CGL
Feedback and Power Input Series I Connectors

Cannon

ITT Industries
Engineered for life

CGL-2/0800

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Introduction
ITT Industries, Cannon Division is introducing a new connector system within the CGL product series, the Feedback and Power Input Series I Connectors. Feedback connectors are used for signal and Power Input connectors are used for mains power transmission.

Applications
- Industrial automation
- Motion control products
- Machine tool markets

Power Input Connectors
CGL Power Input connectors meet the following standards and specificarions:
- IEC 664
  (DIN VDE 0110) *
- IEC 48 B / 701 / CD
  (DIN / VDE 0627)
- EN 55011 / 03.91
  (DIN / VDE 0875 - 11 / 07.92)
- EN 50081 - 1 / 01.92
  (DIN / VDE 0839 part 81 - 1 / 03.93)
- EN 50082-2 / 03.95
  (DIN EN 50082-2 under preparation)

* Ground contact electrically linked to the shell.

The CGL Power Input Series I connectors conform to European legislation. They meet the „low voltage guidline" and also the EMI specifications. The voltage rating is 800 Veff.

Feedback Connectors
The CGL signal connectors with 9, 12, or 17 contacts is available as a standard, one shell size only. All contact arrangements feature three alternate keyways (codings), see page 5.

This extension of the CGL connector series meets the following standards and regulations:
- Designed acc to VDE 0110 / 0627
- UL / CSA approval
- IP - 67 protection acc to DIN 40050
- Acc to EMC standards DIN EN 50081 and DIN EN 50082
- All plastics listed acc to UL 94V-0
- Protective conductor - shell connection acc to VDE 0627

Additional features:
- Individually pre-assembled
  These connectors from Cannon can be adapted to your individual requirements, utilizing three alternate keyways (codings).

- Ease of assembly
  Considerable reduction of assembly time, due to a sophisticated tech nique, when compared to assembly of conventional connectors.

- High processing quality
  Achieved by assuring high contact safety and high mating cycles. This CGL Series is intermatable with all current systems.

Features
Complies with industrial standards
- Designed to VDE 0110 / 0627
- IP67 sealed acc to DIN 40050
- Fulfill EMC standards DIN EN 50081 and DIN EN 50082
- Plastic materials UL 94V-0 listed

Options
- Additional coding possibilities at the housing
- Additional coding possibilities of the insulator
- Protected against vibrations

Benefits

- Designed for ease of assembly
- Improvement time savings during manufacture, simple assembly of the pre-mounted unit (20% – 30% time savings)
- More reliable ground connection
- No tool required for contact insertion / extraction
- Better retention force
- Improved strain relief
- Broad sealing range
- Improved sealing performance over lifetime
- Only one insulator (Feedback) for pin and socket contacts
- Reeledted power and signal contacts available
- Silicon free material
- CSA and UL approved

Technical Data

Feedback Connectors

Connectors with signal contacts

Temperature range	–40 / 125°C
Sealing	acc to IP67

Electrical Data

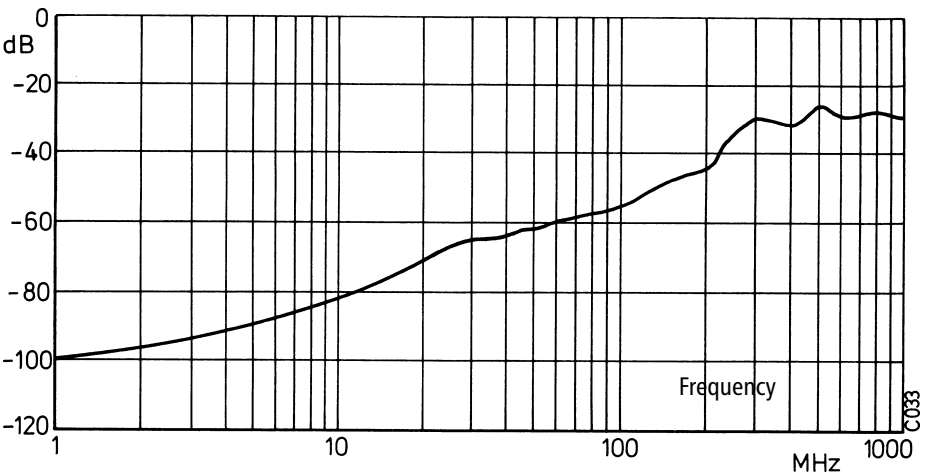
Contact number		6	9	12	12	17
				solder	crimp	
Operating voltage (V)	Test voltage (V)	2500	2500	1500	2500	1500
	pollution degree 2	160	250	160	250	160
	pollution degree 3	40	160	32	160	32
	pollution degree 4	10	32	10	32	10
Current rating (A)		9				
Contact resistance (mW)		<5				
Mating cycles		>50				

