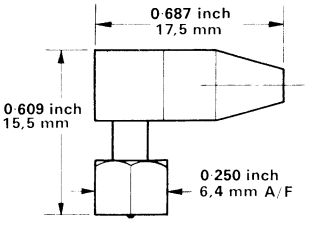
L1403 Series, coaxial, sub-miniature

Slightly smaller in size even than the Pattern 17 connectors described elsewhere in this section, a feature of the L1403 series is the positive locking which is achieved by means of the hexagonal clamping nut in co-operation with a silicone elastomer washer to obviate loosening under vibration.

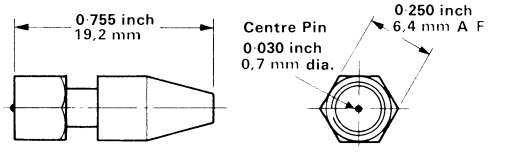
Two versions of the straight-entry plug are available; the L1403/MFP with a mechanical clamp for connection to the braid of the cable, and L1403/FP where connection is made by soldering it to the body of the plug. PTFE is employed for the insulant providing excellent r.f. and thermal characteristics.

These connectors are compatible with the American Microdot series.

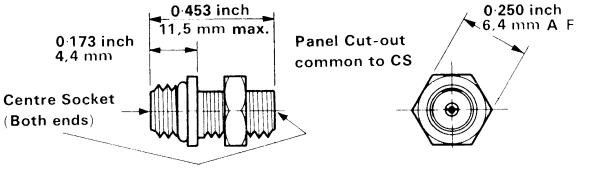
Impedance	50 Ω nominal
V.S.W.R.	<1·1: 1 at 200 and 500 MHz
Breakdown voltage (d.c.)	At sea level >1 kV At 100,000 ft (30,000 m) 300 V
Insulation resistance	$\geq 10 \times 10^3$ Ω. Creepage distance: 0·02 inch, 0·5 mm
Contact resistance and screen continuity	≤5 mΩ (mated pair)
Capacitance	≤4 pF
Temperature range	−55 °C to +85 °C Will withstand short term exposure at 125 °C
Humidity	H5 (DEF–5011)
Low air density	Severity D2 (100,000 ft, DEF–5011)
Acceleration	Severity A2 (50 g. DEF–5011)
Shock	Severity S1 (50 g. DEF–5011)
Vibration	Severity V3 (5–5,000 Hz. DEF–5011)
Panel thickness	BS 0·046–0·062 inch 1·2–1·6 mm CS 0·015–0·150 inch 0·4–3·4 mm PCS 0·063 inch 1·6 mm
Fixing and locking torque	6 lbf in 0·67 Nm maximum
Cables, dimensions and suitable types	Maximum diameter: Screen 0·071 inch 1·8 mm Inner conductor 0·023 inch, 0·6 mm UR 94; UR 95 (except MFP); UR 110 (except MFP unless sheath is removed)
Materials	Brass pins and bodies. Hidurel 5 sockets, all gold-plated (bodies silver-plated to order). PTFE dielectric. Silicone rubber washer and sleeve
Weights (average)	FP 1·5 g 0·053 oz RFP 2·65 g 0·093 oz MFP 1·65 g 0·058 oz PCS 1·62 g 0·057 oz BS 1·32 g 0·047 oz CS 1·5 g 0·053 oz
American equivalents	FP Microdot 32–21 or 32–23 RFP Microdot 32–15 BS Microdot 33–53 CS Microdot 31–50 PCS Microdot 31–59



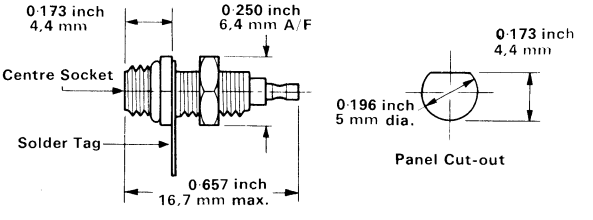
L1403/RFP/Au or Ag Right angle free plug



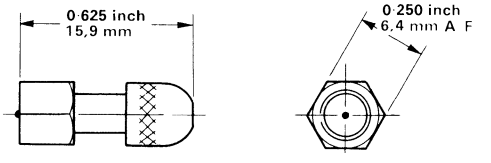
L1403/FP/Au or Ag Free plug



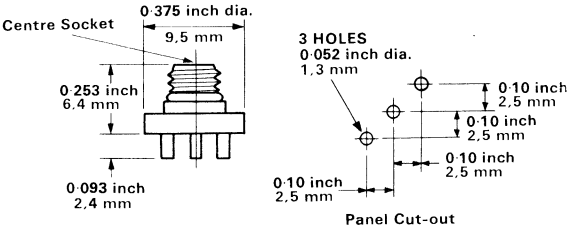
L1403/BS/Au or Ag
Bulkhead adapter, plug-to-plug



L1403/CS/Au or Ag Bulkhead socket



L1403/MFP/Au or Ag Free plug with braid clamp



L1403/PCS/Au or Ag Printed circuit socket

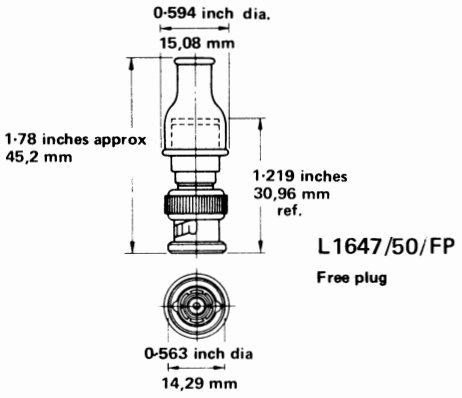
L1647 SERIES PATTERN 22 CONNECTORS (BNT)

L1647/50/FP **L1647/CSS**
L1647/50/FS **L1647/50/J**
L1647/CS **L1647/50/JS**

A range of quick connect/disconnect (bayonet lock) connectors, with two independent screens concentrically disposed around an inner conductor will mate with series L1637, L1747 and L1937 BNC connectors (Patterns 15 and 16)

For use with Uniradio cable UR54 (0·325 inch 8,3 mm nominal overall diameter). Corresponding types for other Uniradio cables made to order.

The centre conductor carriers the line current, and the outer screen is the true screen.



L1647/50/FP
Free plug

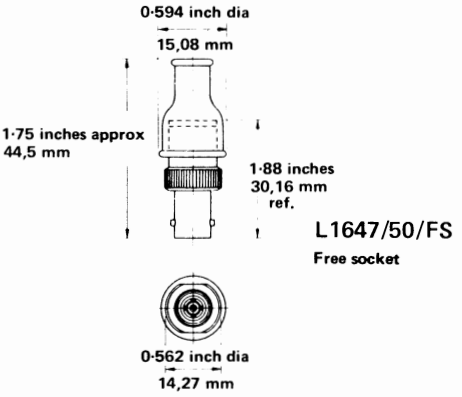
APPLICATIONS

1. SEPARATE DIRECT CURRENT RETURN PATH

In sensitive apparatus where a direct current return path, separate from the screen, is necessary in order to avoid random circulating currents and common earth returns, the inner "screen" forms the return current path. Connection of this and the true screen (outer) to earth should be made at one point only.

2. LOW EFFECTIVE SHUNT CAPACITANCE

In circuits that require low values of shunt capacitance, out-of-phase feed back of the signal (1 : 1) is effected over the inner "screen", thus virtually nullifying the capacitance of the cable. One end of the inner "screen" is left floating - this can conveniently be done by terminating the appropriate end of the cable in a standard BNC connector. The true screen (outer) also forms the return current path.



L1647/50/FS
Free socket

CHARACTERISTIC IMPEDANCE: 50 ohms nominal

CONTACT RESISTANCE: ⩽5 milliohms

SCREEN CONTINUITY: ⩽2 milliohms

INSULATION RESISTANCE: ⩾ 5 X 10^3 Megohms

BREAKDOWN VOLTAGE (d.c.) at sea level: Centre pole to screens > 3 kV
Between screens >2 kV

TEMPERATURE RANGE: – 55 °C to + 70 °C (+ 150° C without cable sleeve)

HUMIDITY: Class H5

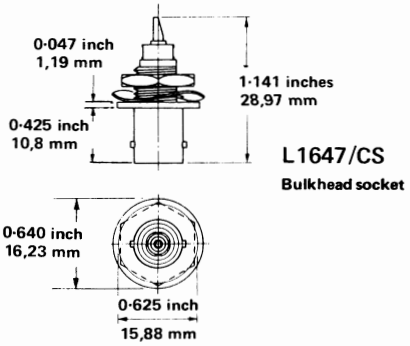
CABLE RETENTION: 80 lbf 356 N

PANEL THICKNESS:
/CS 0·056 inch – 0·133 inch
1,4 mm – 3,4 mm
/CSS 0·125 inch 3,17 mm max.
/JS 0·056 inch – 0·164 inch
1,4 mm – 4,3 mm
/J 0·063 inch 1,58 mm(flange at rear of panel)

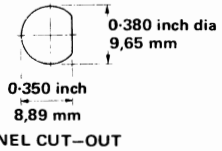
MATERIALS: Body – Brass, silver-plated, Inner screen and centre pole – FP brass, silver-plated, remainder Beryllium-copper, silver-plated,
Insulant – PTFE
Cable sleeve – PVC

WEIGHTS (average):

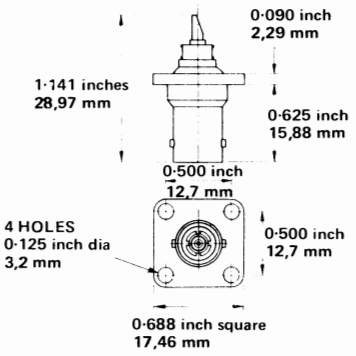
CS	9 g	0·32 oz
CSS	9,8 g	0·35 oz
FP	18,4 g	0·65 oz
FS	15,1 g	0·53 oz
J	20,2 g	0·71 oz
JS	15,8 g	0·56 oz



L1647/CS
Bulkhead socket



PANEL CUT–OUT

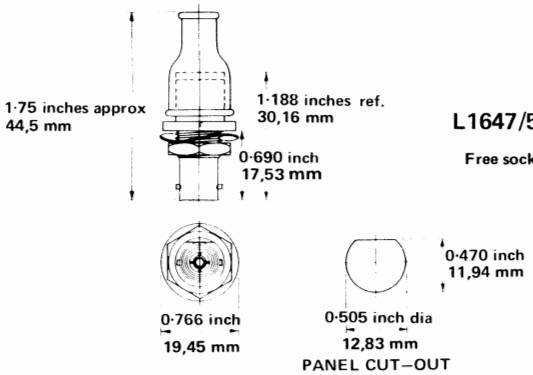


L1647/CSS
Bulkhead socket

FOR PANEL CUT–OUT
SEE L1647/50/JS BELOW

L1647/50/FP

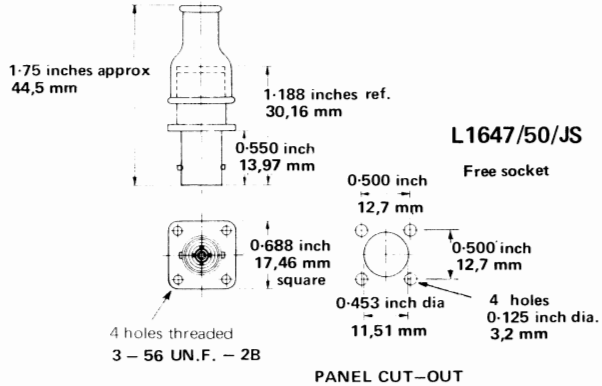
L1647/CSS



L1647/50/J
Free socket

L1647/50/FS

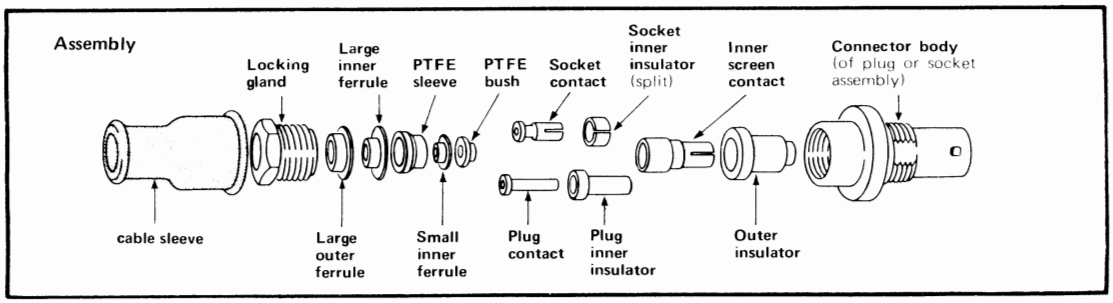
L1647/50/J



L1647/50/JS
Free socket

L1647/CS

L1647/50/JS



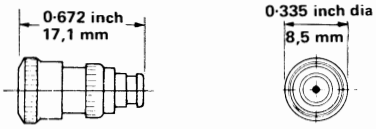
L1465 SERIES COAXIAL MINIATURE
L1465B/FP L1465/RPCS
L1465B/FS L1465/PCS
L1465C/CS

These miniature coaxial connectors for cable of overall diameter up to 4,5 mm 0·18 inch incorporate all the best features of the BELLING–LEE larger series, on which the R.E.C.M.F. standard and BS 3041 were based. These include an external circlip on the sockets, giving great strength at the mouth combined with maximum resilience: the free members employ the famous 'tulip' cable grip together with a centre pole which is removable from the polyethylene insulator for soldering, obviating all difficulties. The insulant in the panel socket is a methylpentene polymer.

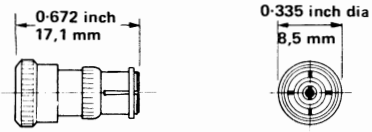
The plug and socket bodies are normally made of brass, nickel-plated, and the contacts are silver-plated.

Despite their small size, these connectors are extremely robust, and are ideal for use in modern electronic instruments, tape recorders and car radios.

