



Ten 47

Tourline

Professional Audio Connectors



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Definitive solutions for your interconnection requirements

Ten 47 was formed in 2001 to fill a niche in the interconnect market. It is our philosophy to offer high quality innovative products at cost effective prices. To enable us to do this we have formed partnerships with customers and suppliers around the world.

Many of our products have been derived from solving customer problems. In serving a few chosen markets we are able to understand and anticipate our customers needs and work with our partners to provide new solutions. Step by step we are expanding and developing our product and service offering to provide more and more value to our customers.

In 2004, Ten 47 was awarded most Entrepreneurial Company both for Fife (our local region) and Scotland recognising our commitment to innovation and service. This commitment is ongoing today and into the future.

Ten 47 products have been used in many prestigious projects including the Football World Cup, British Golf Open, the construction of Heathrow's Terminal 5, trains on the UK's East Coast Main Line, USA Presidential Debate and the Asian Games.

With our well proven track record we hope can be of assistance to you.



Tourline & PLK series connectors for Professional Audio Applications

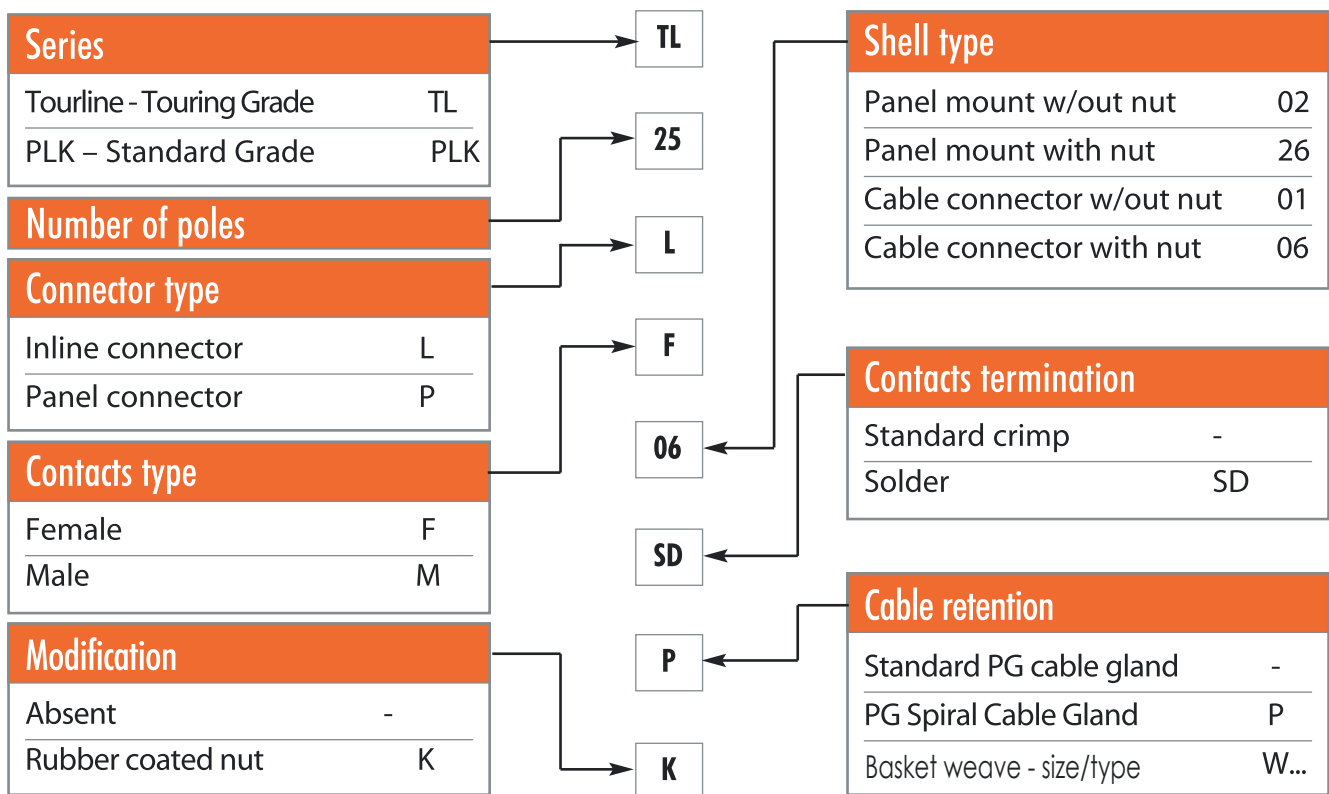
These connectors have been designed and are manufactured to ensure continual and reliable operation in the harsh environment of the professional sound applications.

They are directly derived from a reliable and rugged military standard (Mil C 5015 & VG 95234). Both Tourline and PLK series are fully intermateable with the widely used LK and CIRLK standard.

The key features are:

- Fast coupling and uncoupling
- Audible, visual and tactile indication of locking
- Guaranteed locking of the coupling nut under vibration or shock conditions
- Bayonet ramp protrusion protected by stainless steel ring
- IP 67 grade waterproof (when mated) for outdoor applications
- Insert manufactured in a high insulating chloroprene rubber: allowing easy contact insertion and removal, during assembly or repair.
- Gold Plated Crimp or Silver Plated Solder contacts (wide range of terminations for many wire sections).