Material

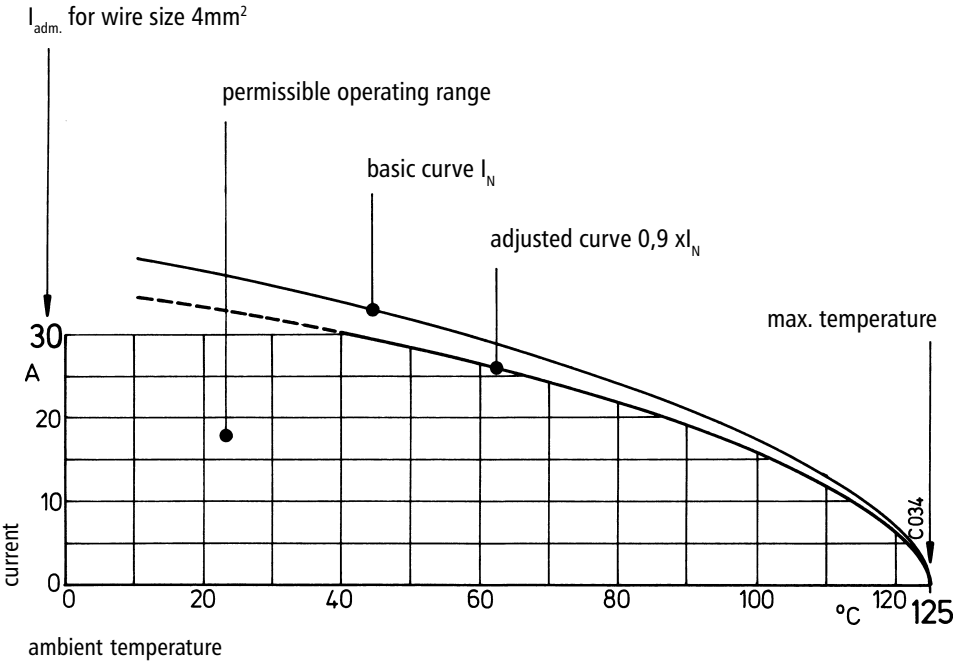
Shell	Zinc die cast
Insulator	PBT acc to UL 94 / V0
Contacts	Brass, gold plated
Gaskets	Viton / H-NBR

Frequency MHz	Attenuation dB
1	-100,00
2	-97,00
5	-90,00
10	-82,00
15	-77,00
20	-71,00
25	-67,00
30	-65,00
35	-65,00
40	-64,00
45	-62,00
50	-62,00
100	-56,00
150	-48,00
200	-45,00
250	-34,00
300	-30,00
400	-32,00
500	-26,00
600	-30,00
800	-28,00
1000	-30,00

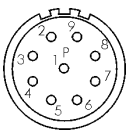
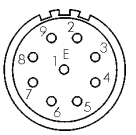
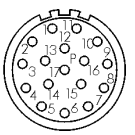
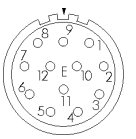
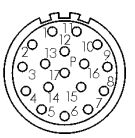
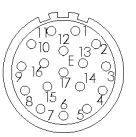
Shielding Effectiveness



Derating-Curve Feedback Connector



Contact Arrangement – Feedback Connector (front view)

Contact Arrange-ment	Number of Contacts	Number of 1 mm Contacts				
9P 9E	9 9	9 9		9 way Designation **9P**		9 way Designation **9E**
12P 12E	12 12	12 12		12 way Designation **12P**		12 way Designation **12E**
17P 17E	17 17	17 17		17 way Coding pin Designation **17P**		17 way Coding cavity Designation **17E**

Note: 15 and 16 way availabel upon request, contact Cannon

Feedback Series / Plug, Cable Connecting Plug and Push pull

Series	Shell Style		Class	Plating	Contact Arrangement		Contact	Strain relief clamp
CGL	XXXX	–	A	X	XXX	–	XXXX	XX

Description	Code
Nickel	A
Transparent chromate	B
Plastic coverd	C

Description	Code
Insulator 9 way P-part	9P
Insulator 9 way E-part	9E
Insulator 12 way P-part	12P
Insulator 12 way E-part	12E
Insulator 17 way P-part	17P
Insulator 17 way E-part	17E

Description for cable	Code
5,5 – 10,5 mm	10
9 – 12 mm	12
7,5 – 14 mm	11
4 – 8 mm	20

