

cannon veam

# Heavy and Off Road Vehicle Product Selection Guide



**ITT**

ENGINEERED FOR LIFE



# We Connect When it matters most

Resistant to shock, vibration, water and other fluids, humidity, mud, dust, heat, cold and virtually anything else you can throw at them. Built for the toughest, dirtiest jobs that make our modern way of life possible. ITT Cannon and Veam connectors withstand the most demanding environments. A vast range of applications means solutions must be versatile—but never at the expense of reliability. Our family of connectors is designed to deliver the ultimate in flexibility, durability and performance.

1

## CABIN TO CHASSIS INTERFACE

**PRODUCT SOLUTIONS:**  
CA COM, Trident, APD,  
APD Interface  
APD Modular Interface.

2

## ENGINES

**PRODUCT SOLUTIONS:**  
CA Bayonet, CA COM,  
APD 7 Way, VPT.

3

## LIGHTING SYSTEMS

**PRODUCT SOLUTIONS:**  
Sure Seal, CTC, SLC,  
APM, VRPC.

4

## JUNCTION BOXES

**PRODUCT SOLUTIONS:**  
Trident, CA Bayonet,  
CA COM.

5

## CONTROL BOXES

**PRODUCT SOLUTIONS:**  
Trident, APD, CA Bayonet,  
CA COM, KPTC

6

## SELECTIVE CATALYTIC REDUCTION

**PRODUCT SOLUTIONS:**  
APD

7

## BATTERIES

**PRODUCT SOLUTIONS:**  
APD, CA Bayonet







STANDARD PRODUCTS

		SURE SEAL	TRIDENT	APD	CTC	SLC	CA Bayonet	CA-COM	KPTC	APE	APM	CLC	CIR-FRCIR	VRPC
APPLICATIONS		<ul style="list-style-type: none"> <li>• Meterological Station</li> <li>• Signal Lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Engines</li> <li>• Controllers/Signal Connecting</li> <li>• Relais</li> <li>• Cabin Chassis Interface</li> <li>• Harnessing for Steering Column Module</li> <li>• Cabin Accessories / In-line Interconnects</li> <li>• Control Panel</li> <li>• Control Box</li> <li>• Junction Box</li> </ul>	<ul style="list-style-type: none"> <li>• Battery Connection</li> <li>• Controllers / Signal Connecting</li> <li>• Selective Catalytic Reduction</li> <li>• Power Transmission</li> <li>• Control Box</li> <li>• Engines</li> </ul>	<ul style="list-style-type: none"> <li>• Chassis Cable Harness</li> <li>• Controllers / Signal Connecting</li> <li>• Lighting Systems</li> <li>• Cabin Accessories / In-line Interconnects</li> <li>• Sensors</li> <li>• Seat and Window Control</li> <li>• Wipers / Under Hood Electronics</li> </ul>	<ul style="list-style-type: none"> <li>• Jake brake</li> <li>• Lighting Systems</li> <li>• Cabin accessories / In-line Interconnects</li> </ul>	<ul style="list-style-type: none"> <li>• Junction Box</li> <li>• Sensors</li> <li>• Control Box</li> <li>• Cabin Chassis Interface</li> <li>• Engines</li> </ul>	<ul style="list-style-type: none"> <li>• Junction Box</li> <li>• Sensors</li> <li>• Control Box</li> <li>• Cabin Chassis Interface</li> <li>• Engines</li> </ul>	<ul style="list-style-type: none"> <li>• Control Box</li> <li>• Control Panel</li> </ul>	<ul style="list-style-type: none"> <li>• ABS