

# LMCAB LAN Cables

## Ruggedized high reliability Ethernet Cord Sets

### GENERAL CONSTRUCTION

A 4 pair, SFTP round patch cable, designed to fill the ISO / IEC 11801 Category 5e/6 requirements (cat 5e on 76 m). The cable contains 4 twisted pairs, cabled, double shielded with kevlar reinforcement strands, jacketed in black UV resistant Polyurethane HFFR. Designed for fixed or portable applications in harsh environments.

### JACKET COMPOUND SPECIFICATION

- Halogen free flame retardant polyether-based polyurethane
- Glossy finish
- Excellent hydrolysis resistance
- UV resistant
- High microbial resistance
- High flexibility



RJF TV 6M G

### RJF TV6 ETHERNET CONNECTION SYSTEM FOR HARSH ENVIRONMENT

RJFTV Cat6 allows you to use an Ethernet Class 5E / Cat. 6 connection for 10Base-T, 100Base-TX or 1000Base-T up to 250 MHz networks in harsh environments. With the patented RJ Stop system you can use a standard RJ45 cord set in a metallic plug which will protect it from shocks, dust and fluids. No hazardous on-field cabling and grounding!

### Main characteristics

- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Mechanical coding / Polarization (4 positions)
- Improved EMI protection
- Tri Start Thread coupling mechanism (D38999 series III type) with anti-decoupling device - Shell size 19
- Robust aluminium shells, olive drab cadmium plating
- RJ45 cord set retention in the plug: 100 N in the axis
- Mating cycles: 500 min

### Environmental protection

- Sealing: IP68
- Salt spray: 48 h with aluminium shell - Nickel, & black zinc cobalt plating  
> 500 h with aluminium shell - Olive drab cadmium plating
- Fire retardant / Low smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 10 ns
- Compounded versions tested per NAS 1599 (5-3000 Hz, 20 g, 12 h)
- Shocks: IK06 weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 43°C, 98% humidity

### APPLICATIONS

- Battlefield communication
- Industrial Process Control
- Robotics
- Motion Control
- Railways

## HIGH RELIABILITY ETHERNET CABLE



### Physical characteristics


Cable specification	CAT5e	CAT6
<b>Conductors</b>	Stranded 26/7 AWG (7x ca. 0.16 mm)	26 AWG (0.14 mm <sup>2</sup> ) tinned copper
<b>Insulation</b>	foam-skin polyethylene, core $\varnothing$ ca. 0.95 mm	Polyethylene Nom. Dia. 0.039" (1 mm)
<b>Stranding</b>	cores twisted to pairs, pairs stranded together	Pairs cabled with Kevlar strength members and separation tape wrapped
<b>Wrapping</b>	1 layer non-woven tape	
<b>Shields</b>	<b>Inner</b> <b>Outer</b>	
	plastic laminated aluminum foil on top: braid of tinned copper wire, coverage ca. 85 %	aluminium mylar 100% coverage tinned copper braid 80% coverage
<b>Outer sheath</b>	PUR halogen free OD ca. 6.1 mm	Black, special PUR compound OD 0.272" (6.9 mm) nom
<b>Weight</b>	40 lbs / mft (59 kg/km)	36.9 lbs / mft (55 kg/km)
<b>Min Bend Radius</b>	Moved: 15x OD Fixed: 8x OD	72 mm (10x O. D.) 36 mm (5x O.D.)
<b>Halogen free</b>	Acc. to VDE 0472-8-815	HFFR
<b>Flame retardant</b>	Acc. to IEC 60332-1-2	
<b>Temperature</b>	Moved: -5 to +80 °C Fixed: -30 to +80 °C	40°C (-40°F) to + 85°C (185°F)
<b>RoHS</b>	RoHS directive 2011/65/EU	