IMPEDANCE:	50 ohms nominal
BREAKDOWN VOLTAGE (d.c.):	At sea - level $>$2 kV At 100 000 feet $>$500 V 30 000 m
INSULATION RESISTANCE:	$\geqslant 10^3$ Megohms
CONTACT RESISTANCE AND SCREEN CONTINUITY:	$\leqslant$ 5 milliohms
TEMPERATURE RANGE:	-25 to +70 °C
HUMIDITY:	A4 (BS 2011)
CABLE SIZE:	Inner 1 mm 0·04 inch Overall 4,5 mm 0·18 inch
CABLE RETENTION:	35N 8lbf, depending on cable.
INSERTION/WITHDRAWAL FORCE:	20 N 4·5 lbf
MATERIALS:	Body, brass, nickel-plated Insulant for RPCS, PCS and CS methylpentene polymer FP and FS polyethylene Centre pole FP and FS brass, silver plated. RPCS, PCS and CS Beryllium-copper, silver-plated
WEIGHT (average):	0·04 oz 1,13 g



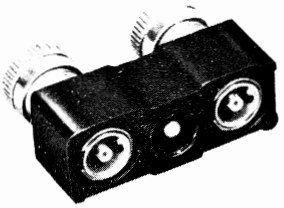
L1465B/FP
Free plug



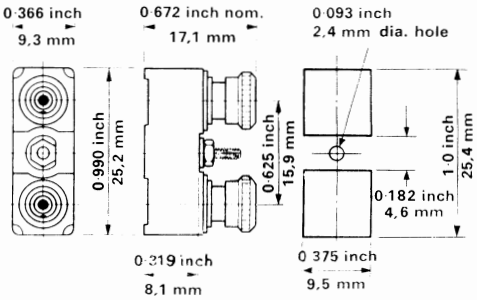
L1465B/FS
Free socket (jack)

Twin coaxial miniature unitors

Based on the same standard module as the general purpose miniature unitors, these coaxial connectors may be combined with them to provide individually shielded inter-connections when required. Alternatively, they may be used singly in conjunction with the cable outlet and retainer, L1588.



L1580/S/ Ag or Au Twin socket

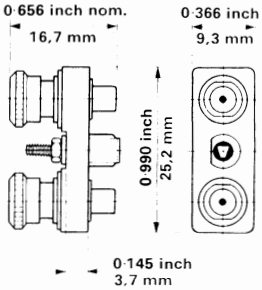


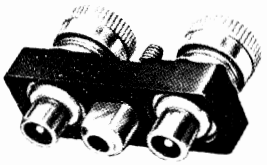
L1465/K COAXIAL MINIATURE FOR CRIMP CONNECTIONS
L1465A/K/FP Ag or Au L1465/K/BS.
L1465A/K/FS Ag or Au

These additions to the L1465 pattern connectors have been developed specifically for crimped connection to RG 174/U cable.

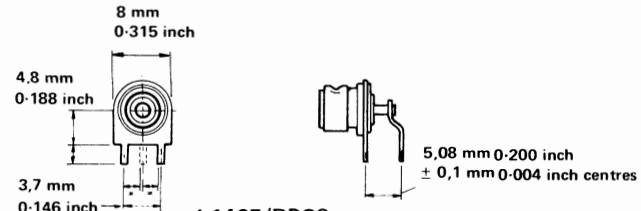
The 1465K range completely intermates with the 1465 range above.

IMPEDANCE:	50 ohms nominal
V.S.W.R.:	$\leqslant$ 1·22 : 1 up to 1700 MHz
BREAKDOWN VOLTAGE (d.c.):	$\geqslant$ 2 kV
INSULATION RESISTANCE:	$\geqslant 10^3$ M ohms
CONTACT RESISTANCE AND SCREEN CONTINUITY:	$\leqslant$ 5 M ohms
CAPACITANCE:	$\leqslant$ 5 pF
TEMPERATURE RANGE:	-25 °C to + 70 °C
HUMIDITY:	H5 (DEF - 5011)
INSERTION/WITHDRAWAL FORCE:	18 N 4 lbf maximum
CABLE RETENTION:	44,5 N 10 lbf
MATERIALS:	Body and plug contact brass, silver or gold-plated Socket contact beryllium-copper, silver or gold-plated Insulant polythylene
WEIGHT (average):	L1465 /K/FP 2,04 g 0·07 oz L1465A/K/FS 1,9 g 0·07 oz L1465/K/BS 2,2 g 0·08 oz



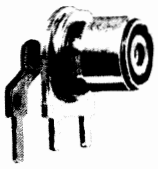


L1580/P/Ag or Au
Twin plug



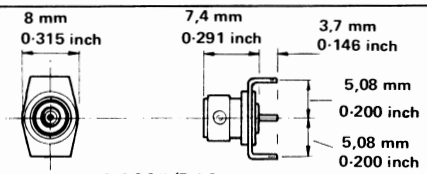
L1465/RPCS

5,08 mm 0·200 inch ± 0,05 mm 0·002 inch centres



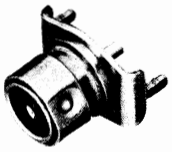
L1465/RPCS

L1465B/FP

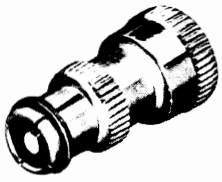


L1465/PCS

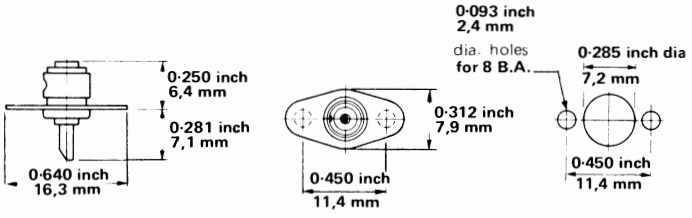
To suit panel thickness up to 2,38 mm 0·093 inch



L1465/PCS



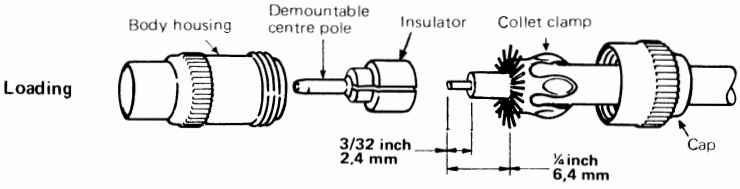
L1465B/FS

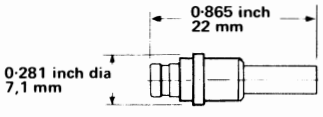


L1465C/CS

PANEL CUT–OUT

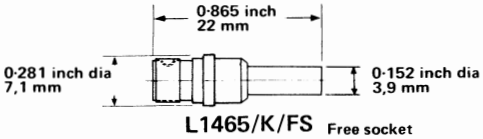
L1465C/CS



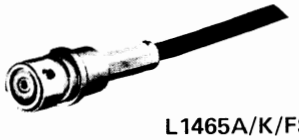


L1465/K/FP Free plug

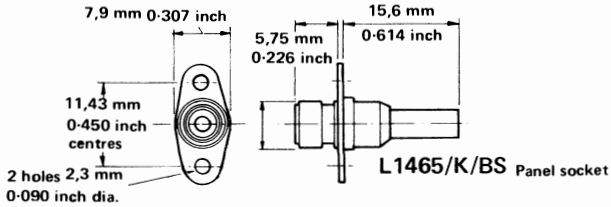
L1465A/K/FP



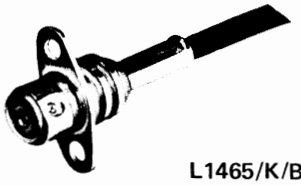
L1465/K/FS Free socket



L1465A/K/FS



L1465/K/BS Panel socket



L1465/K/BS

STANDARD RANGE PLUGS

L734/P/A I or Ni

Free plug, with polished aluminium, or nickel-plated brass body

L1329 Ni

Free plug, with nickel-plated brass body

Split insulated removeable contact for easy soldering or crimping

L1556

Insulated free plug with black polypropylene body, solder connections

L1956

Insulated free plug with white polypropylene body, solderless pressure connections.

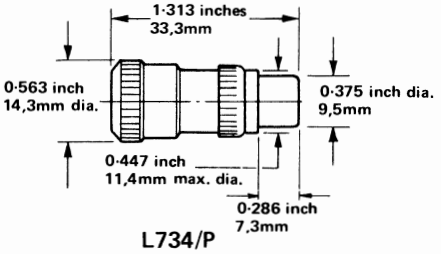
L2156

Right angle insulated plug with white polypropylene body, solderless pressure connections.

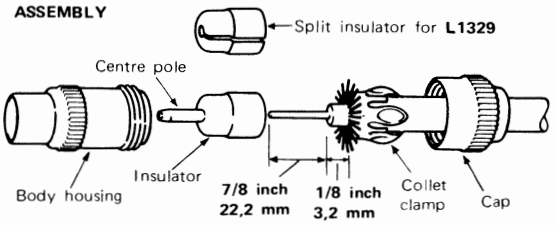
Originally developed for the television industry, these connectors, due to the technical excellence of their design, were quickly adopted by instrumentation engineers, and several of them have also received approval for use by H.M. Services. Such qualities were achieved at very low cost by mass manufacturing methods.

A selection of sockets is provided in which the mouth is reinforced by a powerful circlip; this imparts great mechanical strength while maintaining a high degree of resilience. A special collet clamp makes an efficient braid connection and anchorage in cable mounting members.

The *centre conductor* is generally solder connected but, alternatively may be crimped in type L1329, or clamped in type L1956.



L734/P



MATING CONFORMS TO BS 3041 : 1958 and IEC 169–2 SPECIFICATIONS

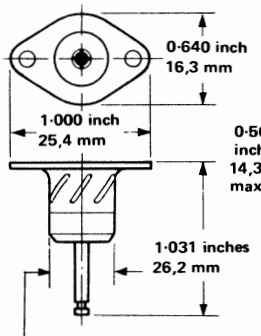
IMPEDANCE:	60 – 70 ohms
CAPACITANCE:	⩽5 pF
BREAKDOWN VOLTAGE(d.c.):	⩾4 kV
INSULATION RESISTANCE:	$\geqslant 10^3$ megohms
CONTACT RESISTANCE:	Inner ⩽10 milliohms Outer ⩽5 milliohms
TEMPERATURE RANGE:	– 40 °C to + 70 °C
INSERTION/WITHDRAWAL FORCE:	⩽25 lbf 111 N
CABLE SIZE:	Inner 0·048 inch max 1,2mm Overall 0·125 inch – 0·312 inch 3,2 mm – 7,9 mm
INSULANTS – INTERNAL:	L604/s,L616,L617,L734/J,L1421 L734/S, L1329 – Polyethylene L603, L734/P, L1366, L1556– L2156 Polypropylene.
– EXTERNAL:	L1956 Acetal and Polypropylene L603, L1556, L1956 – Polypropylene
CENTRE CONTACT:	Silver-plated

WEIGHTS (average)

L603	5,1 g	0·18 oz
L604/S	5,3 g	0·19 oz
L616	5,3 g	0·19 oz
L617	9,4 g	0·33 oz
L734/J/A	7,1 g	0·25 oz
L734/P/A	5,1 g	0·18 oz
L734/P/Ni	11,8 g	0·42 oz
L734/S	3,2 g	0·11 oz
L1329/	13,7 g	0·49 oz
L1366	3,4 g	0·12 oz
L1556	4,8 g	0·17 oz
L1956	4,9 g	0·17 oz
L2156	7,1 g	0·25 oz

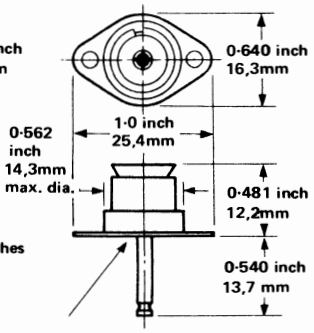
SOCKETS

L734/S Panel socket, flush mounting with cadmium plated brass body.



0·428 inch maximum diameter **10,9 mm**

L604/S/Cd or Ni Panel socket, surface mounting with cadmium or nickel-plated brass body



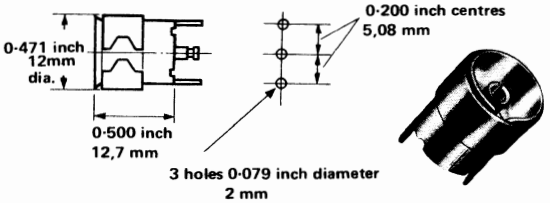
Recommended minimum panel hole diameter **0·468 inch 11,9mm**

L1366

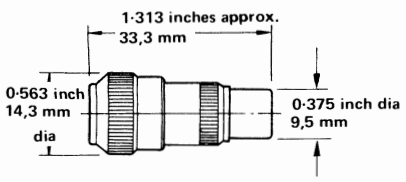
Panel socket, printed circuit version, with cadmium-plated brass body

A printed circuit version of L604/S, for 0·062 inch 1,6 mm thick panels. It is recommended that the two outer tags be bent over the rear of the panel before soldering in place as this will assist anchoring during withdrawal of the plug.

Printed circuit fixing details



PLUGS



L1556/ Black Free plug, insulated

L1956 Free plug, insulated, non-soldering

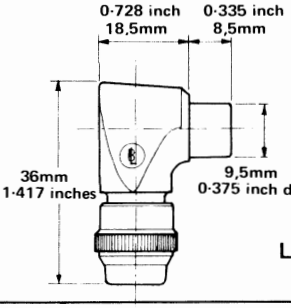
L734/P

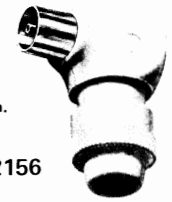
L1556/Black

Split insulator

L1329/P

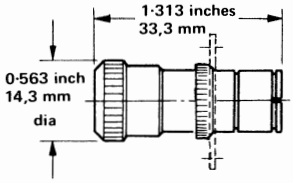
L1956





L2156

FREE SOCKET

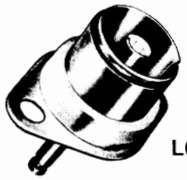


L734/J/A
Free socket, with polished aluminium body

L734/J/AI

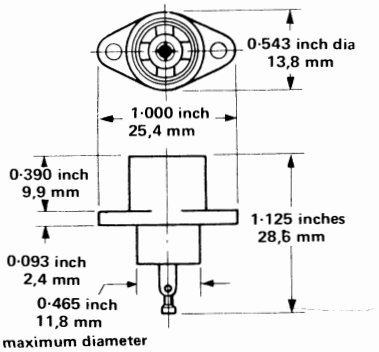
L1421
Bulhead socket with polished aluminium body.

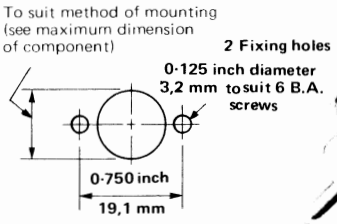
The 1421 bulkhead socket is similar to L734/J/AI but complete with integral flange (shown dotted) for panel mounting.