Braking Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Switches</li> <li>• Relais</li> <li>• Actuators</li> <li>• Wipers</li> <li>• Engines</li> <li>• Lighting Systems</li> </ul>	<ul style="list-style-type: none"> <li>• GPS systems</li> <li>• Fuel injectors</li> <li>• Cabin accessories / in-line interconnects</li> </ul>	<ul style="list-style-type: none"> <li>• Hybrid Transmission</li> <li>• Control</li> <li>• Control Systems / Units</li> <li>• Power Transmission</li> <li>• Gear Box</li> <li>• Sensors</li> </ul>	<ul style="list-style-type: none"> <li>• Cabin</li> <li>• Wipers</li> <li>• Seats</li> <li>• Lighting Systems</li> </ul>
GENERAL	Standards / Connector Specifications	-	EN61984 / UL 1977	ISO 15170	Consult Factory	SAE J2030 USCar	VG95234 (Where applicable)	Derived from VG95234 / SAE-AS50151 (formerly MIL-DTL-5015)	MIL-DTL 26482 Series 1, VG 95328	-	-	SAE J2030 USCar	VG95234 / MIL-DTL-5015 (where applicable)	NFF 61030
	Fire & Smoke standards	-	UL 94 V-0 and I2/F2 according to NFF 16-101 (snap-together series)	-	-	-	acc. VG95234	acc. VG95234	acc. VG95328	-	-	-	EN 45545-2 NFPA 130	EN 45545-2 NFF 16-101/102
	Number of Circuits	2 to 10	4 to 48	1 to 51	2, 4, 8, 16, 24	5, 8, 10, 15	1 to 65	1 to 48	2 to 61	2, 3	4	2, 4	1 to 159	3, 6, 12
ELECTRICAL	Max. Operating Voltage	48 V DC	250 V AC - 500 V DC/AC	48 V DC High Voltage: 500 V DC/AC	250 V AC	300 V AC	50 V AC - 75 V DC (acc. Low Voltage Directive)	50 V AC - 75 V DC (acc. Low Voltage Directive)	50 V DC	48 V DC	16 V DC	300 V AC	4200 V DC - 3000 V AC	380 V AC - 500 V DC
	Max. Dielectric Withstanding Voltage	1200 V AC	2000 V AC - 3500 V AC	1000 V AC High Voltage: 3500 V AC	1550 V AC	1000 V AC	4500 V AC	4500 V AC	2300 V AC	1000 V DC	1000 V AC	1000 V AC	7000 V AC	3250 V AC
	Max. Current Rating	17 A	30 A	245 A	16 A	13 A	245 A	245 A	22 A	13 A	5 A (at 70°C)	5 A	350 A	16 A
CONTACTS	EMI/RFI shielding	No	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes	No
	Wire range AWG	20 to 14	26 to 12	22 to 0	24 to 16	20 to 16	26 to 0	26 to 0	24 to 16	18 to 16	20 to 18	20 to 16	26 to 4/0	14 to 26
	Wire Range mm²	0,4 - 1,5	0,14 - 4,0	0,35 - 50	0,25 - 1,5	0,50 - 1,5	0,14 - 50	0,14 - 50	0,2 - 2,0	0,75 - 1,5	0,4 - 0,75	0,50 - 1,5	0,15 - 120	0,25 - 2,5
	Contact plating	Tin / Silver	Tin / Silver / Gold	Tin / Silver / Gold	Tin / Gold	Tin / Gold	Gold / Silver	Silver	Gold	Silver	Tin	Tin / Gold	Gold / Silver	Gold / Tin
	Crimp, machined	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	Crimp, stamped	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	Yes
	Solder	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	Yes	No
	PCB	No	Consult factory	Yes	Consult Factory	Yes	Yes	Yes	Yes	No	No	No	Yes	No
	Coax	No	Yes	No	No	No	No	No	No	No	No	No	Yes	No
	Ethernet Interface	No	No	No	No	No	No	No	No	No	No	No	See CIR M12 family	No
	Fiber Optic Interface	No	No	No	No	No	No	No	No	No	No	No	See Fiber Optic family	No
	Power and Signal Layouts	No	Yes	No	No	No	Yes	Yes	No	No	No	No	Yes	No
	MECHANICAL	Mating cycles (max.)	100	500	50	200	25	500	500	500	25	25	25	2000
