



ITT

Interconnect Solutions

Cannon APD 19 Way Connectors



Engineered for life

The Challenge

ICS's top tier transportation and harnessing customers approached us regarding the development of a technically robust connector exhibiting a high value proposition for this price competitive market. Additionally, these customers identified the need for multiple innovations including; secondary contact locking solutions applicable to harsh environments for both commercial vehicles and industrial automation, easy assembly, and the possibility to remove/unlock contacts without special tools. ICS reviewed these requirements and formulated a solution matching this VOC and driving additional innovation in an exciting new product.



Easy and service friendly **Secondary Locking** for the flange and Jam Nuts



Universal Endbell providing flexibility for shrouded-tube and cable strain relief adapters



Pin and Socket Contacts suitable for insulation and individual wire-seal crimps



Easy and service friendly **Secondary Locking** for Plugs

Easy Assembling with visual and audible feedback



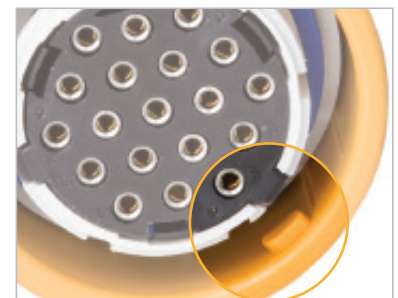
Standard Stamped and Formed APK-16 Contacts in various platings



Flange Housing Seal is usable in two positions; either front or rear mounting



Up to 4 different **Mechanical and Color Codings** for receptacles and plugs



Easy and robust **Bayonet Connector Mating**

The ITT Solution ...

ICS collated the VOC from multiple OEM's manufacturing Trucks, Busses, Tractors, and Construction Vehicles and correlated this against input from 1st to 3rd tier supplier and cable harnessing companies. ICS combined this extensive VOC and utilized our Engineering expertise to design the new APD 19 Way plastic circular, further extending this product line. This new circular addresses the requested harsh environment VOC while providing easy assembly without the need to utilize special tooling.

APD 19 Way Connectors



Technical overview

The APD connectors were originally designed in reference with DIN 72858 specifications and above, and available in 1- and 2-pole power position versions as well as 3-, 4-, 6-, 7-, 37-, and 51-position versions.

Acknowledging our wide range of configurations, ITT recognized a product gap between the 7- and 37- position connectors. The solution to this product gap is the recently developed APD 19-way connector. A connector which utilizes patent-pending technology related to the locking feature. As the name indicates, this version features 19 contacts, with the option of increasing the number to 27 upon request. For customers requiring additional contacts, smaller contact sizes may be implemented. Conversely, if a customer requires a connector capable of carrying a larger load, the pin count may be reduced by using higher power contacts up to 50mm² and AWG 0.

With this addition to the product line, ITT provides customers with the flexibility necessary to meet any wet area or harsh environment application requirements.

The fundamental difference in construction between the 19 position connector and the other devices in the APD connector family is the secondary locking mechanism present in the APD 19 design. In addition to the increased reliability, no special contact removal tools are required to unlock the secondary locking contact-insert in the field, meeting ITT's initial goal in the development phase of a user-friendly device. With no dedicated tools other than a "screwdriver" to unlock the contact-insert in the field, the user is provided with a simplified means of correcting any of problems that may arise.



Performance

General Usage	harsh environmental applications at commercial vehicles, i.e. industrial automation
Housing style a. Material	circular plastic - UL V0 listed - 19 way connector solution
Coupling	easy and simple bayonet locking
Coupling feature	with visual and audible feedback
Contact secondary locking	for Plug, Flange- and Jam Nut Receptacle
Contact removable tool in the field	no special tool required
Layouts	standard 19 way, up to 27 contacts, same shell size under development
Flange receptacle	for front and rear mounting
Plug Bayonet locking nut	6 different colours possible
Coding	4 Key and color coding
Stamped & Formed contacts available	cross section 0,35 to 1,5 mm ² / AWG 22 - 15
Machined contacts	cross section 0,35 to 1,5 mm ² / AWG 22 - 15
Plating (for all contact types)	tinned / gold
Individual wire-seal	at contacts
Universal Endbell with M25 x 1.5 mm thread	for usage of standard cable strain relief and corrugated tube adapters
Adapters for tubes	straight and 90° version available , contact factory



APD 19 Way Connectors



Electrical specifications for the connector:

Maximum Voltage	Maximum Current	Operating Temperature	Sealing	Durability
12-48VDC	12A @ 85°C; 105°C short time at 1.5mm²	-40°C to +125°C	IP67 to IP69K	50 mating cycles

ITT's APD connector provides significant technical and performance advantages over comparable circular connectors. The APD 1- and 2- position designs are unique to the worldwide marketplace. The APD 1-way covers a current up to 250A while the maximum current for the APD 2-way is 80A. As noted, both products offer unique, competitive advantages and reference the DIN 72585 specifications. ITT is also capable of providing the APD connector as a bulkhead connector with two ranges of wall thickness and offers a flange version that is not available from most competitors. The connector conforms to IP69K standards, while the K element signifies the connector meets most commercial vehicle standards.



