67 Sealed
- Bayonet, Screw and Push Pull options
- 360 Degree screen options
- Crimp, solder contact options
- Harsh environment materials and plating options
- Keyed insert options



# The PH series of connectors have been designed for an extensive range of applications including, Military, Communication, Data, Audio visual and transportation.

The range is RoHS compliant and is available in either crimp or solder Mil Spec machined contacts options for reliability. Three PCB pin length variants are also available.

The connectors can be specified with screwthread, quick bayonet, or push pull shell styles in a complete range of materials, including Aluminium, Stainless steel, Ali bronze and Composite.

The options for rear shell variations are extensive with integral 360 degree screen barrel, straight, 45, 90 degree adaptor, cable clamp, sealed and boot adaptors and a host of special variants to match most applications.

Surface platings and finishes can be specified as standard to match most environmental and specific requirements.

## Standard Connector Construction

The standard connectors are machined from solid bar stock for strength and adaptability, then finished in a range of surface treatments such as Zinc Cobalt Drab Olive, Back Zinc Nickel, Electroless Nickel and various anodised colours.

Insert construction is PPS (40% glass filled), with Fluoro-silicone seals.

Standard contacts are Mil Spec are gold over nickel over copper finish.

## Technical Characteristics

### Mechanical Features

<b>Shell Size:</b>	1, 2 and 3
<b>Coupling:</b>	Three Pin Bayonet, Threaded, Push/Pull
<b>Contact Termination:</b>	Solder Bucket, Crimp and PCB
<b>Sealing:</b>	Mated pair face seal and annular seal*

### Materials

<b>Shell:</b>	Aluminium Alloy, Stainless Steel, Nickel Aluminium Bronze, PPS (40% glass filled)
<b>Insulator:</b>	PPS (40% glass filled)
<b>Grommet/face seal/annular seal:</b>	Fluoro-silicone
<b>O-ring (Push/Pull only):</b>	Silicone (Stainless Viton)
<b>Contacts:</b>	Gold plated copper alloy

### Plating/Finish

<b>Aluminium Alloy Shell:</b>	Cadmium Olive Drab over Electroless Nickel Electroless nickel Zinc Cobalt Olive Drab
<b>Stainless Steel Shell:</b>	Passivate finish
<b>Nickel Aluminium Bronze Shell:</b>	Non-reflective shot-blast finish <i>Alternatives available on request</i>

### Orientation

To prevent miss-mating or cross-plugging, shell to shell, key to keyway orientations are offered in normal (N) or any of three alternatives (A, B or C). Top dead centre of the inserts are aligned with the master key or keyway.

\* - annular seal replaced by shrouded o-ring on Push/Pull coupling.

### Technical Data

<b>Temperature Range</b> <i>(BS EN 60068-2-2 TestBb &amp; BS EN 600968-2-1 Test Ab)</i>	-40°C to +175°C
<b>Maximum Current Rating</b> <i>(at 500Vdc)</i>	
<b>Contact size 22:</b>	3,0A
<b>Contact size 20:</b>	7,0A
<b>Contact size 16:</b>	13,0A
<b>Test Voltage Rating</b> <i>(Test Voltage, ac rms, 60Hz, Sea Level)</i>	
<b>Contact size 22:</b>	1300Vrms
<b>Contact size 20:</b>	1800Vrms
<b>Contact size 16:</b>	2300Vrms
<b>Environmental Ratings</b>	
<b>Vibration test:</b>	10-11Hz @ 45mm Peak to Peak, <i>(BS EN 60068-2-6:1996)</i> 11-500Hz @ 11g (Peak), Sweep rate: 1 Octave/minute, Duration: 1 hour/axis
<b>Mechanical endurance:</b>	500 matings
<b>Temperature range:</b>	-40°C to 175°C
<b>Dust and Water Ingress:</b>	IP67 (except Push/Pull) when mated and <i>(BS EN 60529)</i> fitted with backshell or heatshrink boot

## Modification Codes

### Shell Type 1 Inline Receptacle

### Shell type 2 Square Flange Receptacle

- 01** Large Flange  
(e.g. Shell size 2 body with shell size 3 flange)