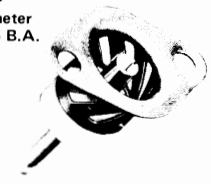
L604/S

L603/Colour
Panel socket, insulated, surface mounting





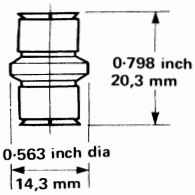
PANEL CUT–OUT
for L603, L604/S
L617, L734/S

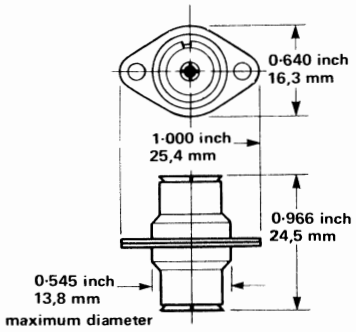


L734/S

L603/ Colour
Black, green, red, yellow, blue, and white

ADAPTORS

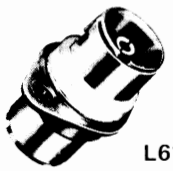




L616/Cd or Ni
Cable adaptor, plug-to-plug with cadmium or nickel-plated brass body

L617/Cd or Ni
Panel adaptor, plug-to-plug with cadmium or nickel-plated brass body

L616



L617

These adaptors provide convenient means of joining two leads which are already terminated in standard coaxial plugs.

BNC Pattern 15

Pattern 15 connectors are an improved version of the international range of BNC coaxial plugs and sockets. The improvement relates principally to the method of clamping the cable, which is by a three-way anchorage. First the braid is clamped between two metallic ferrules. Next, the cable is gripped by a compression gland made of silicone rubber, which is controlled by an internal threaded ring; this also prevents moisture from entering the cable. Finally, the cable is gripped again by a split-tapered collet which is tightened by the hexagonal nut.

The centre contact is silver plated, and captive after assembly. The insulant is PTFE, permitting a high working temperature.

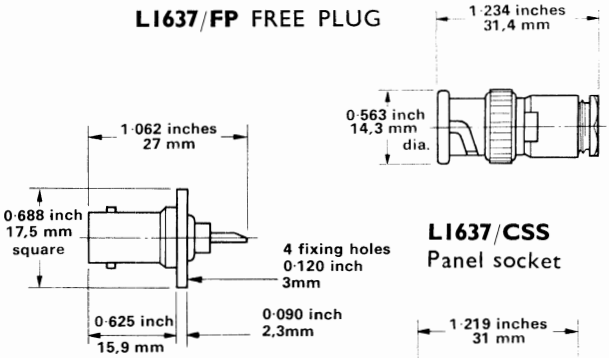
Impedance	50 Ω nominal
V.S.W.R.	Better than 1·2: 1 from 200 to 3,000 MHz
Breakdown voltage (d.c.)	≧ 2kV
Insulation resistance	≧5×10^3 MΩ
Contact resistance and screen continuity	≦2 mΩ
Capacitance	≦5 pF
Dielectric loss	≧5 MΩ
Temperature range	−55 °C to +150 °C
Humidity	Class H6 (DEF·5011)
Acceleration	Severity A1 (13 g, DEF–5011)
Vibration	Severity V2 (5–500 Hz, DEF–5011)
Shock	Severity S2 (75 g, DEF–5011)
Cables	Uniradio 43, 72, 76 or equivalent Maximum diameter Screen 0·212 in 5·4 mm Centre conductor 0·045 in 1·1 mm
Cable retention	≧40 lbf 178 N
Panel thickness	/CS 0·056 in–0·133 in 1·4 mm–3·4 mm /CSS 0·122 in 3·1 mm maximum /J 0·056 in–0·164 in 1·4 mm–4·2 mm /JS 0·0625 in. 1·6 mm maximum (flange at rear of panel)

Materials	Body and centre pin	Brass
	Socket insert	Beryllium-copper
	Finish	Silver-plated
	Insulant	PTFE
	Seals	Silicone rubber

L1637/A Locking tool

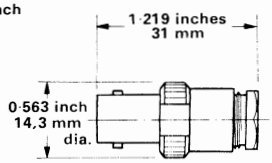
This combination tool comprises a claw spanner for tightening the internal clamping ring, and an open-ended spanner for tightening the hexagonal clamping nut.

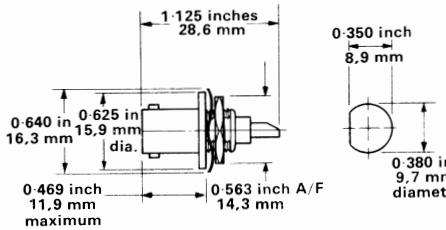
L1637/FP FREE PLUG



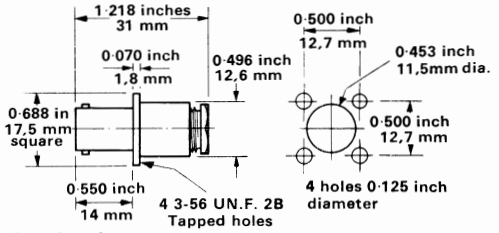
L1637/CSS
Panel socket

L1637/FS Jack

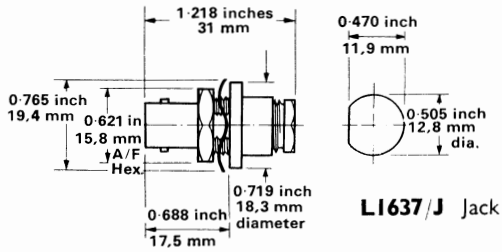




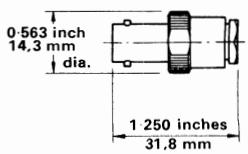
L1637/CS Bulkhead socket



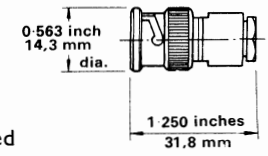
L1637/JS Panel jack



L1637/J Jack

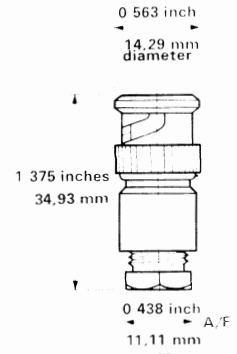


L1937/FS Free socket
BNC Pattern 15 unsealed

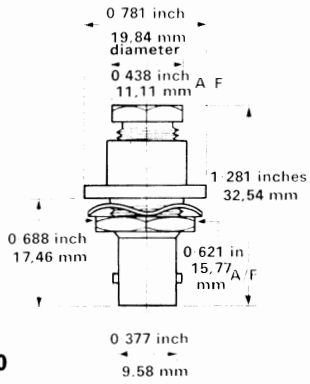


L1937/FP Free plug
BNC Pattern 15 unsealed

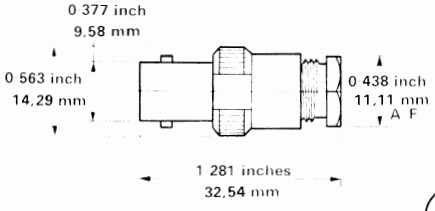
LI747 Series Pattern 16 connectors (BNC) sealed
These coaxial connectors have panel (where applicable) barrier and cable clamp sealing, and are designed to meet the British Pattern 16 specification (DEF–5322–A3). They are intermateable with all other types of BNC connectors.



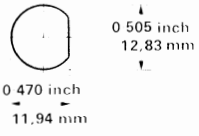
LI747/FP/UR43 or UR70



LI747/J/UR43 or UR70

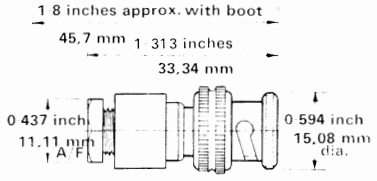


LI747/FS/UR43 or UR70

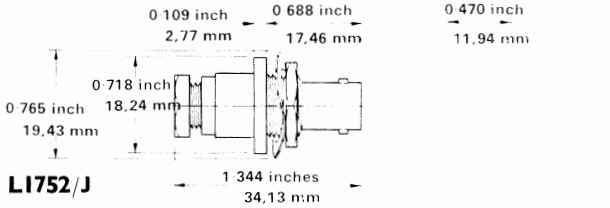


Impedance (nominal)	50 Ω
V.S.W.R.	≤1·2:1 up to 3,000 MHz (UR43 types)
Voltage proof (d.c.)	2 kV
Insulation resistance	≥5 × 10³ MΩ
Capacitance	≤5 pF
Dielectric loss	≤ MΩ
Contact resistance and screen continuity	≤2 mΩ
Leakage	≤1 cc/h at 14 lbf/in² 9·65 bars
Temperature range	−55 °C to +150 °C
Humidity	H6
Air density, low	D2 (100,000 ft.)
Acceleration	A1 (13 g)
Vibration	V2 (5–500 Hz)
Shock	S2 (75 g)
Cables	UR43 and UR70
Cable clamping torque	4·5 N m 40 lbf in
Cable retention	≥70 lbf 316 N on polyethylene ≥40 lbf 178 N on PTFE insulant
Panel thickness	0·056–0·164 in (1.42–4·17 mm).

LI752/FP and J 2-Pole shielded connectors
These polarised, two-pole, shielded connectors are housed in silver-plated brass BNC shells and are available for standard Duradio 68 cable. Fittings for other miniature, twin, shielded cables can be made available on request.



LI752/FP

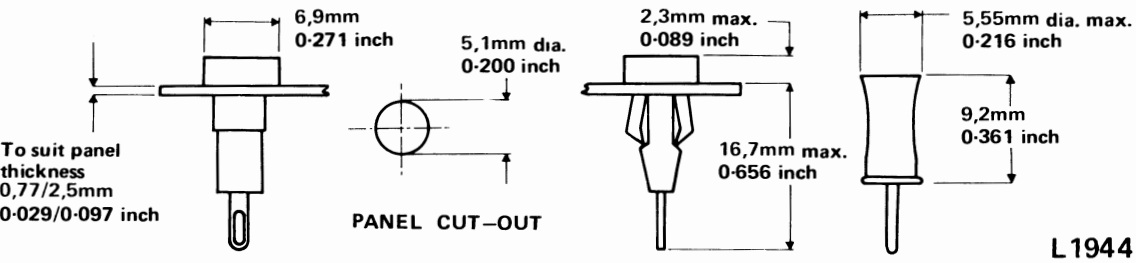


LI752/J

Current rating	2A per pole (temperature rise, internal, 10 °C above ambient)
Contact resistance	≤3 mΩ per pole
Screen continuity	≤2 mΩ
Voltage breakdown (d.c.)	Between poles >3 kV Poles to screen >2 kV
Insulation resistance	>60 × 10³ MΩ
Temperature range	−55 °C to +85 °C
Cable clamping torque	2·28 N m, 20 lbf in
Cable retention (average)	200 N, 45 lbf
Panel thickness	0·056 in–0·149 in 1·42 mm–3·78 mm
Materials	Body and contact pin – brass socket – beryllium-copper finish – silver-plated insulant – polypropylene

Single pole connectors 1 mm

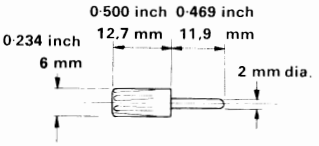
These miniature connectors combine robustness with small dimensions, and feature a unique locking device in the body moulding. The plug latches positively onto the socket to prevent accidental withdrawal.



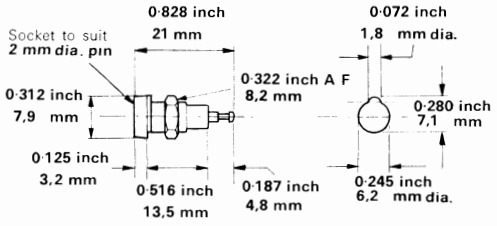
L1944 L1945

Single pole connectors 2 mm

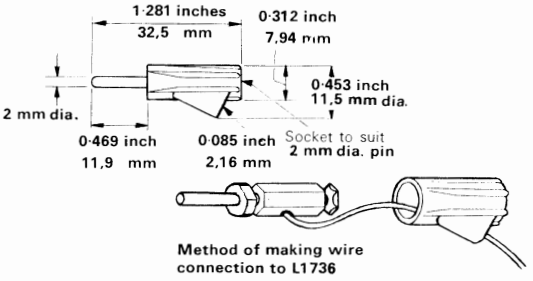
These miniature connectors are extremely robust, have a current rating of 10 amp, and are simple to load, with a choice of six standard colours. The plugs are in two styles, each with a snap-on cover, one end-loading and the other having a socket in the end for a test probe or stacking a further plug. An insulated panel mounting socket L1737 completes the range. A complementary series of terminals. L1726/104, is illustrated in the red section of this catalogue.



L1727/Colour. Free plug, end entry



L1737/Colour. Fixed socket

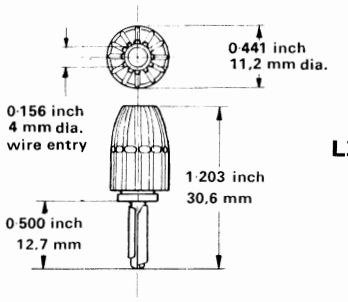


L1736/Colour. Stacking plug

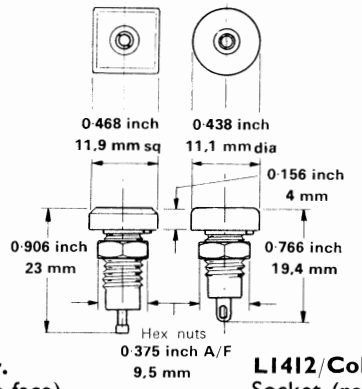
	L1727/Colour	L1736/Colour	L1737/Colour	L1944/L1945/ Colour
Current rating		10 A for temperature rise <10 °C		5A
Contact resistance		$\leqslant 3$ mΩ		$\leqslant 3{\cdot}5$ mΩ
Breakdown voltage		>4 kV		7kV
Insulation resistance		$>20\times10^3$ MΩ		$\geqslant 100\times10^3$ MΩ
Temperature range		-40 °C to $+50$ °C ($+65$ °C at 5 A maximum)		
Fixing torque (maximum)		0·32 N m 45 ozf in		
Panel thickness		0·031–0·187 inch 4·76–0·79 mm		
Wire size, overall (max.)	0·121 in, 3·1 mm	0·079 in, 2 mm		
Wire size, conductor (max.)	0·070 in, 1·8 mm	0·079 in, 2 mm		
Connection	Crimp or solder	Non-cutting screw	Solder	Solder
Insulant	PVC	PVC	Polypropylene	Polycarbonate
Colours		Black, Blue, Green, Red, White and Yellow		
Weight (average)	0·95 g, 0·03 oz	3·36 g, 0·12 oz	1·66 g, 0·06 oz	

Single pole connectors 3 mm

These connectors are complementary to the 4 mm range



L378A/3/Colour. Plug

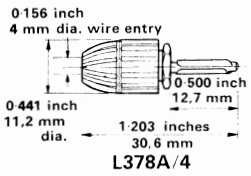


L1317/Colour.
Socket (square face)

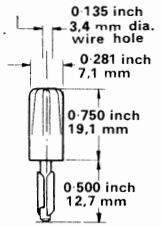
L1412/Colour.
Socket (round face)

Single pole connectors, 4 mm

Stacking Plugs L1706 and L1708 permit additional apparatus to be rapidly connected to a circuit without disturbing the connections. Any number can be plugged together, and they will mate with all standard 4 mm solid and resilient sockets and also with all Belling-Lee terminals that incorporate an appropriate socket in the head. Wire connection via the side port is secured by means of a grub screw located in the bottom of the socket; the end of this screw is specially shaped so as not to cut the conductors.



