



Irradiation Cross-Linked Polymeric Insulation

SAE 1939 CAN-bus Cables ROHS and CE Compliant

Champlain Cable combines the expertise of data communications and irradiated cross-linked materials technology to create EXTRAD CAN-bus cables. EXTRAD CAN-bus cables are used as the backbone of the J1939 physical layer. Selected shielded constructions are FLEX-RAY compatible @10 MHz and have been tested to meet 100 MHz requirements. Our CAN-bus cables are designed with materials that meet or exceed TXL requirements and the impedance, return loss and attenuation requirements of the network system. Our shielding reduces the harmful effect of EMI and RFI interference. The combination of controlled impedance and shielding can reduce or eliminate data transfer issues.

Our Cell-RAD dielectric primaries are designed and sized to meet your termination needs. Champlain Cable Corporation offers many standard and custom designed cables that are road tested and have proven reliability. These cables are designed to withstand temperature extremes and physical abuse.



Part Number	Conductor	Impedance Ohms	Cap. pF/ft	Nom. Velocity	Conductor Diameter in mm	Dielectric In. mm	Shield	Jacket	Filler	Overall Diameter in mm
23-00028 1939/11	.5mm ² (19/.18) BC	120+/- 12	12	58%	.035 .89	.094 2.39 150A	Yes	Double 150A	No	.325 8.26
23-00033 Shielded CAN-bus	.5mm ² (19/.18) BC	120+/- 12	11	72%	.035 .89	.106 2.69 Cell-RAD	Yes	Single 125	Yes	.300 7.62
23-00065 Shielded CAN-bus	18 AWG (19/.23) BC	120 +/- 12	11	72%	.045 1.14	.137 3.48 Cell-RAD	Yes	Single 125	Yes	.352 8.95
23-00072 Shielded CAN-bus	.5 mm ² (19/.18) BC	120 +/- 12	10	80%	.035 .89	.092 2.34 Cell-RAD	Yes	Single 150 FX	Yes	.290 7.37
15-07271 1939/15	20 AWG (7/28) BC	120 +/- 12	11	64%	.038 .97	.082 2.08 150UT	No	Single 125	No	.204 5.18
15-07445 1939/15	20 AWG (7/28) BC	120 +/- 2	11	64%	.038 .97	.082 2.08 150 UT	No	Single FX	No	.224 5.64
15-07508 1939/15	20 AWG (19/32) BC	120 +/- 12	11	64%	.038 .97	.082 2.08 150UT	No	Single FX	No	.224 5.64
23-00074 1939/15	20 AWG (7/28) BC	120 +/- 12	12	66%	.038 .97	.072 1.83 XLHDPE	No	Single 125	No	.208 5.28
23-00070 1939/15	0.8mm ² (19/.23) BC	120 +/- 12	11	64%	.042 1.07	.084 2.13 150UT	No	Single 125	No	.204 5.18
15-07272 1939/15	18 AWG (19/.23) BC	120 +/- 12	11	64%	.045 1.14	.092 2.34 150UT	No	Single FX	No	.226 5.74
15-07353 1939/15	18 AWG (19/.23) BC	120 +/- 12	11	64%	.045 1.14	.092 2.34 150UT	No	Single 125	No	.217 5.51



Manufacturing Locations:
Colchester, Vermont
El Paso, Texas
Leeds, Massachusetts



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Property / Attribute		SAE J-1128 TXL Req.	150A	150UT
Dielectric Test	Wet Dielectric after 5 hour soak	1 kV 1 min.	5 kV 30 min	5 kV 30 min
Flame Test	Maximum time after burn	70 Sec	<1 sec	9 sec
Cold Bend	4 hours at temperature no cracks / breakdown	-40°C	-55°C	-55°C
Temperature Test	240 Hours @ 180°C heat aging	155°C	180°C	180°C
Temperature Rating	3000 Hours	125°C	150°C	150°C
Tensile	Minimum psi	1500	2350	3000
Elongation	Minimum %	150	300	375
Abrasion	Sand Paper Resistance Length in. (14 awg)	8.5	12	65
Abrasion	Scrape Cycles (14 awg)	None	NA	NA
Pinch	Pounds	9	NA	10.2
Ozone Test	192 Hours @ 65°C 100 pphm no cracks	Pass	Pass	Pass
Engine Oil	ASTM D471, IRM-902	50 +/-3 °C	15% Max.	1.8%
Gasoline	ASTM D471 Ref. Fuel C	23 +/-5 °C	15% Max.	<1%
Brake Fluid	SAE-J-1703	50 +/-5 °C	None	<1.5%
Ethanol	85% Ethanol + 15% ASTM D471, Ref. Fuel	23 +/-5 °C	15% Max.	<1%
Diesel Fuel	ASTM D471, 90% IRM-903 + 10% p-xylene	23 +/-5 °C	None	1.3%
Power Steering	ASTM D471, IRM-903	50 +/-3 °C	30% Max.	1.5%
Auto Transmission	Citgo #33123 SAE-J311	50 +/-3 °C	25% Max.	<1%
Methanol		23 +/-5 °C	15% Max.	<1%
Engine Coolant	50% Ethylene Glyco + 50% distilled Water	50 +/-3 °C	15% Max.	1.4%
Battery Acid	H ₂ SO ₄ Specific Gravity = 1.260 +/- .005	23 +/-5 °C	5% Max.	<1%
			FX	125
Dielectric Test	Wet Dielectric after 5 hour soak	1 kV 1 min.	5 kV 30 min.	5 kV 30 min
Flame Test	Maximum time after burn	70 Sec	4 sec	10 sec
Cold Bend	4 hours at temperature no cracks / breakdown	-40°C	-70°C	-55°C
Temperature Test	240 Hours @ 180°C heat aging	155°C	180°C	155°C
Temperature Rating	3000 Hours	125°C	150°C	125°C
Tensile	Minimum psi	1500	3300	3000
Elongation	Minimum %	150	430	220
Abrasion	Sand Paper Resistance Length in. (14 awg)	8.5	45	31
Abrasion	Scrape Cycles (14 awg)	None	148	250
Pinch	Pounds	9	18	9
Ozone Test	192 Hours @ 65°C 100 pphm no cracks	Pass	Pass	Pass
Engine Oil	ASTM D471, IRM-902	50 +/-3 °C	15% Max.	1.6%
Gasoline	ASTM D471 Ref. Fuel C	23 +/-5 °C	15% Max.	<1%
Brake Fluid	SAE-J-1703	50 +/-5 °C	None	<1%
Ethanol	85% Ethanol + 15% ASTM D471, Ref. Fuel	23 +/-5 °C	15% Max.	<1%
Diesel Fuel	ASTM D471, 90% IRM-903 + 10% p-xylene	23 +/-5 °C	None	1.8%
Power Steering	ASTM D471, IRM-903	50 +/-3 °C	30% Max.	1.2%
Auto Transmission	Citgo #33123 SAE-J311	50 +/-3 °C	25% Max.	5.3%
Methanol		23 +/-5 °C	15% Max.	<1%
Engine Coolant	50% Ethylene Glyco + 50% distilled Water	50 +/-3 °C	15% Max.	0%
Battery Acid	H ₂ SO ₄ Specific Gravity = 1.260 +/- .005	23 +/-5 °C	5% Max.	<1%

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