Part Number explanation



Electrical data

Contact Size	Maximum Current	Rated Current	Max.Voltage Drop
	A	A	mV
20	7.5	7.5	83
18	11	10	79
16	22	13	74

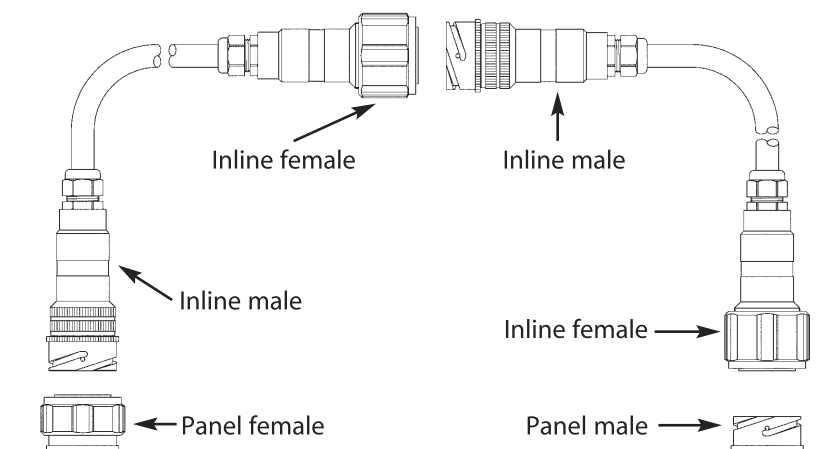
Number of poles	Rated Voltage	Rated Voltage	Dielectric Strength	Min Flashover
	Vac	Vdc	Vac	Vac
25/37/54/85	700	500	2.000	2.800
55/72/150/201	250	200	1.400	1.000

PLK series (Standard Audio Bayonet connector)

Two shell versions for panel connectors (male and female) plus two for inline cable connectors (male and female) allow complete cable hook up systems and extensions leads through a daisy chain configuration.

A wide range of available insert arrangements allows connections from 13 poles (4 channels) to 150 poles (48 channels).

- Aluminium alloy shells high resistance black finish.
- Gold plated machined contacts for quality signal path and long term reliability.
- Ergonomic arctic grip or rubber covered coupling nuts for ease of coupling even with gloved hands.
- SKINTOP gland cable retention system (spiral anti flex version available), ensure water tight sealing and good strain relief at the cable entry.



Tourline Series (Enhanced Touring Grade Professional Audio Connector)

Circular Multipin Audio connectors are commonly subjected to various forms of abuse. Even after being dropped from heights, driven over by vehicles, subjected to rough handling on a regular basis, these connectors are expected to provide continuous reliable performance.

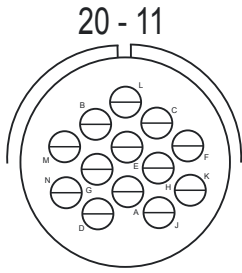
The Tourline series connector is the “definitive” solution for Touring (PA) or Outdoor broadcast (OB) environments.

In addition to standard rugged features of the PLK series, Tourline versions have been enhanced to offer even greater long term reliability, in the most arduous of applications. It includes all the arrangements of PLK series plus a 67 channel 201 pin configuration

- Thicker wall sections coupling nuts and shells, give increased impact resistance.
- Rolling pins in the coupling nut allow for easier mating and increased mating cycles.
- Longer black shells, allow more internal space for easier cable assembly, especially where large Multicores are being terminated.
- Back shells have a new protective cap fixing system. No back shell drilling or additional accessories are required in order to fix the cap chain to the connector body. A special chain fixing kit is supplied as standard.
- Connectors can be supplied labelled with custom marking e.g. Customers name or company logo

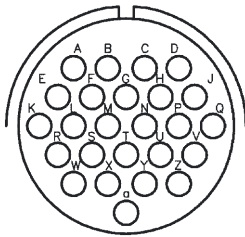


Insert layout and wiring list (front view of male insert)



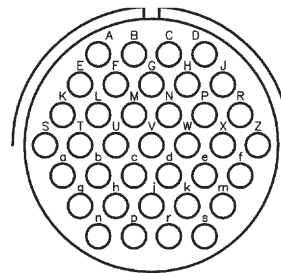
4ch - LK 13			
Ch.	+	-	G
1	B	C	E
2	F	K	H
3	J	D	A
4	N	M	G
General ground		L	

24A-25



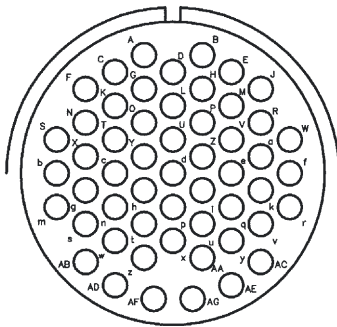
25 Pin/ 8 Channel			
Ch.	+	-	G
1	A	E	F
2	G	C	B
3	D	H	J
4	M	L	K
5	Q	P	N
6	W	S	R
7	T	X	Y
8	Z	V	U

28-21



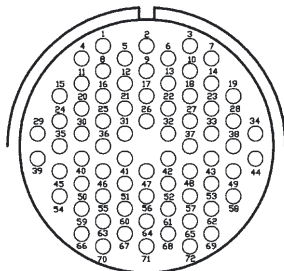
37 Pin / 12 Channel			
Ch.	+	-	G
1	E	F	A
2	B	C	G
3	H	J	D
4	S	T	K
5	L	M	U
6	V	W	N
7	P	R	X
8	a	b	g
9	c	d	j
10	e	f	m
11	n	p	h
12	r	s	k