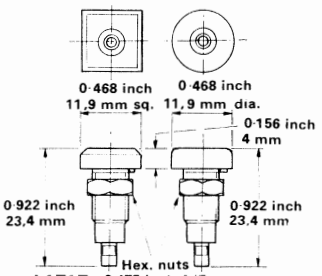
L378A/4

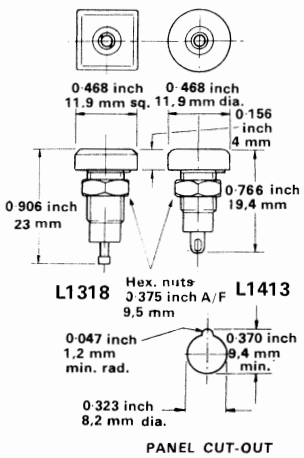


L1716A

Plugs

L378A/4/Colour. Clamp or solder connection
L1716A/Colour. Crimp or solder connection





PANEL CUT-OUT

Current rating	10 A (temperature rise <10 °C)
Contact resistance	$\leqslant 2$ mΩ
Temperature range	-55 °C to $+85$ °C
Insulation resistance	$\geqslant 10^3$ MΩ
Voltage breakdown (sockets)	$\geqslant 5$ kV d.c.
Insertion/withdrawal force	1·5 to 4 lbf 17·8 to 6·67 N depending on type of socket
Conductor size (max.)	L/38A/3 56/0·3 mm
Panel thickness (max.)	L1412–0·187 in, 4·8 mm L1317–0·275 in, 7 mm (max. sockets)
Fixing torque	60–80 ozf in 0·565–0·424 N m
Materials	Contact body: Brass, silver-plated. Contact leaf (L378A/3): Phosphor-bronze silver-plated. Insulant: Polypropylene.
Colours	Black, Blue, Green, Red, White and Yellow
Weight (average)	L378A/3—4·5 g, 0·16 oz L1317—2·8 g, 0·1 oz L1412—1·9 g, 0·07 oz

Sockets

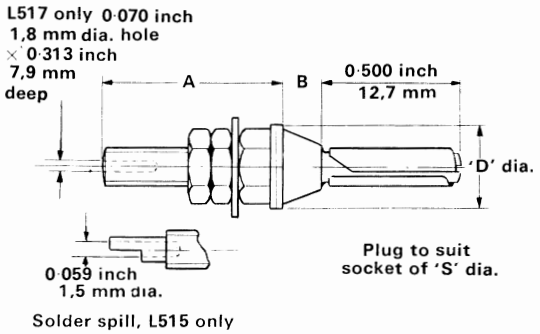
L1318/Colour. Square face, resilient
L1413/Colour. Round face, resilient
L1717/Colour. Round face, non-resilient
L1718/Colour. Square face, non-resilient

Specification on next page

Single pole connectors, 4 mm (cont.)

Current rating	10 A (temperature rise <10 °C)
Contact resistance	<2 m Ω
Insulation resistance	$\geqslant 10^3$ M Ω
Voltage breakdown (Sockets)	>5 kV d.c.
Temperature range	−55 °C to +85 °C (L1716A +70 °C)
Conductor sizes (maximum)	L378A/4 56/0·3 mm
	L1706 L1708 50/0·25 mm
	L1716A 32/0·2 mm
Panel thickness (max.)	L1413 0·187 in 4·8 mm
	L1318 L1717 L1718 0·275 in
Fixing torque (Sockets)	60–80 ozf in, 0·565–0·424 N m
Materials	Contact body—Brass, silver-plated
	Contact leaf—Phosphor-bronze, silver-plated
Insulant	L1716A—PVC, remainder Polypropylene
Colours	Black, blue, green, red, white and yellow

Current ratings
L513 3 mm plug 10 A
L514 4 mm plug 10 A
L515 5 mm plug 15 A



Solder spill, L515 only

Type No.		L513	L514	L515
Stem		6 B.A.	4 B.A.	4 B.A.
A	in	0·562	0·625	0·656
	mm	14·3	15·9	16·7
B	in	0·125	0·218	0·250
	mm	3·2	5·6	6·4
D	in	0·234	0·281	0·281
	mm	6	7·1	7·1
S	in	0·125	0·156	0·204
	mm	3	4	5

Single pole uninsulated O–Z plugs

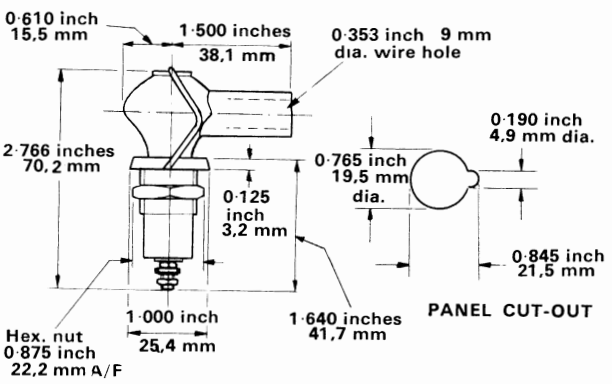
These connectors employ the O–Z multiple contact leaf spring, a well-known Belling-Lee feature, ensuring low contact resistance and high current rating. It also combats faulty contact and ejection under vibration.

4 mm Single pole high tension connector

L623/P Fixed plug
L623/S Free socket

This plug and socket assembly employs the O–Z contact principle, a well-known Belling-Lee feature ensuring low contact resistance and reliability when subjected to vibration.

Voltage breakdown (d.c.)	at sea level >10 kV
	18,000 m, 60,000 ft >1·5 kV
Insulation resistance	$\geqslant 10 \times 10^3$ M Ω
Contact resistance	6–13 m Ω
Panel thickness (maximum)	0·312 in, 7·9 mm
Fixing torque	90–200 ozf in, 1·41–0·63 N m
Wire size	0·35 in, 9 mm maximum diameter
Materials	Body: Phenolic resin moulding
	Contacts: Plug phosphor-bronze Socket brass
	Finish: Silver plated

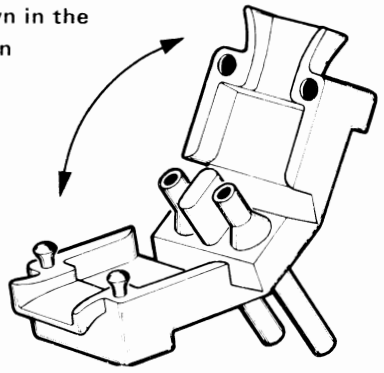


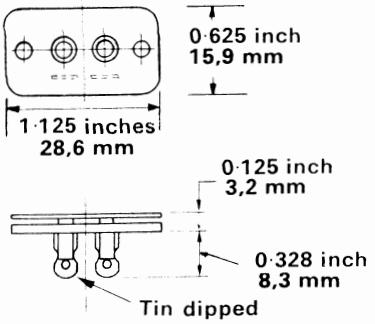
L623/P & S assembled

Weight (average) Socket 23·84 g, 0·84 oz
Plug: 15·57 g, 0·55 oz

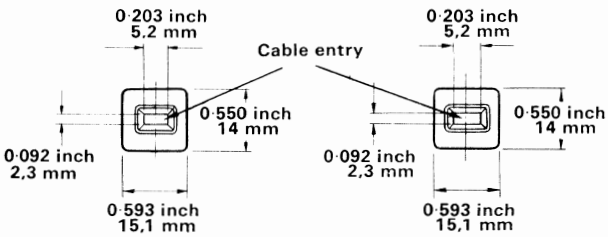
L733 Series low voltage 2-pole connectors
L733/P Free plug
L733/S Fixed socket
L733/J Free socket (Jack)
Originally designed for television twin feeder connections, these small connectors are suitable for many other low voltage signal applications including extension loudspeaker circuits. The conductors may be crimped or soldered into the spills of the free members, and the 'butterfly' moulding is snap fastening, making loading quick and easy.

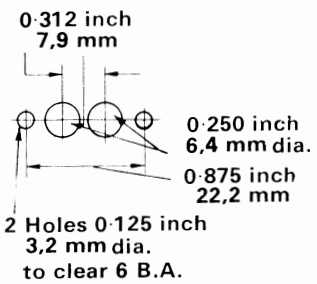
L733/P shown in the open position

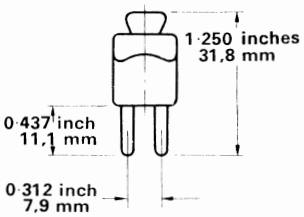




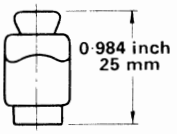
L733/S







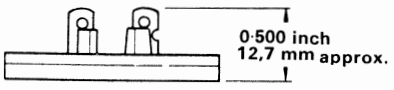
L733/P

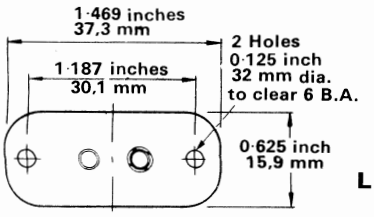


L733/J

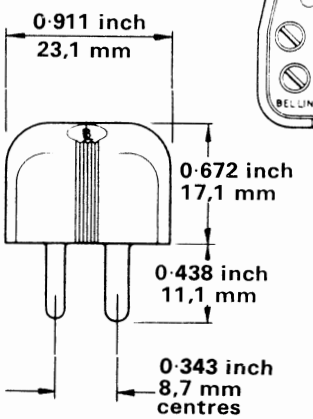
2-Pole connector – polarized

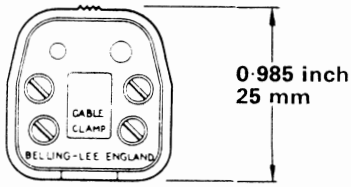
This connector is non-reversible, having one large and one small pole, and finding many applications in radio aerial and stereo loudspeaker systems.





L1495/S Fixed socket

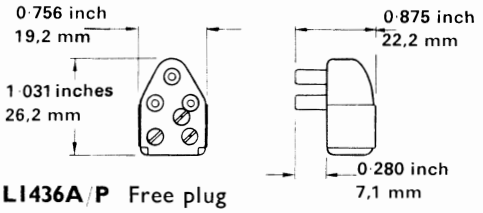




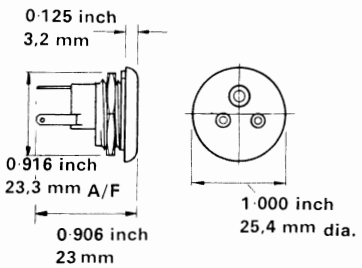
L1495/P Free plug

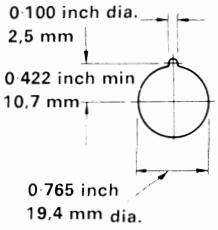
3-Pole miniature mains connector

This miniature 3-pole mains connector combines modern styling and compact design with safety, pins and sockets being fully shrouded and finger proof. The plug is moulded in polypropylene withstanding greater than average wear. Single hole fixing requires only one nut, a spigot preventing rotation of the socket.



L1436A/P Free plug





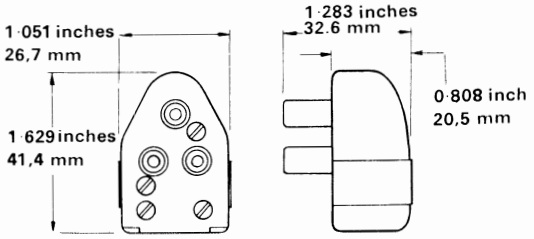
PANEL CUT-OUT

L1436B/S Fixed socket

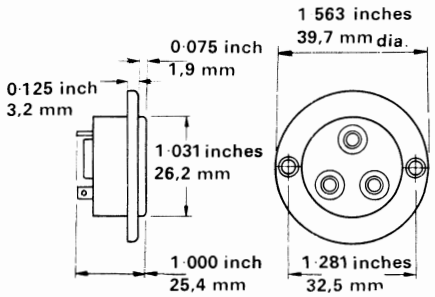
Current rating	3 A a.c./d.c. for <5 °C temperature rise
Current breaking	Satisfactory to B.S. 546 at 3·9 A
Breakdown (d.c.)	>5·5 kV
Insulation resistance	$>5 \times 10^3$ M Ω
Contact resistance (maximum)	5 m Ω
Humidity	A4 (B.S.2011)
Temperature range	−25 °C to +70 °C
Insertion/withdrawal force (max.)	8 lbf 35 N
Cable size (maximum overall)	0·291 in, 7·4 mm
Fixing torque	50–200 ozf in, 1·4–0·35 N m
Terminations	Plug: screws. Socket: solder or solderless snap-on connectors. 0·110 × 0·20 in, 2·8 × 0·51 mm
Panel thickness	0·094–0·188 in, 4·8–2·4 mm
Materials	Contacts: silver-plated brass Insulants: plug, polypropylene socket: phenolic resin
Weight (average)	Plug: 5·2 g, 0·18 oz. Socket: 7·3 g, 0·25 oz

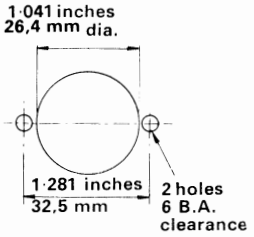
3-Pole mains connector

This connector is a larger version of the L1436. The plug cover retaining screws fit into threaded metal inserts, and the socket can be front or rear panel mounting.