Max. shock resistance (g's)		50	50	50	50	100	50	50	50	-	-	100	50	50
Max. vibration resistance		500 m/s² at 10-55 Hz	100 m/s² at 10-500 Hz	100 m/s² at 10-500 Hz	100 m/s² at 10-500 Hz	100 m/s² at 10-2000 Hz	200 m/s² at 10-2000 Hz	200 m/s² at 10-2000 Hz	200 m/s² at 10-2000 Hz	100 m/s² at 10-500 Hz	-	100 m/s² at 10-2000 Hz	200 m/s² at 10-2000 Hz	200 m/s² at 10-2000 Hz
Mechanical coding		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Type of coupling		Ring-Snap	Bayonet	Bayonet	Snap-Lock	Snap-Lock	Bayonet	Bayonet	Bayonet	Push-On	Snap-in	Clip-Lock	Bayonet	Snap-in
Configurations / Mounting options	Flange, Inline	Jamnut, Flange	Flange/ Jamnut/ Inline	Inline, Mounting Bracket	Inline, Panel Mount	Flange, Jamnut, others	Flange, Jamnut, others	Flange, Jamnut, others	Flange, Jamnut, others	Inline	Inline	Inline, Panel Mount	Flange, Jamnut, others	Panel Mount
ENVIRONMENTAL	Temperature range	-40°C to 105°C (-40°F to 221°F)	-55°C to 105°C (-67°F to 221°F)	-40°C to 125°C (-40°F to 257°F)	-55°C to 105°C (-67°F to 221°F)	-40°C to 150°C (-40°F to 302°F)	-55°C to 125°C (-67°F to 257°F) optional 200°C (392°F)	-55°C to 125°C (-67°F to 257°F)	-55°C to 125°C (-67°F to 257°F)	-40°C to 125°C (-40°F to 257°F)	-40°C to 105°C (-40°F to 221°F)	-40°C to 150°C (-40°F to 302°F)	-40°C to 125°C (-40°F to 257°F)	-40°C to 100°C (-40°F to 212°F)
	IP rating mated	IP 68 (1 bar/ 12h)	Up to IP67	IP67 / IP69K	Up to IP 69K	IP68 (0,03 bar / 24h)	IP67 / IP68 (1 bar/16h) / IP69K	CA-COM Bayonet IP67 / IP68 (1 bar / 16h) CA-COM Threaded IP65	IP68 (0,2 bar / 48h)	IP69K	IP50	IP68 (0,1bar / 4h)	IP67	IP20 / IP67
	Individual wire sealing	Yes	Grommet	Yes	Grommet	Grommet	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	Cable jacket sealing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	Shell material	NBR	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic	Aluminium	Aluminum, Zinc, Nickel Plated	Aluminium	Thermoplastic	Thermoplastic	Thermoplastic	Aluminum, Stainless Steel, Marine Bronze	Thermoplastic
Insert material	NBR	Thermoplastic	Thermoplastic	No	No	CR, FKM	CR	CR	No	PBT	No	Flame Retardant Rubber, Viton, Silicone Rubber	Thermoplastic (Flame Retardant Grommet)	
SHELL PLATINGS	RoHS Electroless Nickel - Conductive (<48h)	No	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes	No
	RoHS Zinc Cobalt black - Conductive - (200h)	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
	RoHS Zinc Cobalt black, VG approved, Conductive (48h)	No	No	No	No	No	Yes	No	No	No	No	No	No	No
	Cadmium Olive drab - Conductive (500h)	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
	RoHS Zinc Cobalt green - Conductive (200h)	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
	RoHS Zinc Nickel blue - Conductive (500h)	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No
	RoHS Black Epoxyurethane varnish - Not conductive (500h)	No	No	No	No	No	No	No	No	No	No	No	Yes	No
Other platings: Consult factory	No	No	No	No	No	No	No	No	No	No	No	Yes	No	