32-22



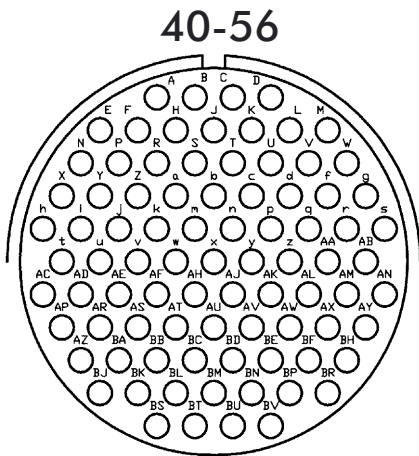
54 Pin / 16 Channel							
Ch.	+	-	G	Ch.	+	-	G
1	W	f	r	9	d	p	x
2	J	R	a	10	A	G	O
3	k	v	AC	11	Y	h	t
4	E	M	V	12	C	K	T
5	e	q	y	13	c	n	w
6	B	H	P	14	F	N	X
7	Z	i	u	15	g	s	AB
8	D	L	U	16	S	b	m

28-72

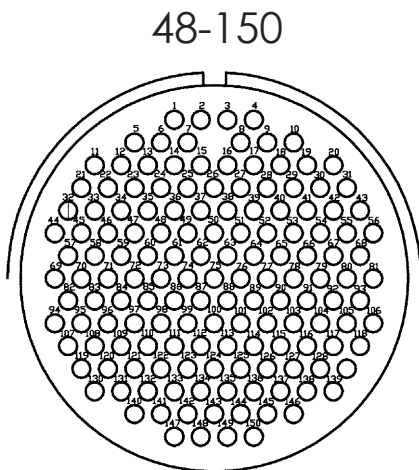


72 Pin / 24 Channel											
Ch.	+	-	G	Ch.	+	-	G	Ch.	+	-	G
1	2	3	1	9	36	32	31	17	56	52	51
2	8	5	4	10	23	28	27	18	53	49	48
3	9	13	12	11	35	39	29	19	59	55	54
4	10	7	6	12	36	40	30	20	64	61	60
5	11	16	15	13	37	43	33	21	62	58	57
6	17	22	21	14	38	44	34	22	63	67	66
7	14	19	18	15	47	42	41	23	65	69	68
8	20	25	24	16	50	46	45	24	71	72	70

Insert layout and wiring list (front view of male insert)

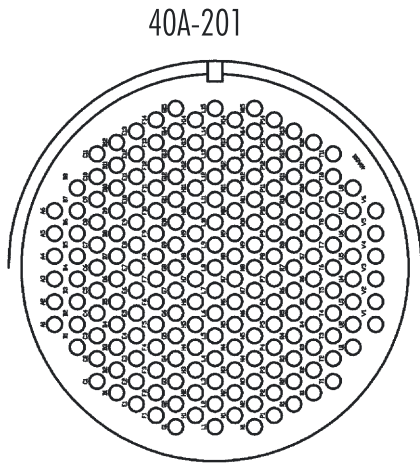


85 Pin / 28 Channel											
Ch.	+	-	G	Ch.	+	-	G	Ch.	+	-	G
1	A	B	C	10	k	m	n	19	AT	AU	AV
2	E	F	H	11	p	q	r	20	AW	AX	AY
3	J	K	L	12	t	u	v	21	AZ	BA	BB
4	N	P	R	13	w	x	y	22	BC	BD	BE
5	S	T	U	14	z	AA	AB	23	BJ	BK	BL
6	X	Y	Z	15	AC	AD	AE	24	BM	BN	BP
7	a	b	c	16	AF	AH	AJ	25	BS	BT	BU
8	d	f	g	17	AK	AL	AM	26	BV	BR	BF
9	h	i	j	18	AP	AR	AS	27	BH	AN	s
								28	W	M	D



150 Pin / 48 Channel											
Ch.	+	-	G	Ch.	+	-	G	Ch.	+	-	G
1	1	2	3	17	50	51	52	33	100	101	102
2	5	6	7	18	53	54	55	34	103	104	105
3	8	9	10	19	57	58	59	35	56	81	106
4	11	12	13	20	60	61	62	36	107	108	109
5	14	15	16	21	63	64	65	37	110	111	112
6	17	18	19	22	66	67	68	38	113	114	115
7	21	22	23	23	69	70	71	39	116	117	118
8	24	25	26	24	72	73	74	40	119	120	121
9	27	28	29	25	75	76	77	41	122	123	124
10	20	30	31	26	78	79	80	42	125	126	127
11	32	33	34	27	82	83	84	43	139	128	129
12	35	36	37	28	85	86	87	44	130	131	132
13	38	39	40	29	88	89	90	45	133	134	135
14	41	42	43	30	91	92	93	46	136	137	138
15	44	45	46	31	94	95	96	47	140	141	142
16	47	48	49	32	97	98	99	48	143	144	145