L1722/P Free plug





PANEL CUT-OUT

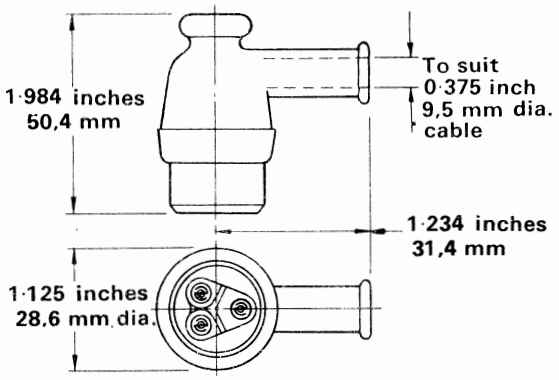
L1722A/S Fixed socket

Current rating	10 A a.c./d.c. for <5 °C temperature rise
Current breaking	Satisfactory to B.S. 546 at 13 A
Breakdown (d.c.)	>6 kV
Insulation resistance	$>5 \times 10^3$ M Ω
Contact resistance (maximum)	5 m Ω
Humidity	A 4 (B.S.2011)
Temperature range	−10 °C to +55 °C
Insertion/withdrawal force (max.)	11 lbf 50 N insertion 15 lbf 67 N withdrawal
Cable size (maximum overall)	0·375 in, 9·5 mm
Terminations	Plug: screws. Socket: solder or solderless snap-on connectors, 0·250 × 0·032 in, 6·3 × 0·81 mm
Materials	Contacts: plug, nickel-plated brass. Sockets: silver-plated brass. Insulants: plug, nylon: socket, phenolic resin
Weight (average)	Plug: 20·5 g, 0·72 oz. Socket: 15·1 g, 0·53 oz

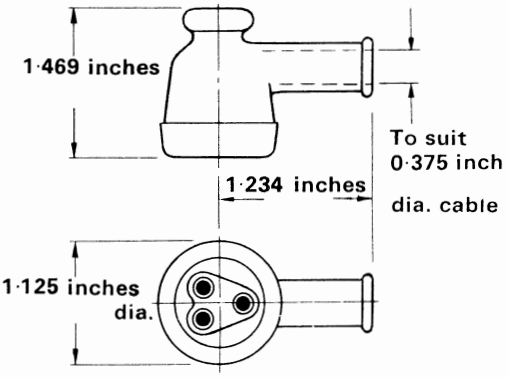
L1349 Series sealed 3-pole O–Z connectors

These waterproof connectors are resistant to sunlight, mineral oils and grease; the fixed members are also both barrier and panel sealed.

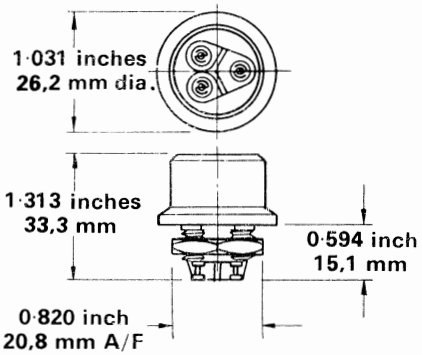
Breakdown (d.c.)	>5 kV
Current rating	7 A for temperature rise <10 °C
Insulation resistance	$>5 \times 10^3$ MΩ
Contact resistance	3 mΩ maximum
Temperature range	−50 °C to +85 °C
Humidity	H6 (DEF 5011)
Water resistance	Dry after 1 h in 5 ft, 1529 mm of water
Sealing (fixed items)	Leakage does not exceed 1 cc/h at 15 lbf/in² 1 bar
Insertion/withdrawal force	3–15 lb f 10–13 N
Panel thickness (max.)	3·2 mm, 0·125 in
Fixing torque	L1349/CS 1·41–0·79 Nm 112–200 ozf in L1349/CP 1·46–0·85 Nm 120–206 ozf in
Finish	Contacts silver-plated



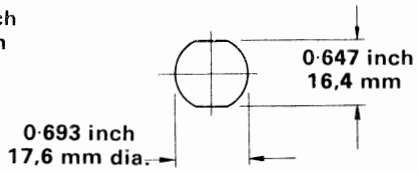
L1349/RP Free plug, right angle entry



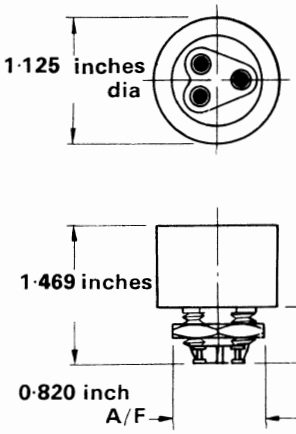
L1349A/RS Free socket, right angle entry



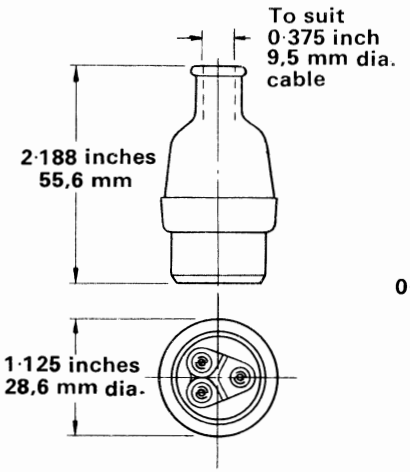
L1349/CP Fixed plug



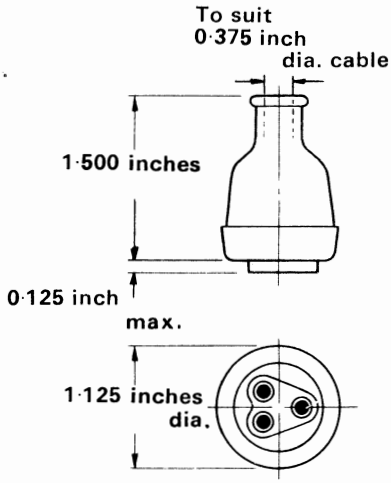
PANEL CUT-OUT
/CS & /CP



L1349A/CS Fixed socket



L1349/FP Free plug, straight entry



L1349A/FS Free socket, straight entry

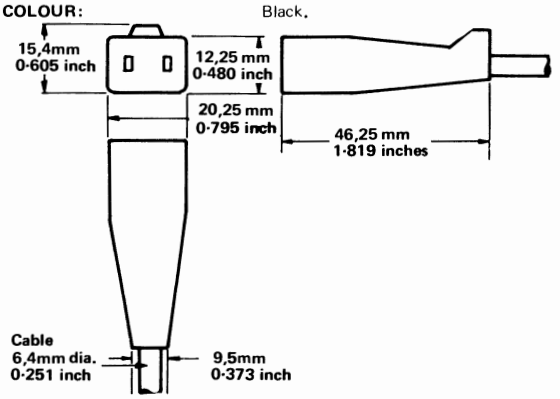
L1951 2–POLE MAINS CONNECTOR, FREE WITH CABLE.
L1952 2–POLE MAINS CONNECTOR, FIXED.

A 2-pole mains connector with free socket moulded onto the cable and fully shrouded to BS. 415. This connector is designed to comply with the requirements of CEE Publication 22 and I.E.C. 320. The two items currently available are L1951 cable socket and L1952 fixed receptacle with pin contacts.

OPERATING VOLTAGE:	250 V.a.c. r.m.s.
CURRENT RATING:	6A
CONTACT RESISTANCE:	⩽10 milliohms
INSULATION RESISTANCE:	$>10^3$ megohms
TEMPERATURE RANGE:	–55 to + 70 °C
INSERTION/WITHDRAWAL FORCE:	13 2 to 30,8 N 3 lbf to 7 lbf
CABLE RETENTION:	220 N 50 lbf
TERMINATION (fixed member)	Solder or solderless snap-on connectors 0·110 X 0·032 inch 2,8 X 0,81 mm
CABLE:	2 metres of 2 core black P.V.C. sheathed 6A mains cable to BS 6500 and CEE 13

MATERIALS: Receptacle – Phenolic resin
Cable socket – P.V.C.
Contacts – Brass, silver plated

COLOUR: Black.



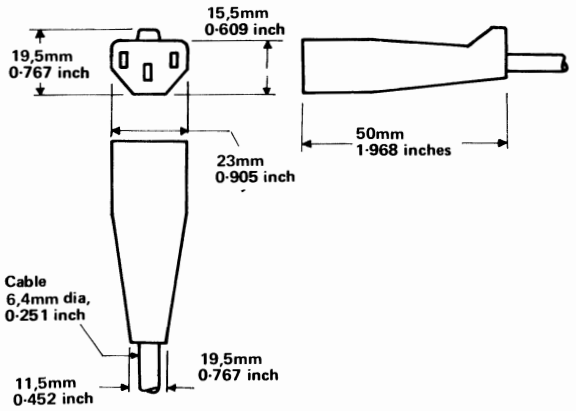
L1949 CABLE SOCKET
L1950 FIXED SOCKET

A 3-pole mains connector with the free socket moulded onto 2 metres of 3 core black P.V.C. sheathed 6 A mains cable to BS 6500 and fully shrouded BS 415. This connector complies with the requirments of CEE Publication 22 and I.E.C. 320.

OPERATING VOLTAGE:	250 V.a.c. r.m.s
CURRENT RATING:	6A
CONTACT RESISTANCE:	⩽10 milliohms
INSULATION RESISTANCE:	$>10^3$ megohms
TEMPERATURE RANGE:	–55 to + 70°C
INSERTION/WITHDRAWAL FORCE:	17,8 to 49N 4 lbf to 11 lbf
CABLE RETENTION:	> 220N 50 lbf
TERMINATION: (fixed member)	Solder or solderless snap-on connectors 0·110 X 0·032 inch 2,8 X 0,81 mm
CABLE:	2 metres of 3 core black P.V.C. sheathed 6A mains cable to BS 6500 and CEE 13

MATERIALS: Receptacle – Phenolic resin
Cable socket – P.V.C
Contacts – Brass, silver plated

COLOUR: Black



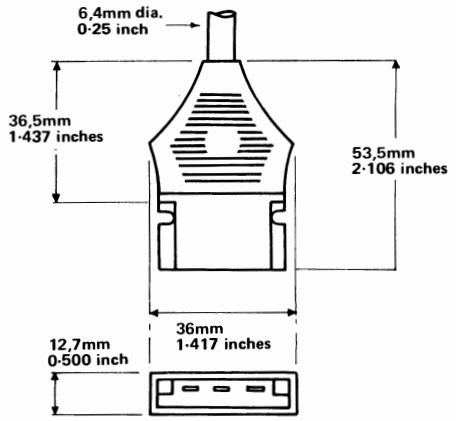
L1953 3–POLE MAINS CONNECTOR, FREE WITH CABLE
L1954 3–POLE MAINS CONNECTOR, FIXED.

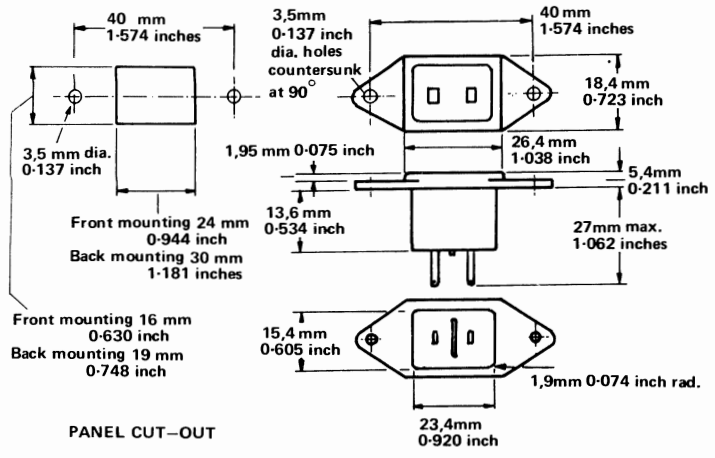
A miniature 3-pole mains connector with the free member moulded onto 2 metres of 3 core black P.V.C. sheathed mains cable to BS 6500 and fully shrouded to BS 415. The connector may be locked together to prevent inadvertent or unauthorized disconnection.

OPERATING VOLTAGE:	250 V.a.c. r.m.s.
CURRENT RATING:	6A
CONTACT RESISTANCE:	⩽ 7·5 milliohms
INSULATION RESISTANCE:	> 10^3 megohms
TEMPERATURE RANGE:	–55 to +70 °C
INSERTION/WITHDRAWAL FORCE:	< 44N 10 lbf
CABLE RETENTION:	180 N 40 lbf
TERMINATION: (fixed member)	Solder or solderless snap-on connectors 0·110 X 0·032 inch 2,8 X 0,81 mm
CABLE:	2 metres of 3 core black P.V.C. sheathed 6A mains cable to BS 6500. and CEE 13

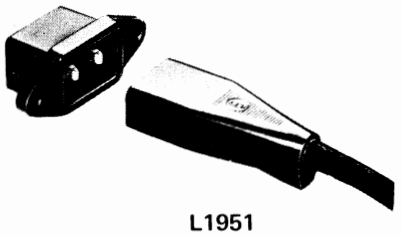
MATERIALS: Receptacle – Thermoplastic
Cable socket – P.V.C.
Contacts – Brass, silver plated