Discription	Code
Cable connecting plug metal housing	01
Cable connecting plug metal housing plastic clamp nut	01P
Straight plug metal housing	06M
Straight plug metal housing plastic clamp nut	06MP
Right angle plug metal housing	06W
Right angle plug metal housing plastic clamp nut	06WP
Push pull plug metal housing	06U
Push pull plug metal housing plastic clamp nut	06UP

Description		Code
Contacts for shell style 01		
Pin 1mm all contact arrangement	Crimp 0,035 – 1,0 mm²	P21
Pin 1 mm all contact arrangement	solder pot 1,5 mm²	P22
Contacts for shell style 06		
Socket 1 mm all contact arrangement	Crimp 0,035 – 1,0 mm² spring wire	S23
Socket 1 mm all contact arrangement	Solder pot 1,5 mm² spring wire	S24
Socket 1 mm all contact arrangement	Crimp 0,035 – 1,0 mm² split sleeve	S150
Socket 1 mm all contact arrangement	Solder pot 1,5 mm² split sleeve	S154
For shell style 01 + 06		
without contact		F0

blue = Standard

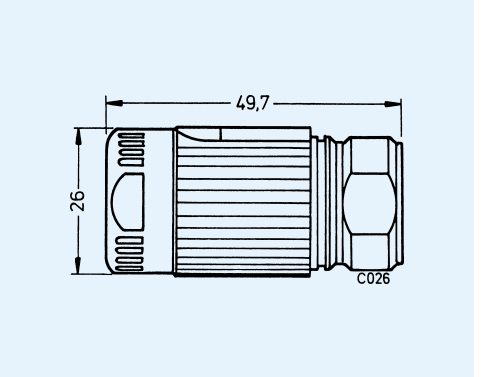
stamped contacts with crimp range 0,08 – 0,21 mm² and 0,21 – 0,5 mm² upon request

Order example

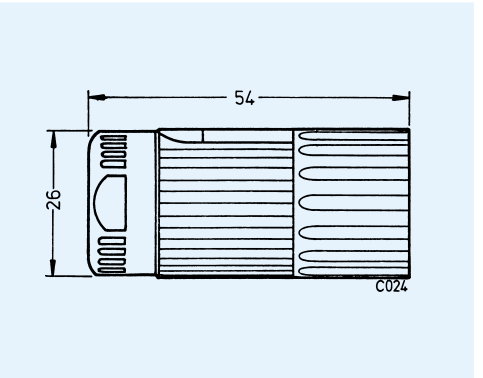
Straight plug metal 12 way, 1 mm socket spring wire contact, crimp 0,035 - 1,0 mm², cable outer diameter 9 mm. **CGL06M-AA12P-S2310**

Push pull plug 9 way, 1 mm socket slit sleeve contact, crimp 0,035 mm², Cable outer diameter 9 – 12 mm **CGL06U-AA9P-S15012**

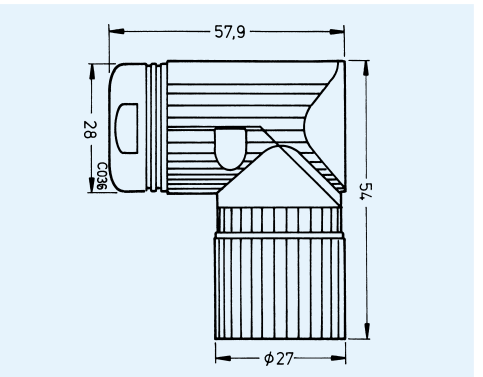
Cable connecting plug metal housing **01**



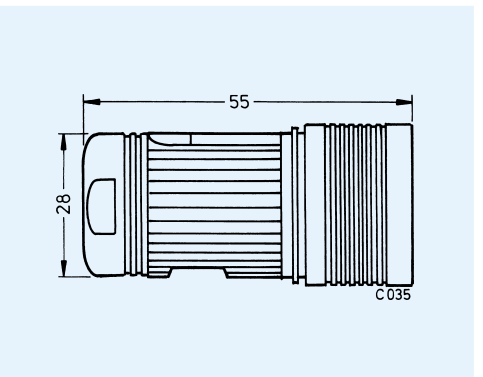
Straight plug metal housing **06M**



Right angle plug metal housing **06W**



Push pull plug metal housing **06U**



Feedback Series / Receptacle straight and 90°

Series	Shell Style		Class	Plating	Contact Arrangement		Contact	Strain relief clamp
CGL	XXXX	–	A	X	XXX	–	XXXX	00