### Shell Type 3 Two-lobed Flange Receptacle

### Shell Type 6 Free Plug

- 01** Red anodise coupling nut
- 02** Blue anodise coupling nut
- 03** Lanyard pull cord  
(push-pull coupling only)

### Shell Type 7 Jam Nut Receptacle

- 01** Thick panel  
(5,50 max) modification

# Part Number Breakdowns

## Connector

PH B 2 2 S 1 03 P N -1 -B -01

### Basic Series

**Coupling Type**  
**B** Bayonet Coupling  
**T** Threaded Coupling  
**P** Push/Pull Coupling

**Shell Type**  
**1** Inline Receptacle  
**2** Square Flange Receptacle  
**3** Two-lobed Flange Receptacle  
**6** Free Plug  
**7** Jam Nut Receptacle

**Accessory Style**  
**0** Small Braid Termination  
**1** Threaded Accessory  
**3** No Accessory/Plain Barrel  
**4** Heat Shrink Boot Groove

**Contact Tail Style**  
**S** Soldier Bucket Tail  
**C** Crimp Tail  
**P** PCB Tail

**Modification Code** Omit for Standard (Defined on individual spec sheet)

**Plating**  
**B** Cadmium Olive Drab over Electroless Nickel  
**ZB** Zinc Colbat Olive Drab  
**C** Electroless Nickel  
**J** Passivate  
**Z** Non-reflective Shot-blast

**Material**  
**1** Alum Alloy  
**2** Alum Bronze  
**4** Stainless Steel  
**72** PPS GL40 Body, Alum Nut

**Key Option** **N, A, B, C, ETC**

**Contact Style**  
**P** Pin  
**S** Socket

**Plan Form**

**Shell Size** **1, 2, 3**

## Protection Cap

PH B 2 PC 1 -1 -B -01

### Basic Series

**Coupling Type**  
**B** Bayonet Coupling  
**T** Threaded Coupling  
**P** Push/Pull Coupling

**To Fit Shell Type**  
**1** Inline Receptacle  
**2** Square Flange Receptacle  
**3** Two-lobed Flange Receptacle  
**6** Free Plug  
**7** Jam Nut Receptacle

### Protection Cap

**Modification Code** Omit for Standard (Defined on individual spec sheet)

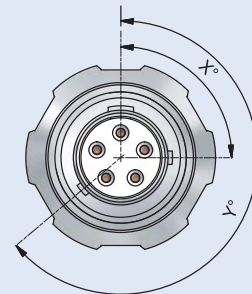
**Plating**  
**B** Cadmium Olive Drab over Electroless Nickel  
**ZB** Zinc Colbat Olive Drab  
**C** Electroless Nickel  
**CK** Electroless Nickel Nickel (Black)  
**J** Passivate  
**Z** Non-reflective Shot-blast

**Material**  
**1** Alum Alloy  
**2** Alum Bronze  
**4** Stainless Steel

**Shell Size** **1, 2, 3**

## Shell Polarising Options

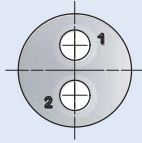
ALTERNATIVE KEYING	X°	Y°
N	90	230
A	90	180
B	180	270
C	90	270