COLOUR: Black

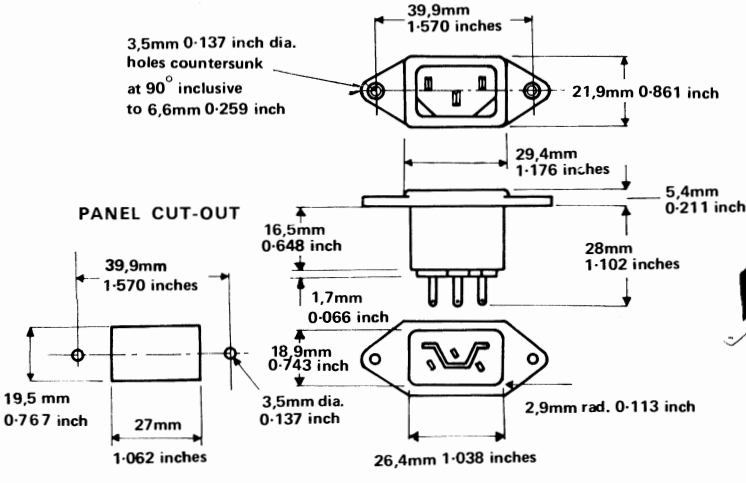




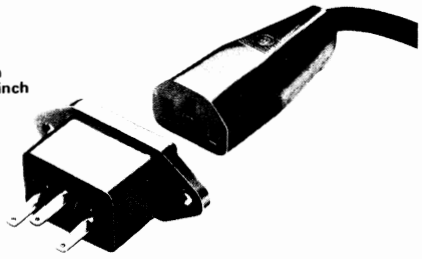
L1952



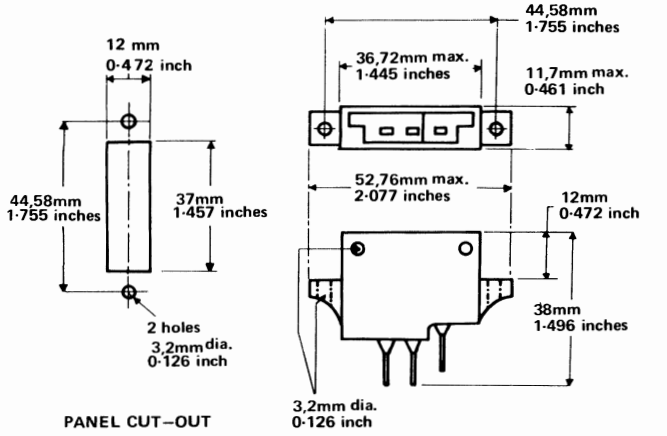
L1951



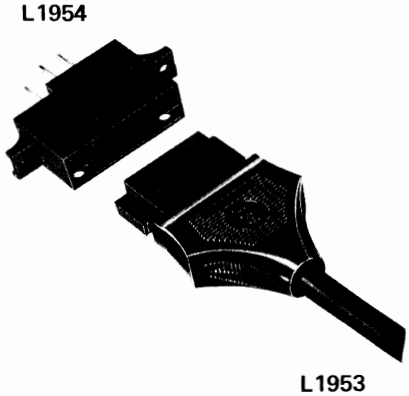
L1949



L1950



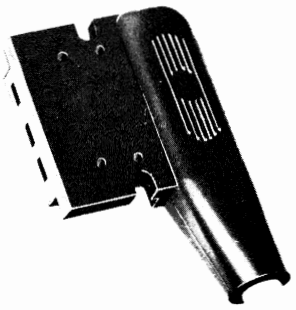
L1954



L1953

L1955 3-pole mains connectors

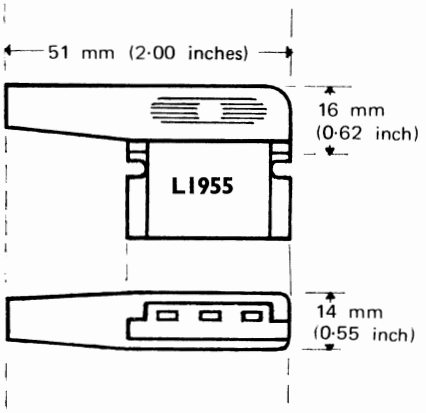
A miniature 3-pole mains connector moulded on to the cable and fully shrouded to B.S. 415 requirements.
The connector may be locked together to prevent inadvertent or unauthorized disconnection.



L1955

Design Specification

Current rating:	6 A
Contact resistance:	⩽ 7·5 milliohms
Insulation resistance:	$> 10^3$ megohms
Temperature range:	− 55 to + 70 ° C
Insertion/Withdrawal force:	< 44 N (10 lbf)
Cable retention (free member):	180 N (40 lbf)
Connection (fixed member):	Solder, or solderless snap-on connectors 0·110 x 0·032 inch (2,8 x 0,81 mm)
	L1953, L1955 supplied with * 2 metres black PVC cable. Inner sheaths coloured blue, brown and green/yellow.
	3 core mains cable complies with BS.6500 Table II and C.E.E. 13.



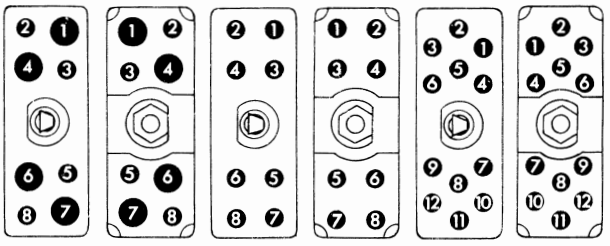
Ordering Nomenclature

L1953	3-Pole mains connector, free, with cable
L1954	3-Pole mains connector, fixed.
L1955	3-Pole Right angle mains connector free, with cable

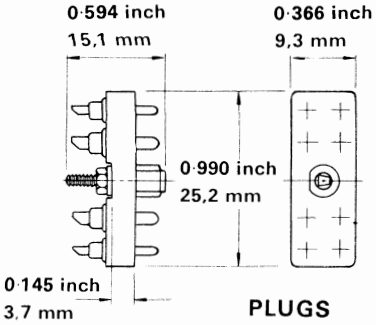
Miniature unitors

L1387/P/Ag OR Au	Plug, 8-pole, four large and four small
L1387/S/Ag OR Au	Socket, 8-pole, four large and four small
L1388/P/Ag OR Au	Plug, 8-pole, small
L1388/S/Ag OR Au	Socket, small
L1389/P/Ag OR Au	Plug, small
L1389/S/Ag OR Au	Socket, small

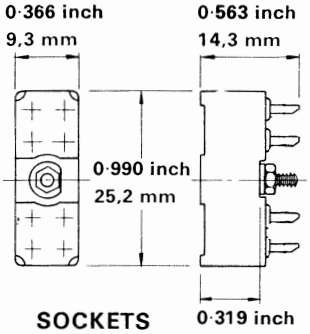
Contact identification viewed on mating faces



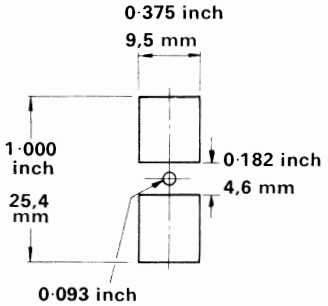
L1387/P L1387/S L1388/P L1388/S L1389/P L1389/S



PLUGS



SOCKETS



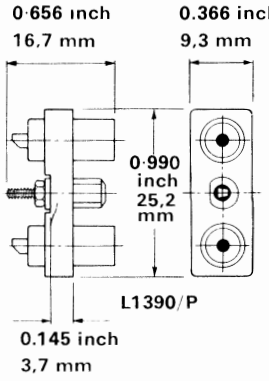
PANEL CUT-OUT

Current rating	Small poles, 9A. Large poles, 10A (temperature rise ⩽10 °C)		
Breakdown (d.c.)	Mounted in shrouds L1470–1–2		
	L1387	**L1388**	**L1389**
(a) at sea-level	⩾2·5 kV	⩾2·5 kV	⩾2 kV
(b) at 20,000 m 68,000 ft	1 kV	1 kV	700 V
Pins to earth (control fixing and polarizing key)			
(a) at sea-level	2·5 kV	2·5 kV	2 kV
(b) at 20,000 m 68,000 ft	900 V	900 V	600 V

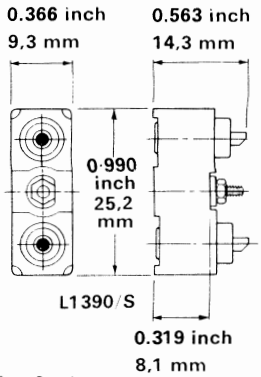
Contact resistance (max.)	Small poles 2 m Ω Large poles 1 m Ω Locating key m Ω
Insulation resistance	⩾100 × 10³ M Ω
Temperature range	−40 °C to +100 °C
Humidity	Class H5 (DEF–5011)
Withdrawal force (max.)	2·1 N 7·5 ozf per pole
Wire sizes	Small poles, 0·042 in or 19 s.w.g. 1·1 mm Large poles, 0·079 in or 15 s.w.g. 2 mm

Miniature unitor high voltage 2-pole

Current rating	10 A (temperature rise ⩽10 °C)
Breakdown voltage	At sea-level. At 18,000 m 60,000 ft
pole/pole	⩾10 kV ⩾2 kV
poles/chassis	⩾6 kV ⩾1 kV
Insulation resistance	⩾10 × 10³ M Ω
Contact resistance	1 milliohm maximum (5 milliohms locating key)
Temperature range	−40 °C to +100 °C
Withdrawal force	13·7–7·8 N 1·75–3 lbf
Wire size	0·079 in, 2 mm or 15 s.w.g.
Panel thickness (max.)	Plug 0·125 in, 3·2 mm Socket: 0·064 in 1·6 mm No limit in shrouds
Fixing torque	0·18 N m 25 ozf in
Materials	Body, epoxy resin Plug, pins silver (Ag) or gold-plated (Au) brass. Sockets. Silver (Ag) or gold-plated (Au) beryllium-copper



L1390/P/Ag and Au Plug



L1390/S/Ag and Au Socket

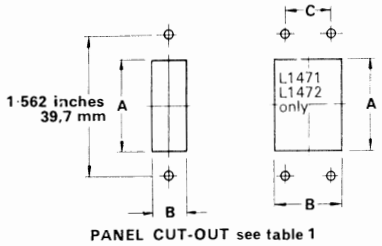
Miniature unitor accessories –

Flush and surface mounting shrouds

These metal Shrouds can be used for mounting one, two or three Miniature Unitors on a plug-in unit and on the equipment rack.

All BELLING-LEE Miniature Unitors have a common face area and central fixing point, and are therefore physically interchangeable. In addition they are polarized, so that each unit can be mounted in two ways on any site. Thus, from a few basic units it is possible to assemble a very large variety of non-interchangeable multiple connectors.

L1470/F Single flush mounting shroud
L1470/S Single surface mounting shroud
L1471/F Double flush mounting shroud
L1471/S Double surface mounting shroud
L1472/F Treble flush mounting shroud
L1472/S Treble surface mounting shroud



PANEL CUT-OUT see table 1

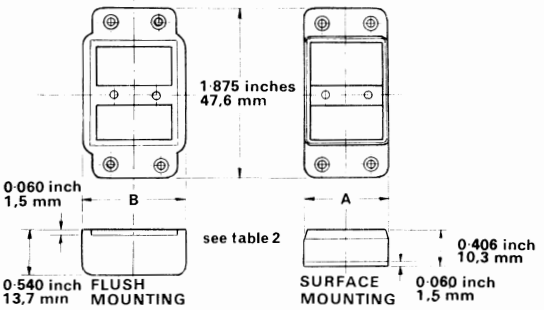


Table 1

Types	A		B		C	
	in	mm	in	mm	in	mm
L1470/F	1·360	34·5	0·715	18·2	—	—
L1470/S	1·031	26·2	0·406	10·3	—	—
L1471/F	1·360	34·5	1·093	27·8	0·500	12·7
L1471/S	1·031	26·2	0·781	19·8	0·500	12·7
L1472/F	1·486	37·3	1·360	34·5	0·937	23·8
L1472/S	1·031	26·2	1·156	28·4	0·937	23·8

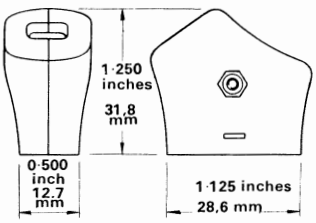
Table 2

Type	A		B	
	in	mm	in	mm
L1470/F	—	—	0·719	18·3
L1470/S	0·500	12·7	—	—
L1471/F	—	—	0·875	22·2
L1471/S	1·093	27·8	—	—
L1472/F	—	—	1·250	31·8
L1472/S	1·465	37·3	—	—

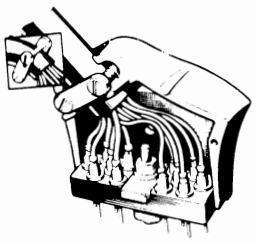
L1588/C Miniature unitor
Cable outlet

This moulded cable outlet accommodates any member of the Miniature Unitor range, plug or socket, permitting cable connection to the appropriate fixed unit.

Cable entry size 0·375 × 0·250 in, 9·5 × 6·4 mm
Material Butyrate



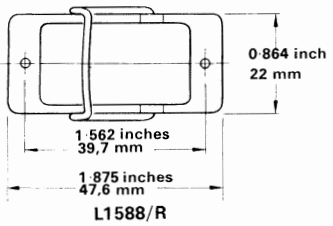
L1588/C



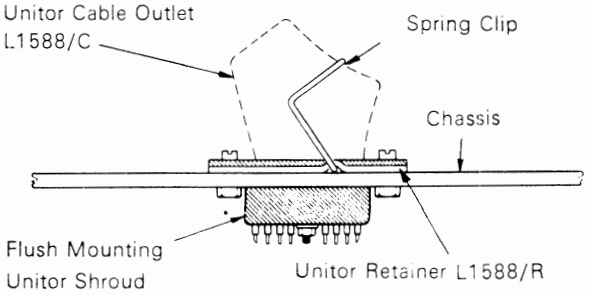
L1588/R Miniature unitor
Retainer

This retainer is intended for use with flush mounted fixed members, and is secured between the flange of the unitor shroud and the panel, using common fixing screws.

Material Base-plate, brass, cadmium-plated. Retaining clip, spring steel
Weight (average) 23·1 g, 0·81 oz



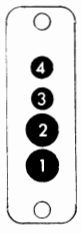
L1588/R



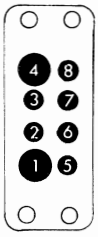
Pattern 102 Unitors

These Unitors were originally developed under a Government contract in which reliability was a paramount requirement, and they have Qualification Approval. The male contacts have a controlled degree of float to facilitate blind engagement. and the configuration is designed to obviate incorrect mating. The mouldings are track resistant, and clearance is provided between the mating faces for air to circulate and dispel any moisture deposited. All plug and socket contacts are numbered on the face and reverse side of the mouldings.

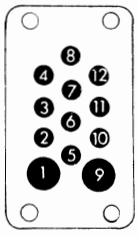
L653/P **Ag** or **Au** Plug, 4-pole
L653/S **Ag** or **Au** Socket, 4-pole
L654/P **Ag** or **Au** Plug, 8-pole
L654/S **Ag** or **Au** Socket, 8-pole
L655/P **Ag** or **Au** Plug, 12-pole
L655/S **Ag** or **Au** Socket, 12-pole
L656/P **Ag** or **Au** Plug, 18-pole
L656/S **Ag** or **Au** Socket, 18-pole
L657/P **Ag** or **Au** Plug, 25-pole
L657/S **Ag** or **Au** Socket, 25-pole
L1328/P **Ag** or **Au** Plug, 25-pole
L1328/S **Ag** or **Au** Socket, 25-pole



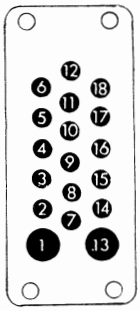
L653/P & S



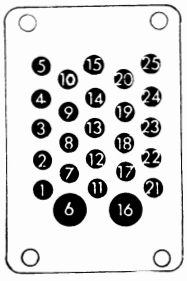
L654/P



L655/P

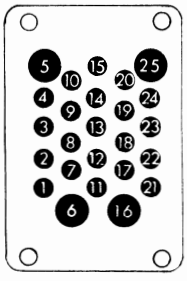


L656/P



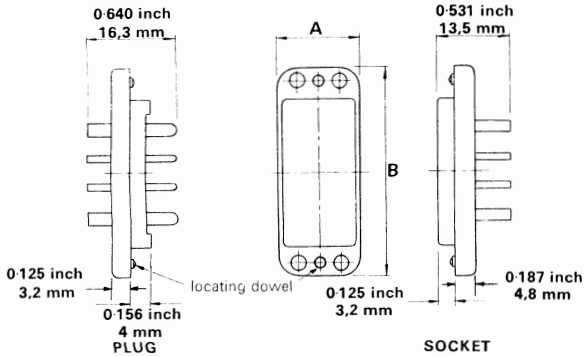
L657/P

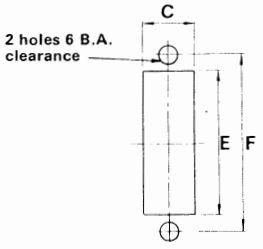
Contact identification Viewed on wiring side.