Description	Code
Nickel	A
Transparent chromate	B

Description	Code
Insulator 9 way P-part	9P
Insulator 9 way E-part	9E
Insulator 12 way P-part	12P
Insulator 12 way E-part	12E
Insulator 17 way P-part	17P
Insulator 17 way E-part	17E

Discription	Code
Box mounting receptacle without sealing	02W
Box mounting receptacle axial sealing	02A
Box mounting receptacle axial sealing and grounding pin	02AP
PG 13,5 receptacle	02PG
Box mounting receptacle 90° axial sealing	08A
Box mounting receptacle 90° turnable axial sealing	08AT

Description		Code
Pin 1mm all contact arrangement	Crimp 0,035 – 1,0 mm²	P21
Pin 1 mm all contact arrangement	solder pot 1,5 mm²	P22
without contacts		F0

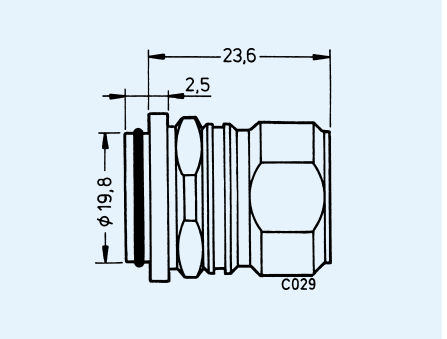
blue = Standard

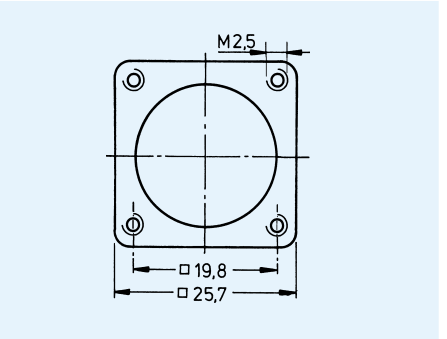
stamped contacts with crimp range 0,08 – 0,21 mm² and 0,21 – 0,5 mm² upon request

Order example

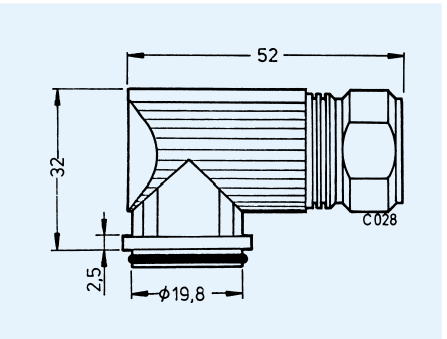
Box mounting receptacle axial sealing, 1 mm pin contact, crimp contact range 0,035 – 1,0mm², 17 way E-part.	**CGL02A-AA17E-P2100**
Box mounting receptacle 90° axial sealing 9 way, 1 mm pin contact solder pot termination 1,5 mm²	**CGL08A-AB9E-P2200**

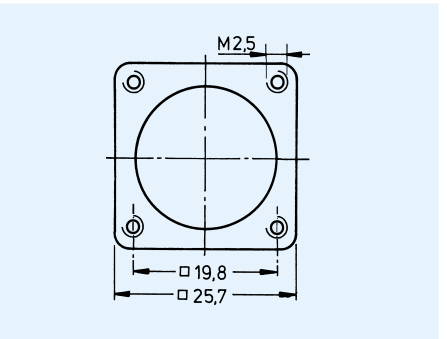
Box mounting receptacle axial sealing **02A** **Panel Cutout**



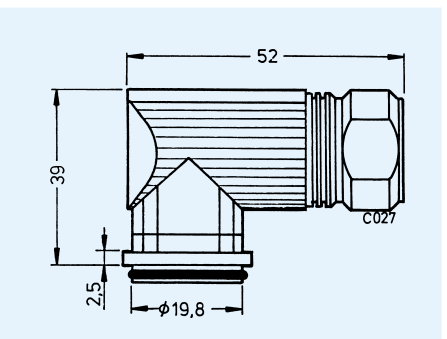


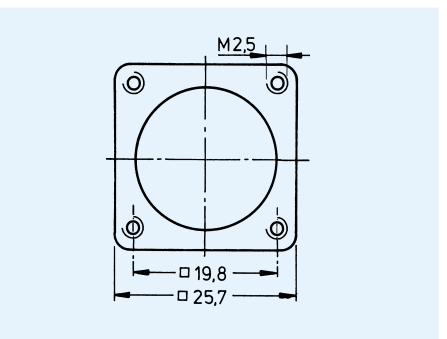
Box mounting receptacle 90° axial sealing **08A** **Panel Cutout**





