



industrial data rf cable series

Industrial Ethernet Robust FR

Weather- and Bio-Oil-Resistant Cable

100 Ω Cat.5e / Cat.6A halogen-free FR TPE Ethernet cable for washdown & bio-oils



ISO/IEC 11801 · Cat.5e / Cat.6A

100 Ω · ECOLAB & Bio-Oil TPE

-40 °C to +80 °C · Flame-Retardant

Application

Halogen-free UV-, weather-, and bio-oil-resistant industrial Ethernet cable (Cat.5e SF/UTP and Cat.7 S/FTP) per ISO/IEC 11801 and EN 50288 with 7-wire tinned copper cores, 100 Ω pairs, foil + braid EMC screen, and ECOLAB-tested TPE/TPE-V FR sheath.

Typical uses: Food, Dairy & Beverage Washdown Lines, Pharmaceutical & CIP/SIP Skids, Machine Tools with Bio-Ester Coolants, Outdoor Water & Sewage Treatment, Car-Wash & Agricultural Equipment

Construction



Cross-section, not to scale

- 1 7-wire stranded copper conductors
- 2 Polyolefin / cellular PE core insulation
- 3 Inner inner-sheath / laminated aluminum foil screen
- 4 Tinned copper wire braid screen
- 5 Flame-retardant ROBUST TPE outer sheath

Technical data

Typical values

Characteristic impedance 100 Ω ± 15 Ω (1–100 MHz / 500 MHz)

Mutual capacitance @ 800 Hz ≈ 50 nF/km (50 pF/m) nominal

Dielectric test voltage 1,500 V AC rms (core/core & core/screen)

Operating temp. (flexing) -25 °C to +80 °C

Conductor build 7-wire stranded bare/tinned Cu (AWG 22/7, 23/7)

Min. bending radius 4 × OD (fixed) · 8 × OD (occasional flexing)

Flame & halogen-free IEC 60332-1-2 flame-retardant & IEC 60754-1/2

Standards ISO/IEC 11801, EN 50173, PROFINET Guideline

Loop DC resistance @ 20 °C ≤ 115 Ω/km (AWG 22/7) · ≤ 145 Ω/km (AWG 23/7)

Velocity of propagation 68 % (Cat.5e solid PO) · 76 % (Cat.6A foam PE)

Operating temp. (fixed) -40 °C to +80 °C (-50 °C non-FR version)

Peak operating voltage 125 V (not for mains power purposes) / PoE+

Overall cable diameter 6.5 mm (2×2×AWG22/7) · 8.8 mm (4×2×AWG23/7)

Detergent & bio-oil resistance ECOLAB certified · EN 60811-404 bio-oils & fats

UV & weather resistance ISO 4892-2 UV, ozone & outdoor weatherproof

Sizes

8 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Impedance / size	Conductor & dielectric	Wall ≈ mm	Outer Ø ≈ mm	Metal kg/km	Weight ≈ kg/km	Min. bend R fixed mm
Standard ETHERLINE ROBUST FR configurations 8 sizes							
☐ ROBUST FR PN Cat.5e Flex	1×4×AWG22/7 · 100 Ω	AWG 22/7 Star-Quad SF/UTP	0.90	6.50	32.0	56.0	26
☐ ROBUST FR PN Cat.5e Solid	1×4×AWG22/1 · 100 Ω	AWG 22/1 Star-Quad SF/UTP	0.90	6.40	31.0	54.0	26
☐ ROBUST FR Cat.5e 4-Pair	4×2×AWG24/7 · 100 Ω	AWG 24/7 4-Pair SF/UTP	0.90	6.60	29.0	55.0	27
☐ ROBUST FR Cat.6A Flex	4×2×AWG23/7 · 100 Ω	AWG 23/7 4-Pair S/FTP	1.05	8.80	44.0	86.0	36
☐ ROBUST FR Cat.6A Heavy	4×2×AWG22/7 · 100 Ω	AWG 22/7 4-Pair S/FTP	1.10	9.40	52.0	98.0	38
☐ ROBUST FR Cat.6A Solid	4×2×AWG22/1 · 100 Ω	AWG 22/1 4-Pair S/FTP	1.05	9.10	50.0	92.0	37
☐ ROBUST FR Cat.7 600MHz	4×2×AWG23/7 · 100 Ω	AWG 23/7 PIMF S/FTP	1.05	8.90	45.0	88.0	36
☐ ROBUST FR Patch Cat.5e	2×2×AWG26/7 · 100 Ω	AWG 26/7 Patch SF/UTP	0.75	5.40	19.0	36.0	22

– Outer diameters and weights are nominal engineering values for ETHERLINE ROBUST FR subject to standard manufacturing tolerances per ISO/IEC 11801 / EN 50173 / IEC 61156-6 (Halogen-Free TPE Industrial Ethernet).

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 °C Ω/km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test V AC rms
ROBUST FR PN Cat.5e Flex (1×4×AWG22/7 · 100 Ω)	57.50	100.0	68.0	1,500
ROBUST FR PN Cat.5e Solid (1×4×AWG22/1 · 100 Ω)	55.00	100.0	68.0	1,500
ROBUST FR Cat.5e 4-Pair (4×2×AWG24/7 · 100 Ω)	87.00	100.0	68.0	1,500
ROBUST FR Cat.6A Flex (4×2×AWG23/7 · 100 Ω)	72.50	100.0	76.0	1,500
ROBUST FR Cat.6A Heavy (4×2×AWG22/7 · 100 Ω)	57.50	100.0	76.0	1,500
ROBUST FR Cat.6A Solid (4×2×AWG22/1 · 100 Ω)	55.00	100.0	77.0	1,500
ROBUST FR Cat.7 600MHz (4×2×AWG23/7 · 100 Ω)	72.50	100.0	77.0	1,500
ROBUST FR Patch Cat.5e (2×2×AWG26/7 · 100 Ω)	142.00	100.0	68.0	1,000

– Characteristic impedance, propagation velocity, DC resistance at +20 °C, and dielectric withstand voltages verified per ISO/IEC 11801 / EN 50173 / IEC 61156-6 (Halogen-Free TPE Industrial Ethernet).

Standards and approvals

- ✓ ISO/IEC 11801 / EN 50173 / IEC 61156-6 (Halogen-Free TPE Industrial Ethernet)
- ✓ CE (2014/35/EU) & RoHS 3 (2015/863/EU) Compliant
- ✓ REACH SVHC Compliance Verified

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

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Email

info@tebaoflex.com

Web

tebaoflex.com/cables/etherline-robust-fr-weather-and-bio-oil-resistant-industrial-ethernet-cable



Typical values for this cable type, based on ISO/IEC 11801 / EN 50173 / IEC 61156-6 (Halogen-Free TPE Industrial Ethernet). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.