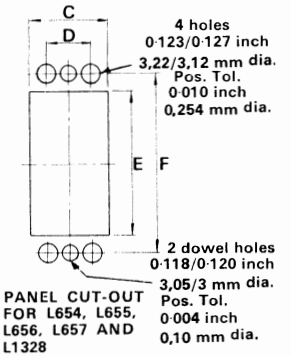
L1328/P

	4-Pole 2 lge	2 small	8-Pole 2 lge	6 small	12-Pole 2 lge	10 small	18-Pole 2 lge	16 small	25-Pole 2 or 4 large	
	in	mm	in	mm	in	mm	in	mm	in	mm
A	0·406	10·3	0·578	14·7	0·843	21·4	0·843	21·4	1·187	30·2
B	1·437	36·5	1·484	37·7	1·50	38·1	2·000	50·8	1·750	44·5
C	0·365	9·3	0·537	13·6	0·740	18·8	0·740	18·8	1·077	27·4
D	—		0·312	7·9	0·500	12·7	0·500	12·7	0·875	22·2
E	1·015	25·8	1·060	26·9	1·061	27	1·515	38·5	1·265	32·1
F	1·250	31·8	1·296	32·9	1·296	32·9	1·750	44·5	1·500	38·1





PANEL CUT-OUT FOR L653 only

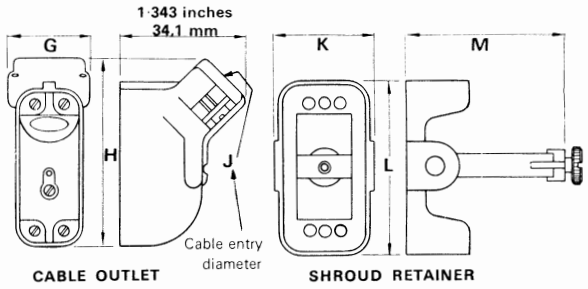


PANEL CUT-OUT FOR L654, L655, L656, L657 AND L1328

Specification	DEF–5321
Current rating	Small poles, 3 A Large poles, 10 A (temperature rise <20 °C)
Breakdown (d.c.)	At sea level 3 kV, at 20,000 m, 66,000 ft, 750 V
Voltage proof	2 kV
Creepage distance	3·1 mm, 0·12 in between poles, 4·2 mm, 0·17 in between any pole and chassis
Contact resistance (max.)	2 m Ω (small poles) 1·2 m Ω (large poles)
Insulation resistance	>100 M Ω
Capacitance	4 pF (between poles) at 800 Hz
Humidity	Class H5 (DEF–5011)
Temperature range	−40 °C to +100 °C
Insertion/withdrawal force	4·4 N 1 lbf per contact
Wire sizes (max.)	Small poles 0·04 in, 1 mm, 19 s.w.g. Large poles 0·067 in, 1·7 mm, 16 s.w.g.
Materials	Black nylon-filled phenolic resin mouldings, silver (Ag) or gold-plated (Au) solid brass pins and beryllium-copper sockets.

Unitors, Pattern 102 Cable outlets and shroud retainers

L653/C3	Cable outlet	For use with 4-pole unitor
L653/R3	Shroud retainer	
L654/C3	Cable outlet	For use with 8-pole unitor
L654/R3	Shroud retainer	
L655/C3	Cable outlet	For use with 12-pole unitor
L655/R3	Shroud retainer	
L656/C3	Cable outlet	For use with 18-pole unitor
L656/R3	Shroud retainer	
L657/C3	Cable outlet	For use with 25-pole unitor
L657/R3	Shroud retainer	



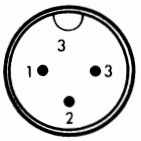
	4-Pole		8-Pole		12-Pole		18-Pole		25-Pole	
	in	mm	in	mm	in	mm	in	mm	in	mm
G	0·813	20·6	0·906	23	0·969	24·6	0·969	24·6	1·313	33·3
H	1·906	48·4	1·906	48·4	1·906	48·4	2·313	58·7	2·047	52
J	0·313	7·9	0·438	11·1	0·484	12·3	0·578	14·7	0·676	17·2
K	0·875	22·2	1·031	26·2	1·281	32·5	1·281	32·5	1·641	41·7
L	1·750	44·5	1·812	46	1·812	46	2·281	57·9	2·063	52·4
M	1·719	43·7	1·719	43·7	1·812	46	1·812	46	1·812	46

LF connectors

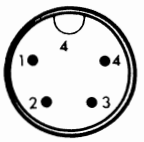
L1904 LATCHING AUDIO CONNECTOR

These shielded connectors are available in a 3, 4 or 5 pole configuration. They feature a unique locking device allowing push-pull coupling and cannot be disengaged by a direct pull on the cable. The cable is clamped by a one piece moulded nylon cable grip.

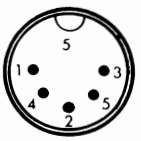
CONTACT IDENTIFICATION
Viewed on SOCKET wiring side



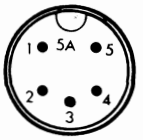
3 Pole*



4 Pole



5 Pole (45° Pole Spacing) *



5 Pole (60° Pole Spacing)

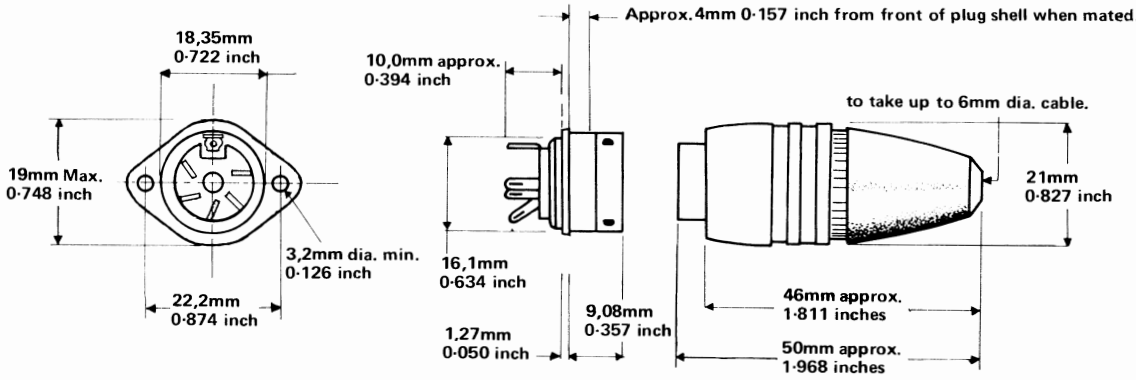
*** Mating face details in accordance with DIN41524**

CURRENT RATING:	2A (Temp. rise 5°C)
CONTACT RESISTANCE: AND SCREEN CONTINUITY:	⩽10 milliohms
INSULATION RESISTANCE:	⩾10^3 megohms.
TEMPERATURE RANGE:	−25 °C to +70 °C (Suitable for Steam Sterilisation).
BREAKDOWN VOLTAGE:	>1·5 kv 50Hz
INSERTION FORCE:	⩽8N (30 ozf) per way
WITHDRAWAL FORCE:	⩽6N (22 ozf) per way
CABLE RETENTION:	⩾30N (110 ozf) for 100 secs.
MATERIALS:	Plug and socket Body — Mazak Nickel-Plated.
	Clamping Nut — Polypropylene
	Plug Insulators — Polypropylene
	Receptacle Insulator — Nylon 66
	Contact Material — Brass, Silver-plated.
	Contact Terminations Free Plug-Crimp or Solder Bucket
	Fixed Receptacle: Solderlug
WEIGHTS (average):	Plugs 20g (0·71 oz)
	Sockets 10g (0·36 oz).

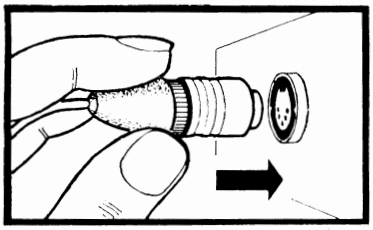
ORDERING INFORMATION

L1904/3/FP	**3 pole plug**
L1904/3/CS	**3 pole receptacle**
L1904/4/FP	**4 pole plug**
L1904/4/CS	**4 pole receptacle**
L1904/5/FP	**5 pole plug (45° pole spacing)**
L1904/5/CS	**5 pole receptacle (45° pole spacing)**
L1904/5A/FP	**5 pole plug (60° pole spacing)**
L1904/5A/CS	**5 pole receptacle (60° pole spacing)**

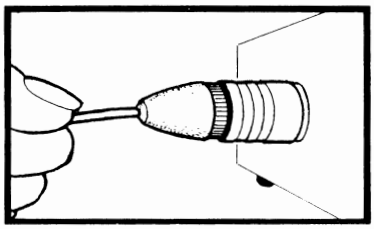
Latching audio



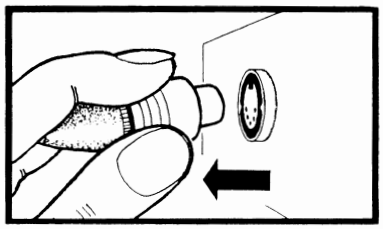
Push–pull locking



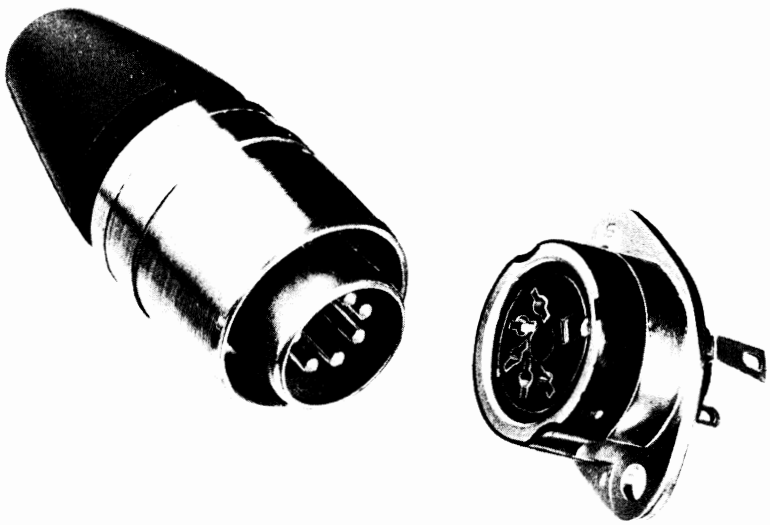
Push to mate and lock



Will not accidentally disengage



Pull to disconnect



Printed circuit edge connectors

Domed beryllium-copper contacts of unique design, carefully heat treated, ensure gentle and consistent connection with minimum wear and low resistance. The contact positions are numbered on the top and underside of the mouldings.

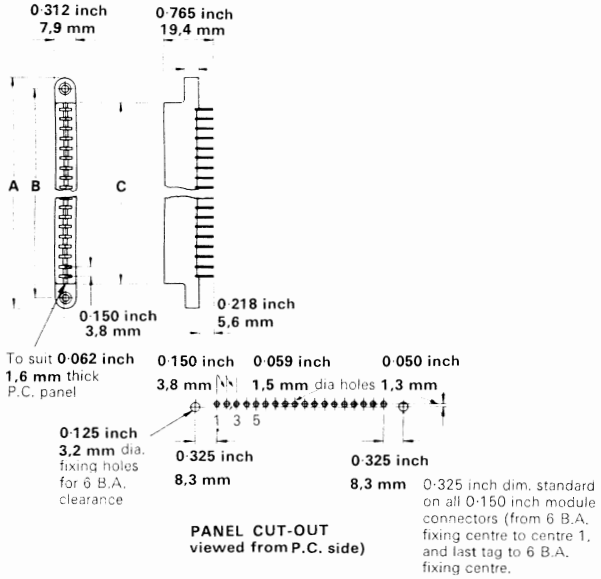
Current rating 3 A per contact (printed wiring)
4 A per contact (free wiring)
Temperature rise <10 °C

Breakdown voltage (d.c.)

	At sea level	At 20,000 m
		68,000 ft
Between contacts 0·1 in module	>2 kV	400V
Between contact 0·15 in module	>3 kV	>500V
Contact/earth 0·15 in module	4 kV	>500V

Insulation resistance $\geqslant 10 \times 10^3$ MΩ after climatic exposure
Contact resistance Au. 5 mΩ
Ag 7 mΩ maximum
Capacitance 0·1 pF between contacts
Temperature range −40 °C to +100 °C
Humidity A 4 (B.S.2011)
Contact pressure (each) 3·3 N 12 ozf Ag
2·7 N 10 ozf Au
Insertion/withdrawal force 1·33–1 N 4·8–3·6 ozf per contact
Board thickness 0·057–0·068 in , 1·73–1·45 mm
Panel thickness 0·125 in, 3 mm maximum
Contact width 0·048 in, 1·2 mm maximum
Printed contact width 0·070 in, 1·8 mm
Contacts Beryllium-copper, silver (Ag) or gold-plated (Au).
Maximum conductor size (free wiring) 0·020 in diameter, 25 s.w.g., 0·5 mm diameter

0·15 in Module connectors



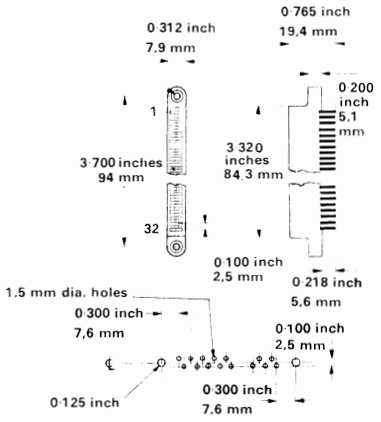
PANEL CUT-OUT
viewed from P.C. side)

0·325 inch dim. standard on all 0·150 inch module connectors (from 6 B.A. fixing centre to centre 1, and last tag to 6 B.A. fixing centre.