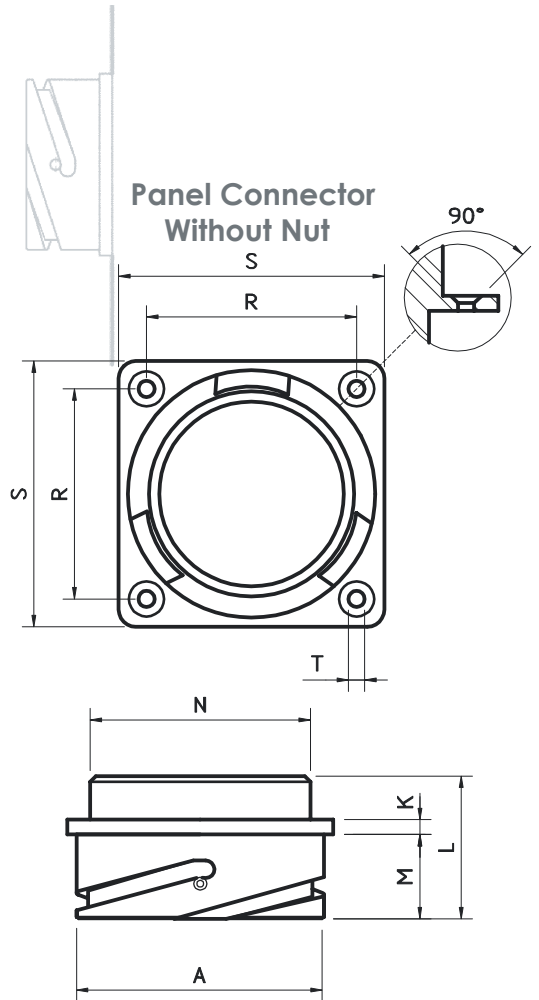
Insert layout and wiring list (front view of male insert)



201 Pin / 67 Channel												
Ch.	+	-	G	Ch.	+	-	G	Ch.	+	-	G	
1	A1	A2	A3	23	G4	G5	G6	45	N10	N11	N12	
2	A4	A5	A6	24	G7	G8	G9	46	N13	N14	P14	
3	B1	B2	B3	25	G10	G11	G12	47	P1	P2	P3	
4	B4	B5	B6	26	G13	G14	F14	48	P4	P5	P6	
5	B7	B8	C10	27	H1	H2	H3	49	P7	P8	P9	
6	C1	C2	C3	28	H4	H5	H6	50	P10	P11	P12	
7	C4	C5	C6	29	H7	H8	H9	51	P13	R13	S12	
8	C7	C8	C9	30	H10	H11	H12	52	R1	R2	R3	
9	D1	D2	D3	31	H13	H14	G15	53	R4	R5	R6	
10	D4	D5	D6	32	L1	L2	L3	54	R7	R8	R9	
11	D7	D8	D9	33	L4	L5	L6	55	R10	R11	R12	
12	D10	D11	C11	34	L7	L8	L9	56	S1	S2	S3	
13	E1	E2	E3	35	L10	L11	L12	57	S4	S5	S6	
14	E4	E5	E6	36	L13	L14	L15	58	S7	S8	S9	
15	E7	E8	E9	37	M1	M2	M3	59	S11	S12	T11	
16	E10	E11	E12	38	M4	M5	M6	60	T1	T2	T3	
17	F1	F2	F3	39	M7	M8	M9	61	T4	T5	T6	
18	F4	F5	F6	40	M10	M11	M12	62	T7	T8	T9	
19	F7	F8	F9	41	M13	M14	N15	63	U1	U2	U3	
20	F10	F11	F12	42	N1	N2	N3	64	U4	U5	U6	
21	F13	E13	D12	43	N4	N5	N6	65	U7	U8	T10	
22	G1	G2	G3	44	N7	N8	N9	66	V1	V2	V3	
								67	V4	V5	V6	

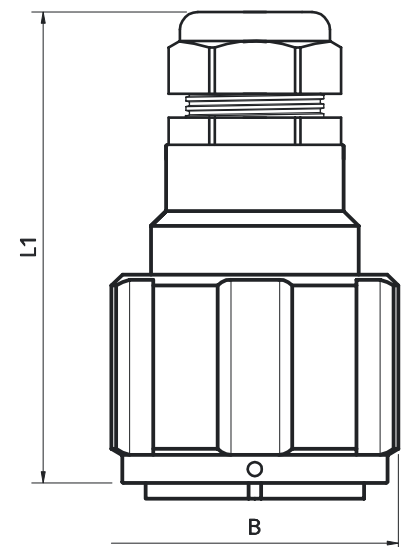
Overall dimensions

Pin Nr.	ØA +0 -0.15	K ±0.2	L ±0.3	M +0.4 -0	ØN Max	R ±0.1	S ±0.3	T H13
25	40.9	4	35.7	20.6	35.3	34.9	44.5	3.7
37	46.7	4	35.7	20.6	41.4	39.7	50.8	3.7
54	53.4	4	37.3	22.2	47.8	44.5	57	4.3
55	40.9	4	35.7	20.6	35.3	34.9	44.5	3.7
72	46.7	4	35.7	20.6	41.4	39.7	50.8	3.7
85	65.5	4	37.3	22.2	59	55.6	69.8	4.3
150	65.5	4	37.3	22.2	59	55.6	69.8	4.3
201	65.5	4	37.3	22.2	59	55.6	69.8	4.3



Pin Nr.	ØB Max PLK	ØB Max TL	L1 Max PLK	L1 Max TL	PG	Cable dia. Min.-Max.
25	50	53	110	160	16	9-14
37	57	61	124	164	21	13-18
54	64	67.5	126	166	21	13-18
55	50	53	110	160	21	13-18
72	57	61	124	164	21	13-18
85	76	79.5	139	174	29	14-25
150	76	79.5	147	182	36	24-32
201	76	79.5	147	182	36	24-32