Box mounting receptacle 90° turnable axial sealing 08AT **Panel Cutout**





Technical Data

Power Input Connectors

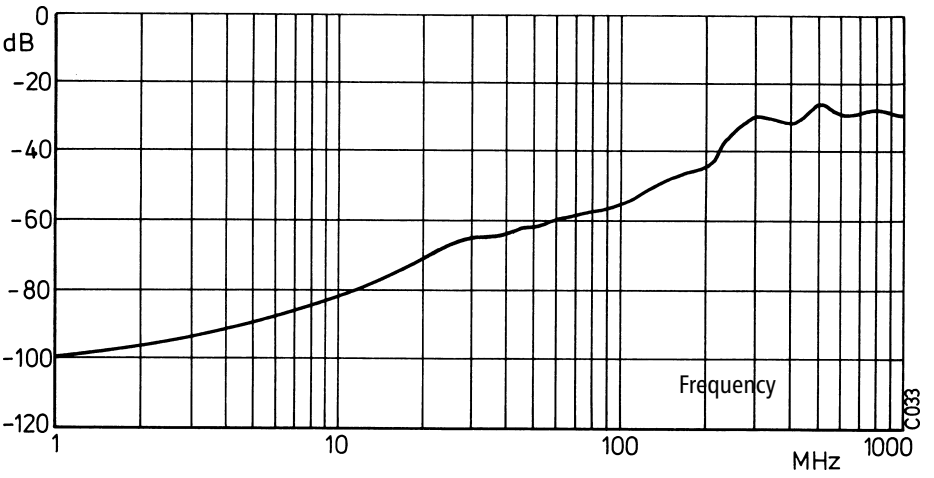
Connectors with signal contacts	
Temperature range	–40 / 125°C
Sealing	acc to IP67
Contact number	6 / 8 / 9

Electrical Data		
Contact number	250	800
Test voltage (V)	2500	6000
Current rating (A)	9 (signal)	25 (power)
Contact resistance (mW)	< 5	< 3
Mating cycles	> 50	–
Pollution degree (VDE 0110 / 0627)	3	–

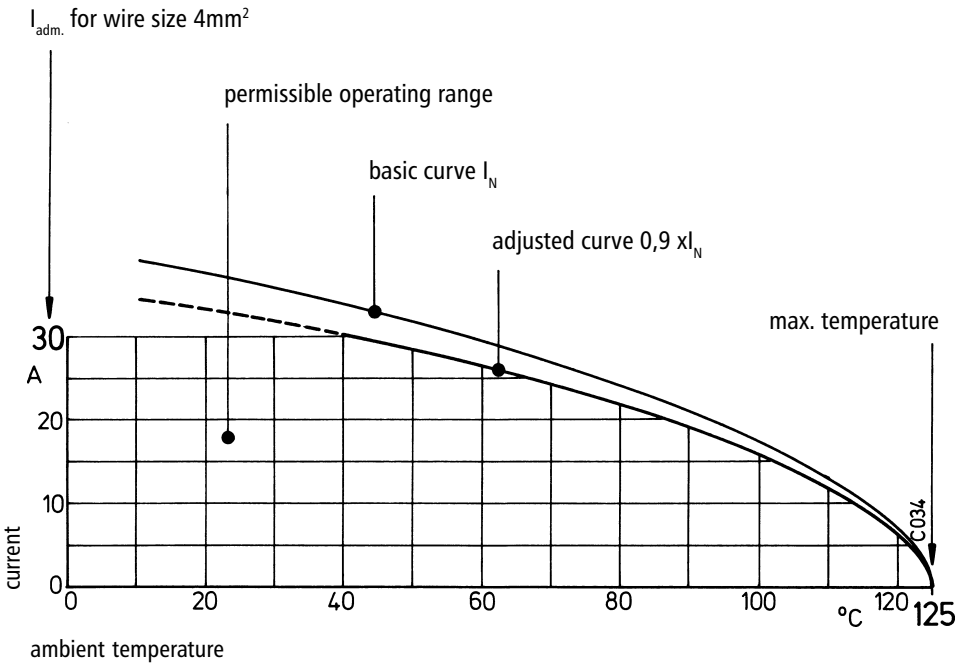
Material	
Shell	Zinc die cast
Insulator	PBT acc to UL 94 / V0
Contacts	Brass, gold plated
Gaskets	Viton / H-NBR

Frequency MHz	Attenuation dB
1	-100,00
2	-97,00
5	-90,00
10	-82,00
15	-77,00
20	-71,00
25	-67,00
30	-65,00
35	-65,00
40	-64,00
45	-62,00
50	-62,00
100	-56,00
150	-48,00
200	-45,00
250	-34,00
300	-30,00
400	-32,00
500	-26,00
600	-30,00
800	-28,00
1000	-30,00