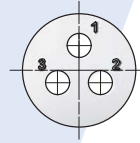
# Standard Planforms

## Shell Size 1

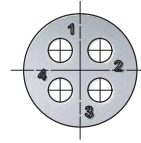
Planform Designation 02  
2 # 20



Planform Designation 03  
3 # 22

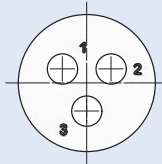


Planform Designation 04  
4 # 22

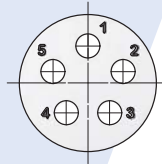


## Shell Size 2

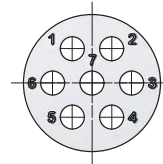
Planform Designation 03  
3 # 20



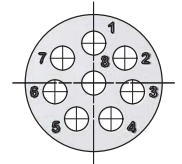
Planform Designation 05  
5 # 22



Planform Designation 07  
7 # 22

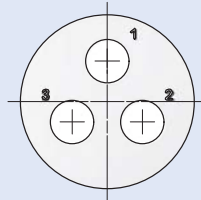


Planform Designation 08  
8 # 22

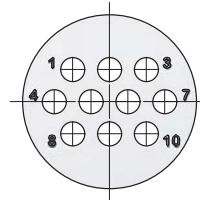


## Shell Size 3

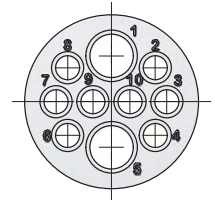
Planform Designation 03  
3 # 16



Planform Designation 10  
10 # 22



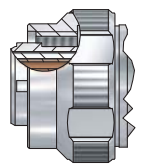
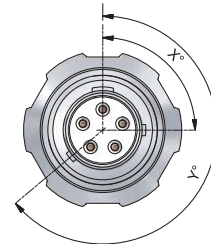
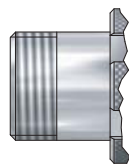
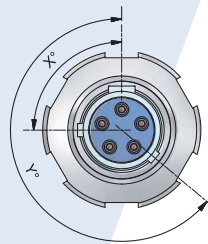
Planform Designation 82  
8 # 22, 2 # 16 (Solder Bucket Only)



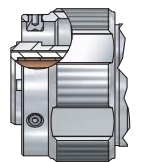
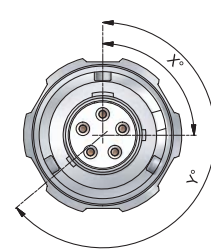
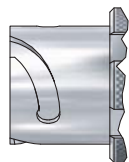
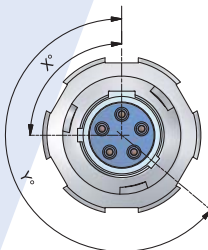
Note: Planforms detailed as viewed from pin insert front face

# Connector Coupling Styles

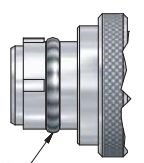
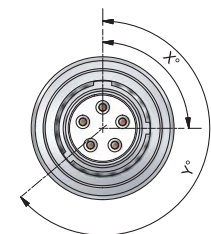
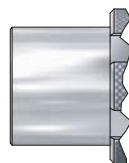
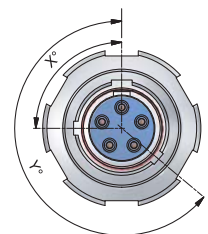
## Threaded Coupling