CUSTOM PRODUCTS

	MODULAR APD INTERFACE	APD INTERFACE	GEAR BOX CONNECTOR	APD 7-WAY WITH GROMMET	VPT	SENSOR CONNECTOR	VA900
APPLICATIONS	• Cabin Chassis Interface • Control Systems / Units	• Cabin Chassis Interface • Control Systems / Units	• Power Transmission • Gear box	• Engine	• Engine	• Sensors	• Hybrid Traction Systems
GENERAL	Standards / Connector Specifications		Similar to ISO 15170	ISO15170	MIL-DTL 26482 Series 1, VG 95328 (where applicable)	Similar to ISO 15170	VG95234 (where applicable)
	Fire & Smoke standards		Material UL-listed	-	-	-	EN 45545-2 NF F 16-101/102
	Number of Circuits		2, 4, 6	7	10 to 12	4	1
ELECTRICAL	Max. Operating Voltage		48 V DC	48 V DC	50 V DC	48 V DC	1800 V DC
	Max. Dielectric Withstanding Voltage		1000 V AC	1000 V AC	2300 V AC	1000 V AC	5000 V AC
	Max. Current Rating		30 A	13 A	22 A	Consult factory	750 A
CONTACTS	EMI/RFI shielding		No	No	Consult factory	No	Yes
	Wire range AWG		12	26 to 12	24 to 16	12	40
	Wire Range mm <sup>2</sup>		0,35 - 4,0	0,14 - 2,5	0,2 - 2,0	0,35 - 4,0	95 - 240
	Contact plating	Used with APD Connector Series Snap-in version. Customized solutions on request. For further information please consult factory.	Tin / Silver / Gold	Tin / Gold	Gold	Tin / Silver / Gold	Silver
	Crimp, machined		Yes	Yes	Yes	Yes	Yes
	Crimp, stamped		Yes	Yes	No	Yes	No
	Solder	Used with APD Connector Series Snap-in version.	Consult factory	No	No	Consult factory	No
	PCB		Consult factory	No	No	Consult factory	No
	Coax		No	No	No	No	No
	Ethernet Interface		No	No	No	No	No
	Fiber Optic Interface		No	No	No	No	No
	Power and Signal Layouts		Consult factory	No	Yes	No	No
	Mating cycles (max.)		30	200	500	30	500
	Max. shock resistance (g's)		50	50	50	50	50
	Max. vibration resistance		-	100 m/s <sup>2</sup> at 10-500 Hz	200 m/s <sup>2</sup> at 10-2000 Hz	-	200 m/s <sup>2</sup> at 10-2000 Hz
Mechanical coding		Yes	Yes	Yes	Yes	Yes	
Type of coupling		Bayonet	Bayonet	Bayonet	Bayonet	Bayonet	
Configurations / Mounting options		Jamnut	Jamnut	Flange, others	Jamnut	Flange	
ENVIRONMENTAL	Temperature range		-40°C to 105°C (-40°F to 221°F)	-40°C to 125°C (-40°F to 257°F)	-55°C to 125°C (-67°F to 257°F)	-40°C to 125°C (-40°F to 257°F)	-40°C to 100°C (-40°F to 212°F)
	IP rating mated		IP69K	up to IP67	IP67	IP69K	IP67
	Individual wire sealing		Yes	No	No	Yes	No
	Cable jacket sealing		Yes	Yes	Yes	Yes	Yes
	Shell material		Thermoplastic	Thermoplastic	Aluminium	Thermoplastic	Aluminum, Stainless Steel, Marine Bronze
SHELL PLATINGS	Insert material		Thermoplastic	Thermoplastic	FPM	Thermoplastic	Thermoplastic
	RoHS Electroless Nickel - Conductive (<48h)		No	No	No	No	No
	RoHS Zinc Cobalt black - Conductive - (200h)		No	No	Yes	No	Yes
	RoHS Zinc Cobalt black, VG approved, Conductive (48h)		No	No	No	No	No
	Cadmium Olive drab - Conductive (500h)		No	No	No	No	No
	RoHS Zinc Cobalt green - Conductive (200h)		No	No	No	No	No
	RoHS Zinc Nickel blue - Conductive (500h)		No	No	Yes	No	Yes
	Black Epoxyurethane varnish - Not conductive (500h)		No	No	Yes	No	Yes
	Other platings: Consult factory		No	No	Yes	No	Yes

# We Connect

## When it matters most

For more than a century, ITT has developed innovative connector solutions for the world's harshest environments. With facilities in the United States, Germany, Italy, Mexico, China and Japan, each with its unique strengths, we offer our customers Interconnect Solutions that are truly Engineered for Life.

In addition to this truly global footprint, we offer highly specialized segmented industry expertise. We have a proven track record as an industry leader in harsh-environment vehicle applications. This has equipped us with the knowledge needed to continue to produce extremely advanced, resilient and reliable connectors for our customers' most challenging applications.

## Global interconnect solutions for the heavy and off road vehicle industry.



### The ITT Cannon and Veam difference

- Global capabilities & local support
- Proven application expertise
- A century of interconnect leadership
- A committed innovator & business partner

### About ITT

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for the energy, transportation and industrial markets.

Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in White Plains, N.Y., with employees in more than 35 countries and sales in a total of approximately 125 countries. For more information visit [www.itt.com](http://www.itt.com).



Connect with your ITT Interconnect Solutions representative today or visit us at [www.ittcannon.com](http://www.ittcannon.com)

## Connect with the experts

ITT Interconnect Solutions' Cannon and Veam brands are world leaders in the design and manufacture of highly engineered connector solutions for the harshest of environments.



ENGINEERED FOR LIFE

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