1

2

3

4

2

5

1. Corrugated tube adapter

2. Universal endbell

3. Plug

4. Flange Receptacle

5. Cable strain relief

APD 19 Ordering Numbers

Plug	Bayonet Plug types	Part Number	mech. Code	Colour
	APD-1BS19S	121583-0119	1	black
	APD-2BS19S	121583-0121	2	grey
	APD-3BS19S	121583-0123	3	green
	APD-4BS19S	121583-0125	4	blue

Nut
Individual colour on demand

Receptacle	Flange	Part Number	mech. Code	Colour
	APD-1AP19S	121583-0120	1	black
	APD-2AP19S	121583-0122	2	grey
	APD-3AP19S	121583-0124	3	green
	APD-4AP19S	121583-0126	4	blue

Receptacle	Jam Nut	Part Number	mech. Code	Colour
	under development consult factory	121583-0zzz	2	grey

Universal Endbell	usage for plug and receptacle	Part Number	mech. Code	Colour
	with M 25x 1,5 mm thread for various adapters	044-8597-002		black

Dust Caps	usage for plug and receptacle	Part Number	mech. Code	Colour
	Dust Cap - for Plug	025-8636-053		red
	Dust Cap - for receptacle	025-0487-000		orange

Accessories
Endbell adapter available

Pin Contact	stamped & formed Contacts with individual wire crimp	Reel [5000]	For wire size [mm²]	Plating
	APK-PA16A07-002	121668-0252	0,35 - 0,75	tinned
	APK-PA16G07-002	121668-0269	0,35 - 0,75	Au [0,8 µm]
	APK-PA16A15-002	121668-0253	0,75 - 1,50	tinned
	APK-PA16G15-002	121668-0271	0,75 - 1,50	Au [0,8 µm]
	for machined Contacts - consult factory			

Socket Contact	stamped & formed Contacts with individual wire crimp	Reel [5000]	For wire size [mm²]	Plating
	APK-SA16A07-002	121668-0221	0,35 - 0,75	tinned
	APK-SA16G07-002	121668-0270	0,35 - 0,75	Au [0,8 µm]
	APK-SA16A15-002	121668-0202	0,75 - 1,50	tinned
	APK-SA16G15-002	121668-0272	0,75 - 1,50	Au [0,8 µm]
	for machined Contacts - consult factory			

Individual Wire Seal	usage : Plug and Receptacle	Reel [5000]	for wire diam.	Colour
	10RD3940	121667-0024	1,2 - 1,6 mm	red
	10GR3940	121667-0022	1,4 - 2,0 mm	grey
	10YE3940	121667-0023	1,9 - 2,1 mm	yellow

Blind seal	usage : Plug and Receptacle	Reel [5000]	for wire diam.	Colour
	10WH3940	121667-0025	1,4 - 2,0 mm	white



APD 19 Circular Harsh Environment Connector

ICS collated a vast gathering of VOC to innovate an exciting extension of our APD product offering, the APD 19 way connector. This product offers a broad range of connector functionality, directly requested by our customers, and expands upon its VOC centric design with additional innovative enhancements. The combination of these attributes identifies a robust solution uniquely qualified to meet the high volume demands of a cost competitive market across a broad range of applications.

Product Features

- Plastic circular solution with visual and audible feedback
- Easy contact locking/unlocking with secondary locking at plug and receptacle
- IP67 and IP69 K
- Layout: 19 to 27 contacts with 0.35 - 1.5 mm²
- APK 16 and Press-In contacts (tinned, Au-plating)
- Plug, flange and Jam Nut Versions including various endbell adapters and accessories

Applications

- Trucks, Busses, Tractors, and Construction & Industrial equipment
- Motor/Electronic Control Units
- Transmission, Engine Valve, Chassis wire to wire, and Cabin pass through
- Engine Valve Applications
- Industrial Automation and instrumentation





ITT

Customer Support Locations

CHINA

Tuopandun Industrial Area, Jinda Cheng,
Xiner Village, Shajing Town,
Baoan District, Shenzhen City,
Guangdong, China 518125
phone: +86.755.2726.7238
fax: +86.755.2726.7515

GERMANY

Cannonstrasse 1
Weinstadt, 71384
phone: +49.7151.699.0
fax: +49.7151.699.217

FRANCE

15, Boulevard Robert Thiboust
Serris, France 77700
phone: +33.1.60.04.93.93
fax: +33.1.60.04.93.90

HONG KONG

Units 2405-6, 24/F, ING Tower
308 Des Voeux Road
Central
Hong Kong
phone: +852.2732.2720
fax: +852.2732.2919

ITALY

Corso Europa 41/43
Lainate (MI),
Italy 20020
phone: +39.02938721
fax: +39.0293872300

JAPAN

11-3, 5 Chome, Hibarigaoka, Zama-shi
Kanagawa, Japan 228-0003
phone: +81.462.57.2010
fax: +81.462.57.1680

UK

Jays Close, Viabes Estate
Basingstoke, RG22 4BA
phone: +44.1256.311200
fax: +44.1256.323356

USA

666 East Dyer Road
Santa Ana, CA 92705
toll free: +1.800.854.3028
phone: +1.714.557.4700
fax: +1.714.628.2142