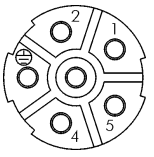
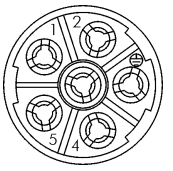
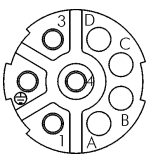
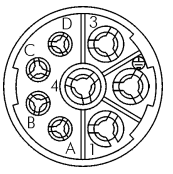
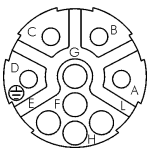
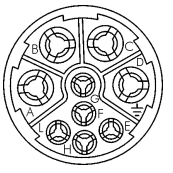
Shielding Effectiveness



Derating-Curve Feedback Connector



Contact Arrangement – Power Input Connectors (front view)

Contact Arrangm.	Number of Contacts	Number of Contacts 1 mm Signal	Number of Contacts 2 mm Power				
6C 6S 6L 6U	5 + PE 5 + PE 5 + PE 5 + PE	6 6 6 6			Plug 6 way Designation **6L, 6S, 6C**		Receptacle 6 way Designation **6R, 6RS, 6RL**
8C 8S 8L 8U	4 + 3 + PE 4 + 3 + PE 4 + 3 + PE 4 + 3 + PE	4 4 4 4	4 4 4 4		Plug 8 way Lettering 1 Designation **8L, 8S, 8C**		Receptacle 8 way Lettering 1 Designation **8R, 8RS, 8RL**
9C 9S 9L 9U	5 + 3 + PE 5 + 3 + PE 5 + 3 + PE 5 + 3 + PE	5 5 5 5	4 4 4 4		Plug 9 way Designation **9L, 9S, 9C**		Plug 9 way Designation **9R, 9RS, 9RL**

Please note:

L	long version
S	short version
C	cable connecting plug
RS	box mounting receptacle, short version
R	box mounting receptacle, long version

Power Input Connectors Series I 800 V / Plug, Cable mConnecting Plug and Push pull

Series	Shell Style		Class	Plating	Contact Arrangement		Contact	Strain relief clamp
CGL	XXXX	–	B	X	XXX	–	XXXX	XX

Description	Code
Nickel	A
Transparent chromate	B
Plastic coverd	C

Description for cable	Code
9 – 14 mm	08
14 – 17 mm	16
7,5 –12 mm	23

Discription	Code
Cable connecting plug metal housing	01
Straight plug metal housing short version	06S
Straight plug metal housing long version	06L
Push pull plug metal housing	06U

Description	Code
Shell style 01	
Insulator 6 way	6C
Insulator 8 way	8C
Insulator 9 way	9C
Shell style 06	
Insulator 6 way short	6S
Insulator 6 way long	6L
Insulator 8 way short	8S
Insulator 8 way long	8L
Insulator 9 way short	9S
Insulator 9 way long	9L
Shell style 06U	
Insulator 6 way	6U
Insulator 8 way	8U
Insulator 9 way	9U

Description	Code
Contacts for shell style 01	
Pin Power 2 mm all contact arrangement, Crimp 0,35 – 2,5 mm²	P61
Pin Power 2 mm all contact arrangement, Crimp 2,5 – 4,0 mm²	P119
Pin Signal 1 mm only contact arrangements 8 + 9 way Crimp 0,035 – 1,00 mm²	P62
Contacts for shell style 06	
Socket Power 2 mm all contact arrangement Crimp 0,35 – 2,5 mm²	S59
Socket Power 2 mm all contact arrangement Crimp 2,5 – 4,0 mm²	S60
Socket Signal 1 mm only contact arrangements 8 + 9 way Crimp 0,035 – 1,00 mm²	S23
Contacts for shell style 01 + 06	
without contacts	F0

blue = Standard

2 mm Socket stamped Contacts with crimp range 0,75 – 2,5 mm² upon request.