### Electrical characteristics at 20°C (68°F)


<b>DC Resistance</b>	284 $\Omega$ /km	290 $\Omega$ /km
<b>Insulation resistance</b>	5 G $\Omega$ /km	5 G $\Omega$ /km
<b>Capacitance</b>	48 nF/km nom. (at 800 Hz)	50 nF/km nom.
<b>Capacitance unbalance</b>		1600 pF/km max.
<b>Impedance (1-100 MHz)</b>	100 $\pm$ 15 $\Omega$ (1-100 MHz)	100 $\pm$ 5 $\Omega$
<b>Voltage rating</b>	125 V (not for power purposes)	230 V
<b>Dielectric strength</b>	core/core: 1000 V, core/screening: 500 V	VAC/1 min - 700 V/Min
<b>Velocity of propagation</b>	ca. 0.75 c	72% nom.
<b>Propagation delay</b>	<445 ns/100 m (100 MHz)	4.6 ns/m
<b>Delay difference</b>	20 ns/100 m	45 ns/100 m
<b>Resistance unbalance</b>		2%
<b>Return loss</b>		15.6 dB (250 MHz)


## CONNECTORS FOR HARSH ENVIRONMENT RJ FIELD


Connector specification	RJF 6M G	RJF TV 6M G
	Industry, Oil & Gas	Military, Railway
<b>Ethernet class</b>	Class 5E / Cat. 6, up to 250 MHz	Class 5E / Cat. 6, up to 250 MHz
<b>Coupling Mechanism</b>	Bayonet	Thread
<b>metallic shells based on</b>	MIL-DTL-26482 H-Shell size 18	MIL-DTL-38999 series III type
<b>Option EMI protection</b>	Improved with 360° shielding	Improved with 360° shielding
<b>Vibrations:</b>	10 – 500 Hz, 10 g, 3 axes: no discontinuity >10 ns	10 – 500 Hz, 10 g, 3 axes: no discontinuity >10 ns
<b>Mating cycles:</b>	500 min	500 min
<b>Sealed against fluids and dust</b>	IP68	IP68
<b>Mechanical coding polarization</b>	4 positions	4 positions
<b>Salt Spray</b>	> 500 h with olive drab cadmium	> 500 h with olive drab cadmium
<b>Temperature range</b>	-40°C to +85°C	-40°C to +85°C



Label and marking example







## ORDERING CODE

**LMCAB - XXX - XX - AAAAAA - BBBB - (YY)**

<b>XXX:</b> Cable specification <b>LAN</b> Cat.5e, 100 MHz, color black or turquoise <b>LAN6</b> Cat.6, 250 MHz, color black				
<b>XX:</b> length (m): Stand. 1, 2, 3, 5, 15, 30, 50 up to 100 m				
Connector side A, B <b>RJFTV6MG</b> MIL-DTL-D38999, Cat.6, Plug, metal backshell <b>RJFTV62</b> MIL-DTL-D38999, Cat.6, Square flange receptl., metal backshell <b>RJFTV67</b> MIL-DTL-D38999, Cat.6, Jam nut receptl., metal backshell <b>RJF6MG</b> MIL-DTL-26482, Cat.6, Plug, metal Gland <b>RJF62M</b> MIL-DTL-26482, Cat.6, Square flange receptl., metal backshell <b>RJF67M</b> MIL-DTL-26482, Cat.6, Jam nut receptl., metal backshell <b>RJ45M</b> RJ modular Jack 8P Cat.6	Used connector <sup>1,2</sup> <i>RJF TV 6M G</i> <i>RJF TV6 2 A PEM 1 G</i> <i>RJF TV6 7 A PEM 1 G</i> <i>RJF 6M G</i> <i>RJF6 2 A PEM 1 G</i> <i>RJF6 7 A PEM 1 G</i>			
<b>E: 360° EMI backshells:</b> EMI backshells provide a solution with 360° shielding				
<b>N:</b> Connectors RJF and RJFTV without dust cap <sup>3</sup>				

- Note:**
- 1) connectors specifications see catalogue: RJ Field Cat6 catalogue-rugged-digital-networks-solutions--28rj
  - 2) other connector typ on request
  - 3) connectors RJF and RJF TV are delivered with dust cap as standard

### Example:

#### **LMCAB-LAN-03-RJFTV6MG-RJ45M:**

Cable Cat5e 3 m, conn. side A: Military D38999, Plug, Metal backshell, side B: RJ-45 plug

#### **LMCAB-LAN6-1.5-RJFTV62-RJ45M:**

Cable Cat6 1.5 m, conn. side A: MIL-DTL-D38999, Cat.6, Square flange receptl., side B: RJ-45 plug