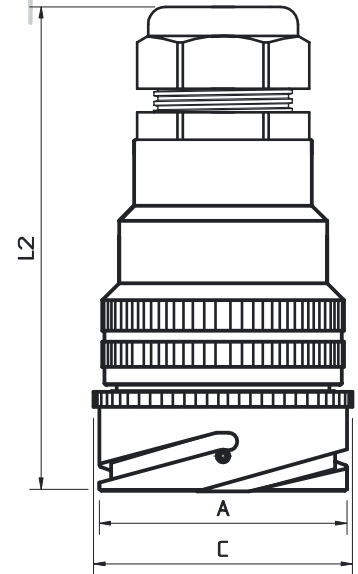
Inline Connector With Nut



Overall dimensions

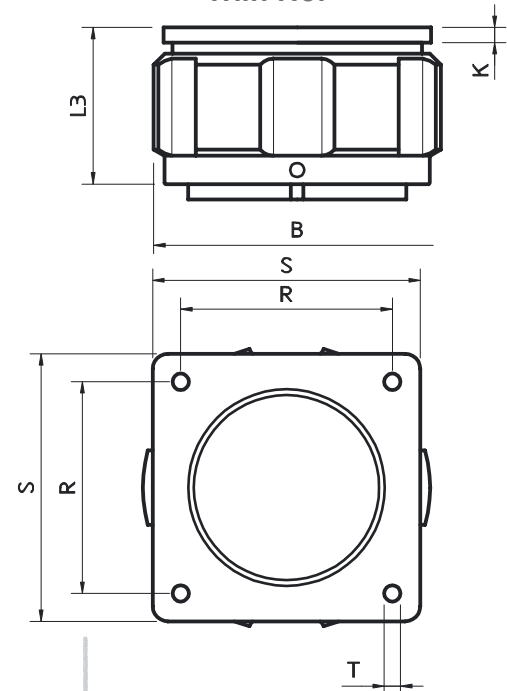
Pin Nr	ØA Max +0 -0.15	ØC Max Max	L2 Max PLK	L2 Max TL	PG	Cable dia. Min.- Max.
25	40.9	44	110	160	16	9-14
37	46.7	50	125	165	21	13-18
54	53.4	56	126	166	21	13-18
55	40.9	44	110	160	21	13-18
72	46.7	50	125	165	21	13-18
85	65.5	69	138	173	29	14-25
150	65.5	69	146	181	36	24-32
201	65.5	69	146	181	36	24-32

Inline Connector Without Nut



Panel Connector With Nut

Pin Nr	ØB Max PLK	ØB Max TL	L3 Max	K ±0.2	R ±0.1	S ±0.3	T H13
25	50	53	41	4	34.9	44.5	3.7
37	57	61	41	4	39.7	50.8	3.7
54	64	67.5	44.5	4	44.5	57	4.3
55	50	53	41	4	34.9	44.5	3.7
72	57	61	41	4	39.7	50.8	3.7
85	76	79.5	45.5	4	55.6	69.8	4.3
150	76	79.5	45.5	4	55.6	69.8	4.3
201	76	79.5	45.5	4	55.6	69.8	4.3



Cable retention system

The standard strain relief supplied with the Tourline series and PLK is the PG SKINTOP. These glands provide positive strain relief and water tight sealing. Gland Technical Characteristics.

- Approval: UL E146370 - CSA LR 50370 - VDE 57086 - SEV 100989
- Material: Polyamide-flame retardant, self-extinguishing nylon, with neoprene bushing
- Rated Temperature: -20 oC to + 80 oC - Short Term to + 100 oC
- Sealing: IP68

For the cable clamping range of the glands please refer to the overall dimensions section of the catalogue.



SKINTOP spiral versions are also available (PG 16 and 21 only). The spiral gland eliminates damage to cable cores through flexing of cable at the connector - cable interface, and therefore is commonly used with audio cable, where the small gauge of the signal wires can be easily damaged.

Deluxe Cord Grips sometimes referred to as “Basket Weave” grips are also available. These cable grips consist of a woven steel wire mesh and watertight gland nut assembly. The key benefits of this system are:

- The design of the weave is such that it is virtually impossible for a cable to be pulled out of the sock through lateral force. The more the cable is pulled the tighter the grip will become.
- The anti bend characteristics of the weave sock, eliminate damage to cable through flexing.

This design of grip is mainly used large channel count systems, where the added protection of the valuable Multicore is a warranted feature. However versions are available for virtually any cable or connector configuration.



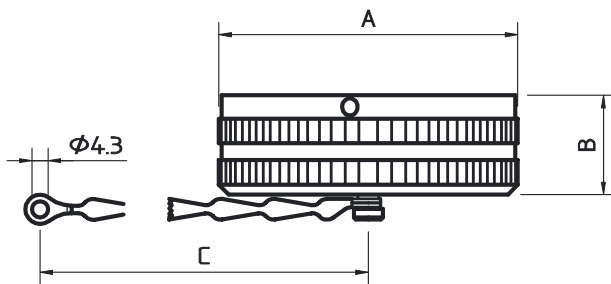
Protection caps

The caps are waterproof IP67 grade when mated with the connectors
A sleeve protects the chain and prevents damages to the connector's external surface.