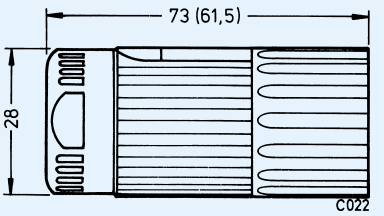
Order example

Straight plug long, 8 way, nickel plated, cable outer diameter 10,5 mm, wire size termination 4 x 1,5 + 4 x 1,0 mm **CGL06L-BA8L-S592308**

Push pull plug, 6 way, cable outer diameter 13,5 mm, wire size termination 3,0 mm² **CGL06U-BA6U-S6016**

Straight plug metal housing short version 06S

long (short)



Power Input Connectors Series I 800 V / Receptacle straight and 90°

Series	Shell Style		Class	Plating	Contact Arrangement		Contact	Strain relief clamp
CGL	XXXX	–	B	X	XXX	–	XXXX	00

Description	Code
Nickel	A
Transparent chromate	B

Discription	Code
Box mounting receptacle short axial sealing	02AS
Box mounting receptacle long axial sealing	02AL
Box mounting receptacle 90° axial sealing	08A
Box mounting receptacle 90° turnable axial sealing	08AT

Description	Code
Shell style 02	
Insulator 6 way short	6RS
Insulator 6 way long	6RL
Insulator 8 way short	8RS
Insulator 8 way long	8RL
Insulator 9 way short	9RS
Insulator 9 way long	9RL
Shell style 08	
Insulator 6 way	6RL
Insulator 8 way	8RL
Insulator 9 way	9RL

Description		Code
Contacts for shell style 02 + 08		
Pin Power 2 mm all contact arrangement,	Crimp 0,35 – 2,5 mm²	P81
Pin Power 2 mm all contact arrangement,	Crimp 2,5 – 4,0 mm²	P82
Pin Signal 1 mm only contact arrangements 8 + 9 way	Crimp 0,035 – 1,00 mm²	P83
without contacts		F0

blue = Standard

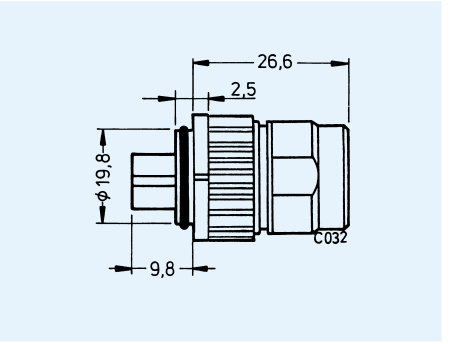
2 mm Socket stamped Contacts with crimp range 0,75 – 2,5 mm² upon request.

Order example

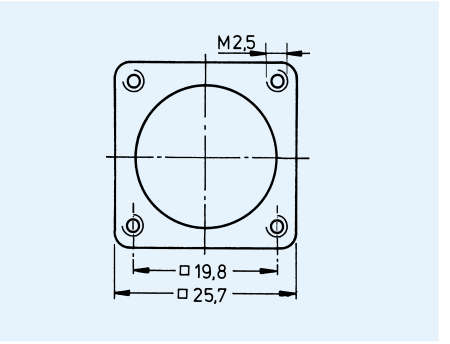
Box mounting receptacle 9 way short, axial sealing, transparent chromate, 4 x 0,5 – 2,5 + 5 x 0,035 – 1,0 mm² **CGL02AS-BB9RS-P818300**

Box mounting receptacle 90°, turnable axial sealing, 6 way, transparent chromate, wire size termination 3,0 mm² **CGL08AT-BB6RL-P8200**

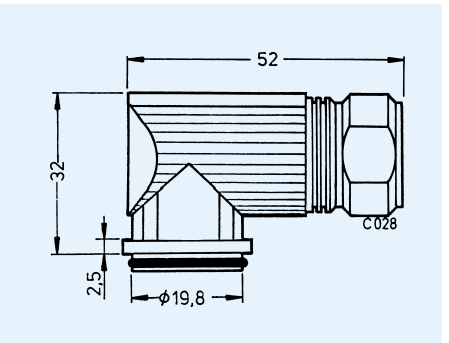
Box mounting receptacle short axial sealing **02AS**



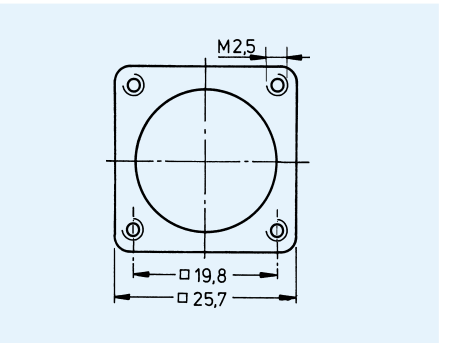
Panel Cutout



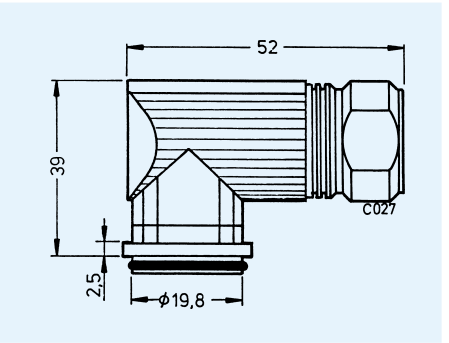
Box mounting receptacle 90° axial sealing **08A**