L1369/Ag or Au 8-Way connector
L1370/Ag or Au 12-Way connector
L1372/Ag or Au 18-Way connector
L1740/Ag or Au 24-Way connector
L1741/Ag or Au 34-Way connector

	A		B		C	
	in	mm	in	mm	in	mm
L1369	2·012	51·1	1·700	43·2	1·265	32·1
L1370	2·612	66·3	2·300	58·4	1·915	48·6
L1372	3·512	89·2	3·200	81·3	2·760	70·1
L1740	4·412	112	4·100	128	3·670	93·2
L1741	5·912	150	5·600	142	5·170	131

0·1 in Module connectors



L1486

PANEL CUT-OUTS
viewed from P.C. side

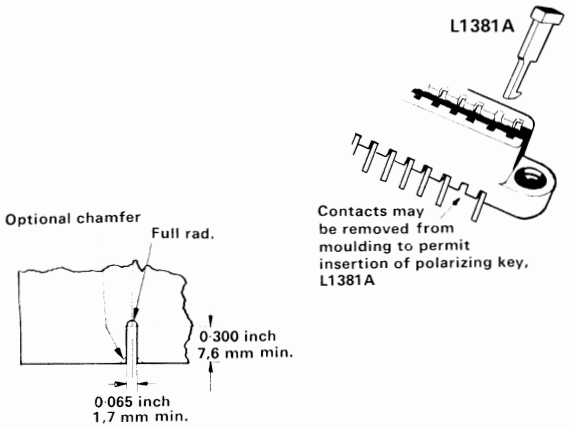
L1486/Ag or Au 32-Way connector

Printed circuit edge connectors

Accessories

L1381A Polarizing key

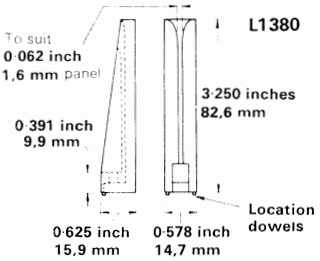
Positioning of P.C. board in relation to individual contacts is controlled by the polarizing key and not by the supports.

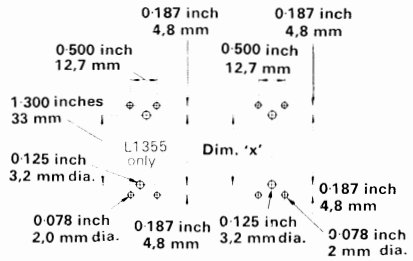


Dimensions of slot in P.C. board to give polarizing key clearance.

L1380 Support

Moulded supports may either be mounted on the same fixing centres as the connector, or stood off to accommodate wider boards.

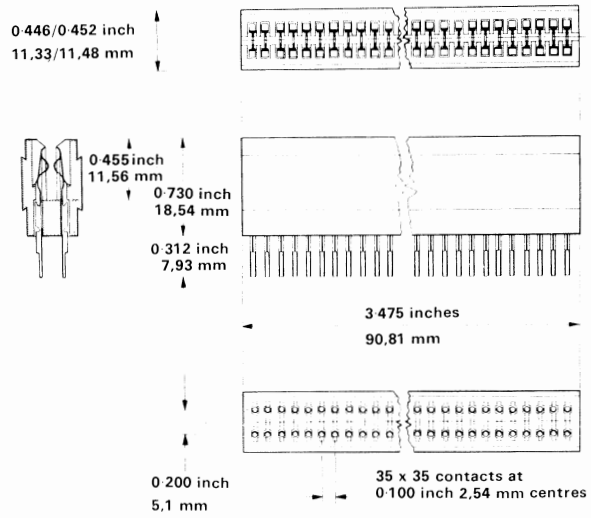




Panel cut-outs viewed from P.C. side.
Dimension 'x' to be fixing centre of any P.C. connector except L1355.
Location dowel holes to be within 0·002 in, 0·05 mm, diameter of true position.

L1770 Series – Double-sided printed circuit edge connectors

This versatile range of printed circuit edge connectors is based on a standard moulded body which accommodates up to 35 contacts a side when spaced on a 0·1 in module. The contacts may be removed individually; any pair of facing contacts may be removed either to make way for a polarizing-and-locating key or to permit the body to be sub-divided into smaller units if required. Body sections may be joined end-to-end by means of a special fixing lug, L1806/D, to increase the number of contacts, while closed and open-ended fixing lugs are available to terminate any assembly.



Current rating	1 A per contact
Contact resistance	$<$·15 mΩ
Insulation resistance	$\geqslant 5 \times 10^3$ MΩ
Breakdown voltage (d.c.)	$>$1·5 kV
Terminations	For solder connections
Board thickness	0·053–0·071 in
	Body: moulded polycarbonate
	Contacts: beryllium-copper silver or gold-plated
Typical Belling-Lee reference numbers	L1770/A1/35+35 (a)
	L1770/B2/18+18 (b)

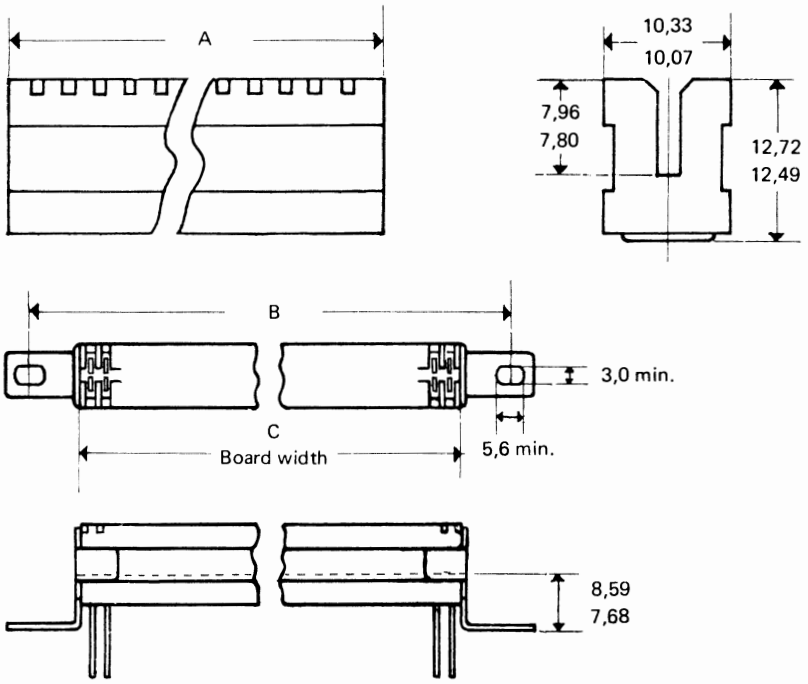
Suffix A1 denotes that the contacts are silver-plated (1) and spaced on a 0·1 inch module (A). Suffix B2 denotes that the contacts are gold-plated (2) and spaced on a 0·2 inch module (B). Thus example (a) is a connector with 35 contacts each side, silver-plated and spaced on a 0·1 inch module, while example (b) is a connector with 18 contacts each side, gold-plated and spaced on a 0·2 inch module.

Accessories

L1772	Polarizing and locating key
L1773	Extractor for above and contacts
L1806/C	Lug, fixing, closed-ended
L1806/D	Lug, fixing, double ended (junction block)
L1806/O	Lug, fixing, open-ended

Series 2100–2·54 mm (0·1″) pitch modular edge connector

DIMENSIONS



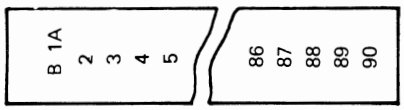
	Number of Contacts	mm	Number of Contacts	mm	Tolerance	
A	8	21,3	90	229,6	± 0,13	Moulding Length All cavities filled Closed or open End Feet
B	8	35,5	90	243,9	± 2,54	Fixing Hole Centres
C	8	21,0	90	229,3	± 0,1	Recommended Board Width Closed End Feet

NOTE: (1) Dimensions increase uniformly by 2,54 mm (0·100″) for each additional pair of contacts.

(2) Camac dimensions are in accordance with relevant specifications.

TERMINAL IDENTIFICATION

Viewed on underside



For single-sided arrangements contacts are fitted to "A" side unless otherwise specified.

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Series 2100–2·54 mm (0·1″) pitch modular edge connector (cont.)

ELECTRICAL SPECIFICATION

Current rating	5 amps. d.c. per contact at 25° C 1 amp d.c. per contact at 100° C
Proof voltage	Sea level, 1 600 v.d.c.
Contact resistance	10 milliohms max.

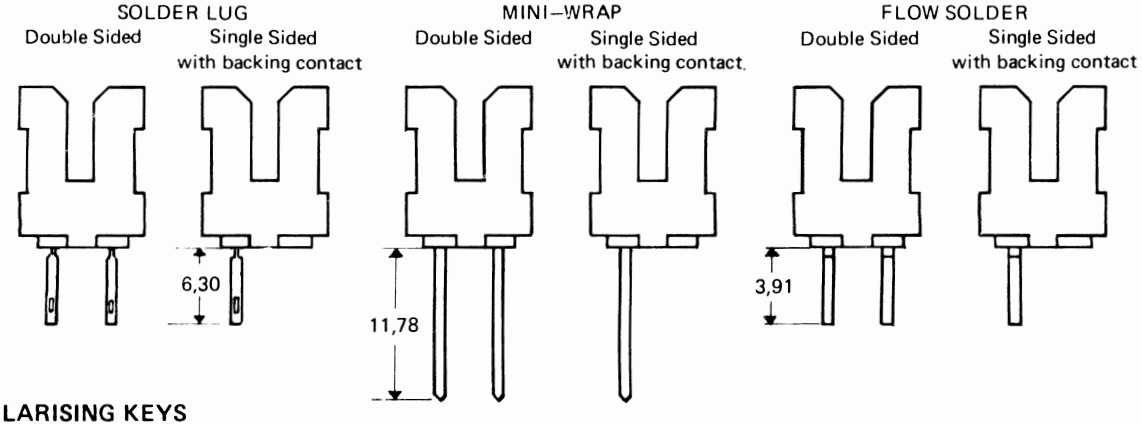
MECHANICAL SPECIFICATION

Terminations	Solder lug, flow solder, mini-wrap
Number of contacts	8 to 90 single sided 16 to 180 double sided
Temperature range	– 55° C to + 110° C
Board insertion force	150 gm.f (5½ oz) max, one pair of contacts.

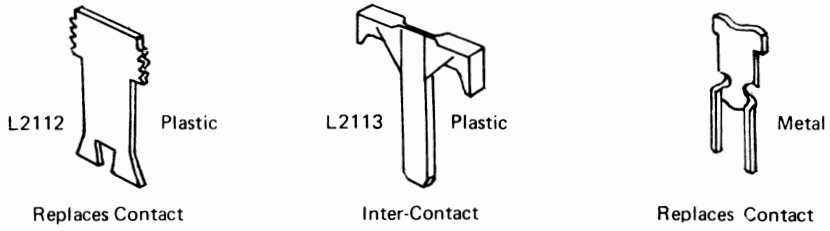
MATERIAL SPECIFICATION

Moulding	Glass fibre D.A.P.
Contacts	Phosphor bronze
Plating	0,50 um gold over-plated on 5,0 um local gold plating. 0,45 um gold over 2,5 um nickel Backing contacts 2,5 um nickel

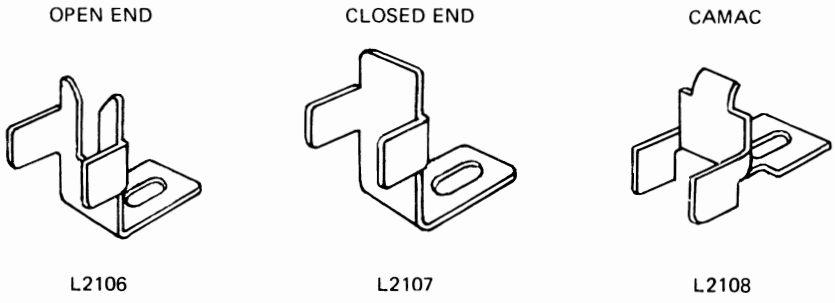
TERMINATION STYLE



POLARISING KEYS



END FEET



Series 2100–2·54 mm (0·1″) pitch modular edge connector (cont.)

HOW TO ORDER

(1) CONNECTOR PART No.	(2) TERMINATION ARRANGEMENT	/	(3) NUMBER OF CONTACT POSITIONS	/	(4) CONTACT FINISH

(1)

CONNECTOR PART NUMBER

	Part Number
Standard Connector	L2100
Camac Connector	L2102

(2)

TERMINATION ARRANGEMENT

Arrangement	Suffix
Flow Solder, single sided with backing contacts.	B
Flow Solder, double sided.	C
Mini Wrap, single sided with backing contacts.	E
Mini-wrap, double sided.	F
Solder Lug, single sided with backing contacts	H
Solder Lug, double sided.	J

(3)

NUMBER OF CONTACT POSITIONS

Number of positions		Suffix
from	8 (minimum)	08
to	90 (maximum)	90

(4)

CONTACT FINISH

Finish	Suffix
5,0 um local gold plating on contact area remainder as F.	G
0,45 um gold over 2,5 um nickel	F

Other finishes available on request

Note – Backing contacts nickel plated.

ACCESSORIES (Packs of 20)

COMPONENTS	PART NUMBER	NOTES
Plastic Polarising key (replaces contact)	L2112	* Contacts may be removed from moulding to allow insertion of key
Plastic Polarising Key (Inter-contact)	L2113	
Metal Polarising Key (replaces contact)	Not available as separate item	Fitted by Belling-Lee. Specify cavity positions.
End Foot (open end)	L2106	
End Foot (closed end)	L2107	
End Foot (Camac)	L2108	

EXAMPLES

(1) Standard connector, 48 mini-wrap terminations, single sided with backing contacts. Plating 0,45 um gold over 2,5 um nickel. Metal polarizing keys fitted in positions 3 and 45. Closed ended fixing.

L2100 E/48/F Metal keys positions 03, 45 plus 2 off L2107 per connector.

(2) Standard connector 96 mini-wrap terminations (2 rows of 48 -double sided) plating 0,45 um gold over 2,5 um nickel, closed and feet.

L2100F/48/F plus 2 off L2107 per connector

* **NOTE:** Instructions for removing contacts.

Straighten contact retaining lugs on bottom of moulding, so that they lie in line with the contact. Push contact from moulding and discard.

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