## Bayonet Coupling

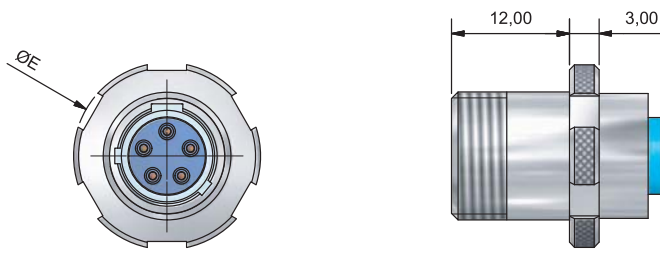


## Push-Pull Coupling

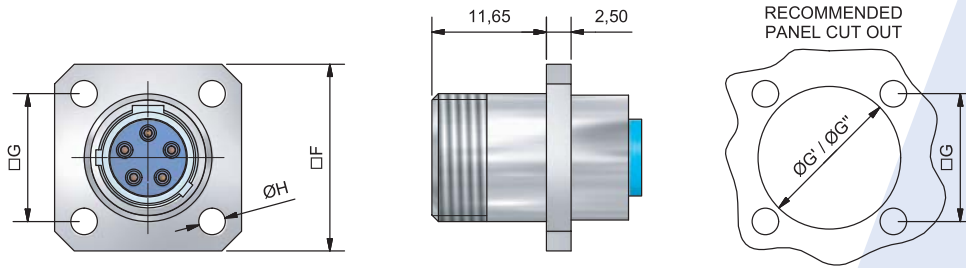


LATCHING DEVICE

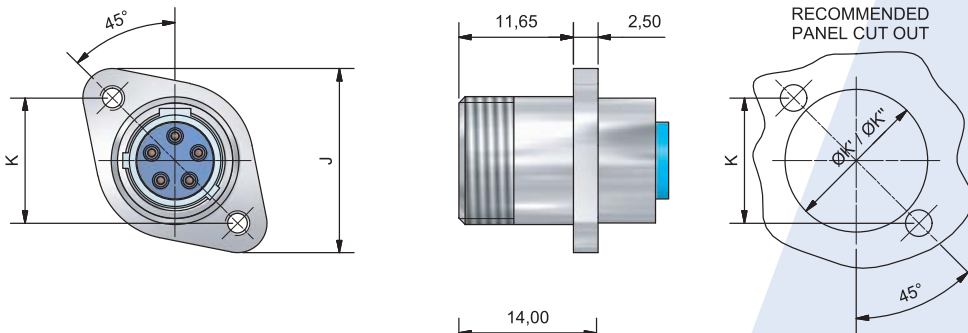
# Connector Shell Variations



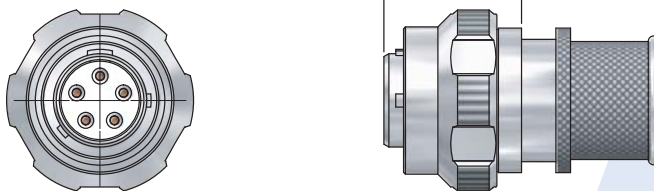
Shell type 1  
Inline Receptacle  
PH\*1



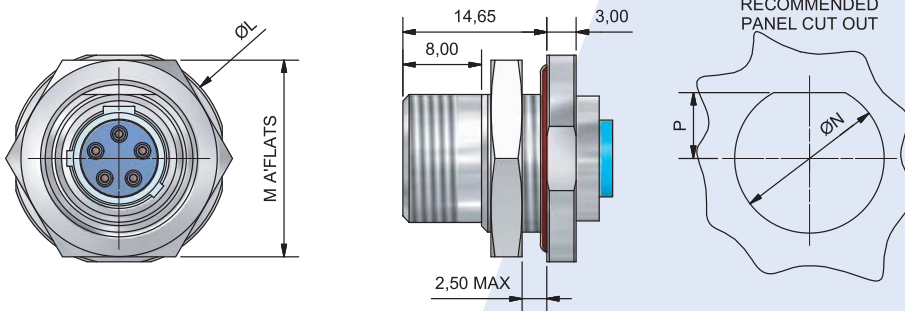
Shell type 2  
Square Flange Receptacle  
PH\*2



Shell type 3  
Two-lobed  
Flange Receptacle  
PH\*3



Shell type 6  
Free Plug  
PH\*6



Shell type 7  
Jam Nut Receptacle  
PH\*7

SHELL SIZE	E MAX	F	G	G' (NOTE 1)	G'' (NOTE 1)	H	J	K	K' (NOTE 1)	K'' (NOTE 1)	L	M	N MIN	P
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	19,00	19,00	13,00	13,20	14,50	2,70	18,73	12,73	13,20	14,50	22,00	20,00	15,20	6,70
3	21,00	21,00	15,00	15,20	16,50	3,20	20,14	14,14	15,20	16,50	-	-	-	-

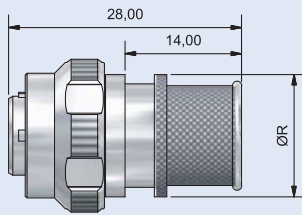
Notes: 1. ØG' and ØK' for threaded coupling (front and rear mounting) and bayonet coupling front mounting only panel cutouts. ØG'' and ØK'' for bayonet coupling rear mounting only cutout.