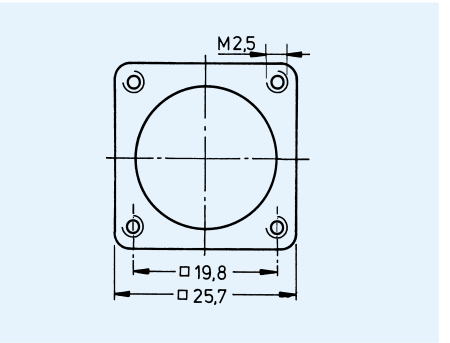
Panel Cutout



Box mounting receptacle 90° turnable axial sealing **08AT**



Panel Cutout



Tooling

Tool	Application	Order reference
Crimp tool with positioner	3,6 mm contacts up to wire size 6 mm^2	980-8681-143
Crimp tool	1 and 2 mm contacts up to wire size 4 mm^2	995-0001-585
Positioner for Crimp Tool 995-0001-585		980-8681-152
Crimp tool	1 mm contacts	980-8681-104
Positioner dies	1 mm contacts 2 mm contacts 1 and 2 mm contacts	980-8681-106 980-8681-107 980-8681-112
Insertion tool	1 mm contacts 2 mm contacts	980-8681-145 980-8681-146
Extraction tool	1 mm contacts 2 mm contacts	980-8681-115 980-8681-116
Installation wrench Installation wrench	SW 23 SW 26	980-8681-109 980-8681-114
Hook wrench		980-8681-110
Insertion tool	for signal insulator	980-8681-147
Insertion tool	for signal insulator, sealed 12 way 17 way	 980-8681-148 980-8681-149
Insertion pin Insertion pin	for signal contacts for power contacts	980-8681-108 980-8681-113
Extraction tool	for signal insulator	980-8681-111

Contacts

Socket, 2 mm dia
Crimp range 0,5 - 2,5 mm²
Order ref. 980-8681-059

Socket , 2 mm dia
Crimp range 0,5 - 4,0 mm²
Order ref. 980-8681-060

Pin, 1 mm dia
Crimp range 0,06 - 1 mm²
Order ref. 980-8681-083

Pin, 2 mm dia
Crimp range 0,5 - 2,5 mm²
Order ref. 980-8681-061

Pin, 1 mm dia
Crimp range 0,06 - 1,0 mm²
Order ref. 980-8681-062

Pin, 2 mm dia
Crimp range 2,5 - 4,0 mm²
Order ref. 980-8681-082

Pin, 1 mm dia
Crimp range 0,06 - 1 mm²
Order ref. 980-8681-021

Pin, 1mm dia
Solder pot 1,5 mm²
Order ref. 980-8681-022

Socket, 1 mm dia
Crimp range 0,06 - 1 mm²
Order ref. 980-8681-023

Socket, 1 mm dia
Solder pot 1,5 mm²
Order ref. 980-8681-024

Pin, 2 mm dia
Crimp range 0,35 - 2,5 mm²
Order ref. 980-8681-081

Pin, 2 mm dia
Solder pot 2,5 mm²
Order ref. 980-8681-026

Pin, 2 mm dia
Crimp range 2,5 - 4,0 mm²
Order ref. 980-8681-119

Socket, 1 mm dia
Crimp range 0,06 - 1 mm²
Order ref. 980-8681-150

For stamped contacts on reels please consult factory.

Product Safety Information

THIS NOTE SHOULD BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOGUE. FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/CATALOGUE COULD RESULT IN HAZARDOUS SITUATIONS.

1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials.

Contact materials vary with type of connector and also application and are usually manufactured from either copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionisation and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the Product Data Sheet/Catalogue are exceeded and can cause breakdown of insulation and hence electric shock.

If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires, and leakage currents through carbonisation of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers.

Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages can not be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Insulation resistance should be checked to make certain that no low resistance joints or spurious conducting path are existing between contacts and exposed metal parts of the connector body.

Further the contact resistance of the connectors should be measured within the electrical circuit in order to identify high resistances which result in excessive connector heating.

Always use the correct application tools as specified in the Data Sheet/Catalogue.

Do not permit untrained personnel to wire, assemble or tramper with connectors.

For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION.

1. Air and creepage paths/Operating voltage

The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

2. Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

3. Other important information

Cannon continuously endeavours to improve their products.

Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalogue and data sheets.

4. Harnessing and Assembly Instructions

If applicable, our special harnessing and/or assembly instruction has to be adhered to.

This is provided at request.