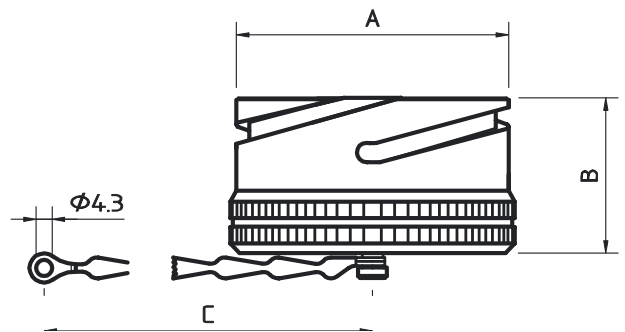
Caps TC 01-02 for connectors without coupling nut

Caps TC 06-26 for connectors with coupling nut

P / N	ØA Max.	B Max.	C Min.	Pin Nr.
TC 01-02-25	48	23	200	25/55
TC 01-02-37	54	23	200	37/72
TC 01-02-54	61	23	200	54
TC 01-02-85	73	23	200	85/150/201



P / N	ØA Max.	B Max.	C Min.	Pin Nr.
TC 06-26-25	44	36	200	25/55
TC 06-26-37	50	36	200	37/72
TC 06-26-54	56	36	200	54
TC 06-26-85	68	36	200	85/150
TC 06-26-201	68	36	200	201



Contacts

Crimp termination contacts are supplied loose.
Solder contacts are supplied pre fitted in the insert.

P/N	Contact type	Wire section mm ²	Wire section AWG	Pin number
GMC-16P-13	male	0.15 ÷ 0.6	26 ÷ 20	25/37/54/85
GFC-16S-13	female	0.15 ÷ 0.6	18 ÷ 16	25/37/54/85
GMC-16P	male	1 ÷ 1.5	18 ÷ 16	25/37/54/85
GFC-16S	female	1 ÷ 1.5	18 ÷ 16	25/37/54/85
GMC-18P	male	0.15 ÷ 0.6	26 ÷ 20	150
GFC-18S	female	0.15 ÷ 0.6	26 ÷ 20	150



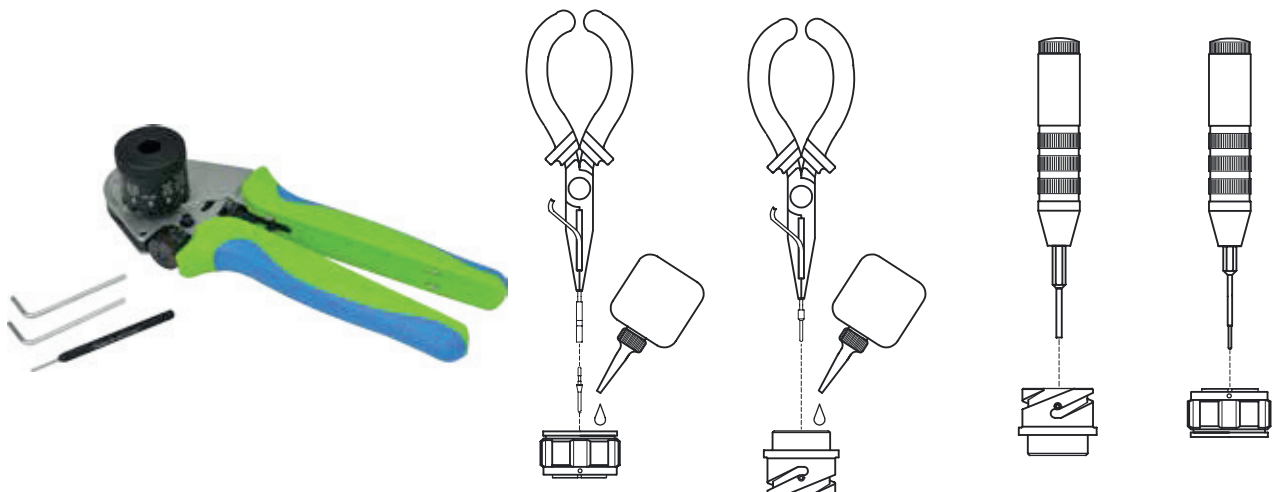
Crimp and assembly tools

Pin Nr.	Crimp tool	Locator	Inserting tool	Guide pin for female ct.	Removal tool
25	8780 0004 61	*NA	61010	61020	61014
37	8780 0004 61	*NA	61010	61020	61014
54	8780 0004 61	*NA	61010	61020	61014
55	M22520/1	61060	61036	61061	61057
72	M22520/1	61060	61036	61061	61057
85	8780 0004 61	*NA	61010	61020	61014
150	8780 0004 61	*NA	61036	61064	61058

*Crimp tool supplied with locator

Assembly instructions

1. Strip the wire
2. Assemble the locator on the crimp tool frame. Turn the locator to the required position (select the colour according to the contact type). Depress the locator until it snaps into the locked position.
3. Raise and rotate the wire gauge selection knob on the tool frame, to select the correct crimping dimension
4. Place the contact (mating end first) into the tool as shown below



5. Insert the stripped wire into the hollow end of the contact. Close the tool completely and release.
6. For ease of insertion it is beneficial to lubricate insert cavities with an isopropyl alcohol.
7. Insert the wired contact from the rear of the connector as shown below, using the insertion tool.
8. When inserting socket contacts, it is recommended that a guide pin be used. Remove the guide pin from the inserted contact and use it for the next contact.
9. Apply a slow, even pressure until the contact snaps into position.
10. Only use the recommended extraction tool to remove the contact or to adjust its position in the cavity. Use of other tools could damage the contact or insert.