# Free Plug Accessory Styles

## Accessory Style 0

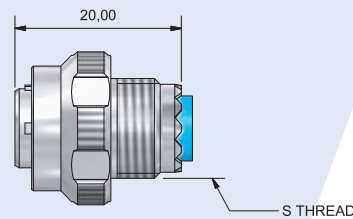
Small Braid Termination



Connector length common to shell types 1, 2, 3 and 6.  
Shell type 7: Length - 31,15

## Accessory Style 1

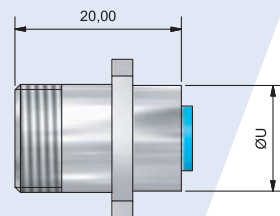
Threaded Accessory



Connector length common to plug and receptacle shell types

## Accessory Style 3

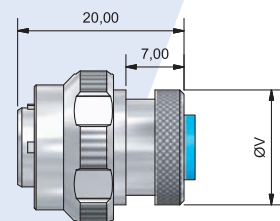
No Accessory/  
Plain Barrel



Connector length common to receptacle shell types with threaded and bayonet coupling. Push/Pull coupling shell: Length - 21,50. Not available for plug shell types

## Accessory Style 4

Heat Shrink  
Boot Termination



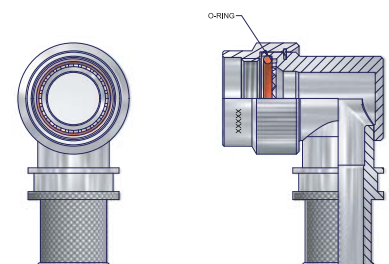
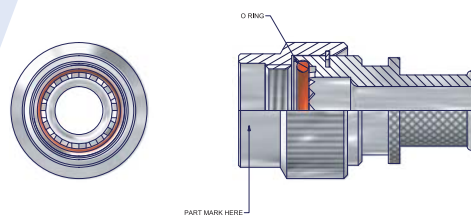
Connector length common to plug and receptacle shell types

SHELL SIZE	R MAX	S THREAD	T MAX	U MAX	V MAX
1	-	-	-	-	-
2	14,70	M12 x 1	17,20	12,80	13,80
3	16,70	M15 x 1	19,20	14,80	15,80

## g1 PH1 Straight

## g1 PH3 Right Angled

## Screen and Boot Adaptor



### Part No

**Size 2** 91PH1-09-xx-x-xx  
**Size 3** 91PH1-11-xx-x-xx

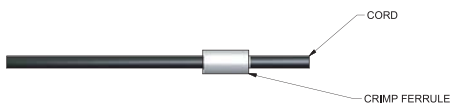
### Part No

**Size 2** 91PH3-09-xx-x-xx  
**Size 3** 91PH3-11-xx-x-xx

xx: Consult sales office for cable inlet and finish codes to complete part number

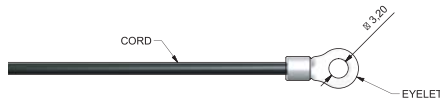
# Connector Accessories

## Standard Lanyards and Attachments



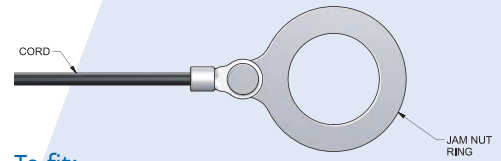
To fit:

- 1 Inline Receptacle;  
6" Cord, Crimp Ferrule Attachment,  
and
- 6 Free Plug;  
6" Cord, Crimp Ferrule Attachment



To fit:

- 2 Square Flange Receptacle;  
4" Cord, 3,20mm Eyelet,  
and
- 3 Two-lobed Flange Receptacle;  
4" Cord, 3,20mm Eyelet



To fit:

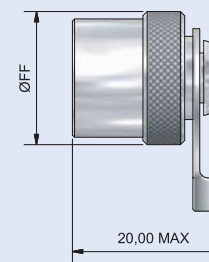
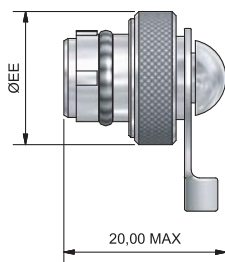
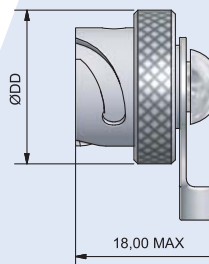
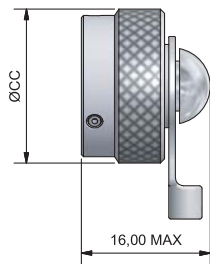
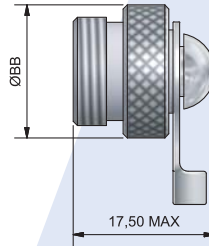
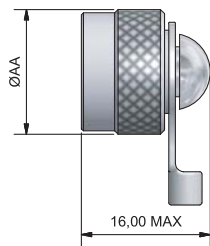
- 7 Jam Nut Receptacle;  
4" Cord, Jam Nut Ring Attachment

Standard cord colour to be matched to plating/finish colour  
Code C, CK, J, Z; Black Cord (Polypropylene)  
Code B, ZB; Green Cord (Polyester)

Modification codes can be used to define non-standard attachments.

## Receptacle Cap Dimensions

## Plug Cap Dimensions



Threaded Coupling

Bayonet Coupling

Push-Pull Coupling

SHELL SIZE	AA MAX	BB MAX	CC MAX	DD MAX	EE MAX	FF MAX
1	-	-	-	-	-	-
2	15,00	16,00	18,50	18,50	16,00	16,00
3	17,00	18,00	20,50	20,50	18,00	18,00

# Tooling

## Contact Information

<b>Size 22D Pin</b>	M39029-58-360	.030 (0.76)	.054 (1.37)
<b>Size 22D Socket</b>	M39029-57-354		
<b>Size 20 Pin</b>	M39029-58-363	.040 (1.02)	.083 (2.11)
<b>Size 20 Socket</b>	M39029-57-357		
<b>Size 16 Pin</b>	M39029-58-364	.065 (1.65)	.109 (2.77)
<b>Size 16 Socket</b>	M39029-57-358		

For PCB, Special & Flexi circuit options, please contact the sales office on 01403 252710

## Crimp Tooling Information

<b>Crimp Tool</b>	Size 22D & 20 contacts	M22520-2-01
	Size 16 contacts	M22520-1-01

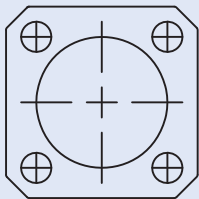


<b>Positioner</b>	Size 22D Pin	M22520-2-09
	Size 22D Socket	M22520-2-07
	Size 20 Pin	M22520-2-10
	Size 20 Socket	M22520-2-10
	Size 16 Pin	M22520-1-04
	Size 16 Socket	M22520-1-04
<b>Plastic Ins/Ext Tool</b>	Green / White	M81969-14-01



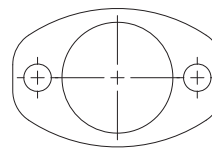
# Panel Sealing Gasket

## Box



<b>Screened</b>	Size 1	-
	Size 2	MS-1J/3-241
	Size 3	MS-1J/3-237
<b>Plain</b>	Size 1	-
	Size 2	MS-1/5-241
	Size 3	MS-1/5-237

## Oval



<b>Screened</b>	Size 1	-
	Size 2	MS-1J/3-168SP
	Size 3	MS-1J/3- tba
<b>Plain</b>	Size 1	-
	Size 2	tba
	Size 3	tba

# Heatshrink Boots

## Straight

## Right Angled

## Adhesive Lined Heatshrink Boots



Low Profile	104 4G W24
Standard	152 42G W24

Low Profile	1104 4G W24
Standard	1152 42G W24

Hub Electronics Limited  
Unit 1, Foundry Court, Foundry Lane, Horsham, West Sussex RH13 5PX  
t 01403 255225 / 252710 f 01403 263154 / 256027 e sales@hubelectronics.co.uk

[www.hubelectronics.co.uk](http://www.hubelectronics.co.uk)

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Electronics Limited

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