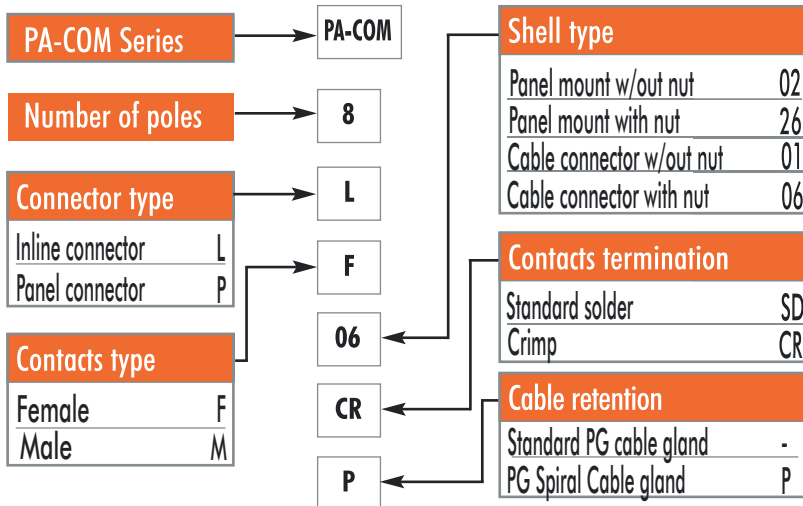
PA-COM - Speaker connectors

These connectors use the industry standard 8 pin and 19 pin configuration for speaker array connections and are fully intermateable with CA-COM connectors, commonly used by many loudspeakers manufacturers.

The design utilises the same key features of PLK Series, and are supplied as standard with the rubber covered coupling rings and with solder contacts.

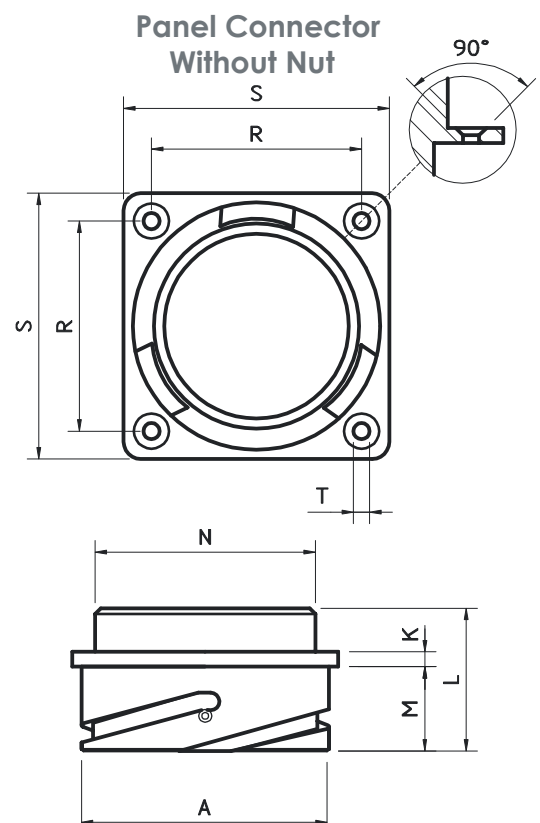
The PA-COM series, ensure long term reliability through the robust construction and addresses the shortcomings of the more traditional Industrial and Military connectors when used in touring applications.

Part Number explanation



Overall dimensions

Pin Nr.	ØA	K	L	M	ØN	R	S	T
	+0 -0.15	±0.2	±0.3	+0.4 -0	Max	±0.1	±0.3	H13
8	37.4	4	34.3	19	32.2	31.8	41	3.1
19	34.2	4	34.3	19	28.8	29.4	38.1	3.1



Tourline 25 Way Speaker Connectors

Tourline Size 32, 25 way multipin connectors for speaker applications designed to connect up to 12 channel line array systems in a single housing. Adopted by some of the world's leading speaker manufacturers, these connectors are based on our popular Tourline series and are manufactured to ensure continual and reliable operation in the harsh environment of professional sound applications. Directly derived from a reliable and rugged military standards (Mil C 5015 & VG 95234), key features include:

- Crimp or solder contacts for up to 4mm² wire
- IP67 grade waterproof (when mated) for outdoor applications
- Metal shells and coupling rings with increased wall sections to improve impact resistance
- Fast and reliable bayonet locking of the coupling nut under vibration or shock conditions
- Minimum 2000 matings
- Aluminium alloy shells with a hard wearing black finish

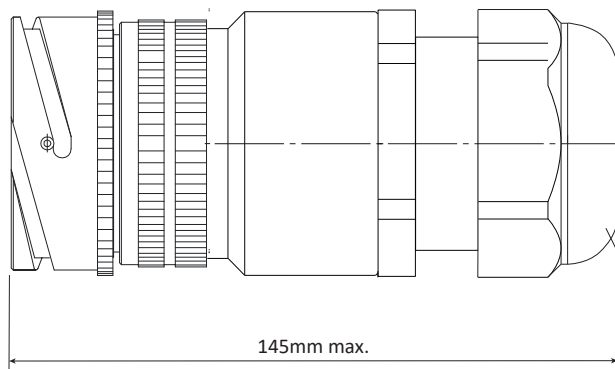
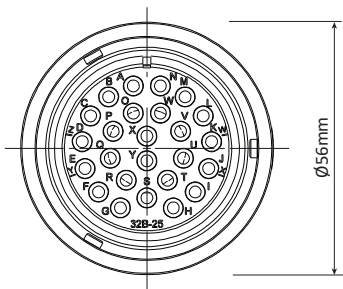
Size 32 - 25 Way Cable Mount Receptacle



Size 32 - 25 Way Cable Mount Plug

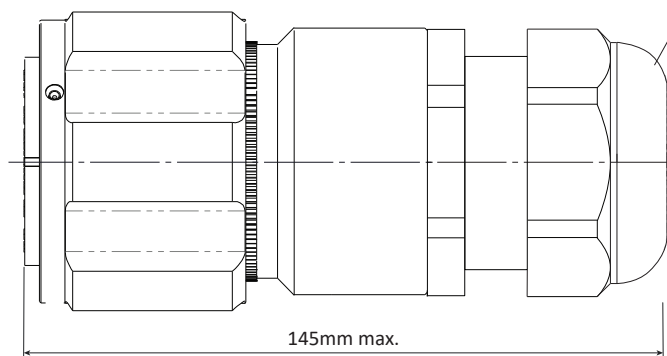
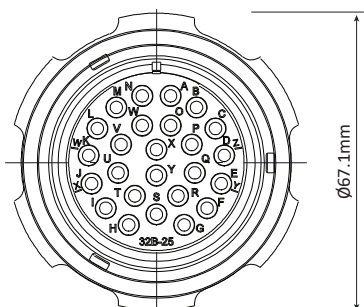


Size 32- 25 Way Cable Mount Receptacle



PG36 Cable Gland

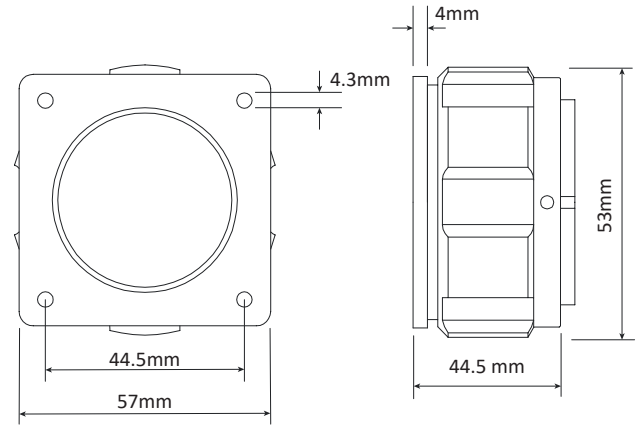
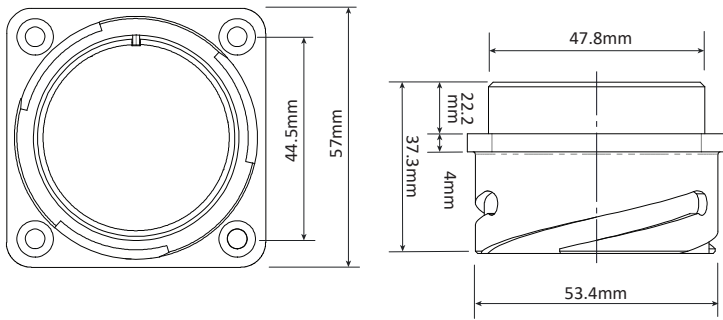
Size 32- 25 Way Cable Mount Plug



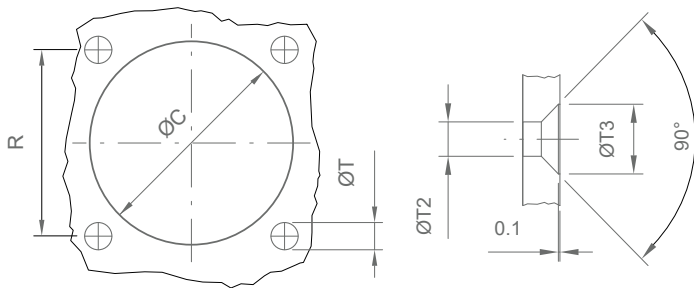
Tourline 25 Way Speaker Connectors

Size 32- 25 Way Panel Mount Receptacle

Size 32- 25 Way Panel Mount Plug



Panel Cut Out Dimensions



Shell size	R ±0.1	ØC ±0.2	ØT Through holes*	ØT1 Countersunk holes**	ØT2 Countersunk holes**
32	44.5	48.5	5.5	4.3	8

* Panel plugs only ** Panel mount receptacles only

Part Number Explanation

TL32B25 L F 06 SD PG36 Gland (for Ø24mm - Ø32mm)* supplied as standard on cable mount connectors

Tourline 32/25 Series	Connector Type	Contact Type	Shell Type	Contact Termination (Silver Plated)**
	Inline connector L	Female F	Panel mount w/out nut 02	Standard solder SD
	Panel connector P	Male M	Panel mount with nut 26	Crimp - 2.5mm ² CR
			Cable connector w/out nut 01	Crimp - 4mm ² CR-30
			Cable connector with nut 06	

* Contact sales office for alternative glands

** Contacts are also available with gold plating contact sales office for more information

Electrical Data

Contact Size	Maximum Current	Rated Current	Max. Voltage Drop	Rated Voltage	Rated Voltage	Dielectric Strength	Min Flashover
	A	A	mV	Vac	Vdc	Vac	Vac
20	41	23	42	500	700	2000	2800

Also available from TEN 47

 **RENNSTEIG**

Rennsteig - Cable and Connector tooling

<http://www.ten47.com/products/temporary-power/rennsteig-tools/>



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