



*TELDOR... The Best Connection™*

## Bus & Industrial Ethernet Cables

CanBUS

ProfiBUS

DeviceNET

InterBUS

FieldBUS

RS-485/422/232

Specialty



# **TELDOR CABLES & SYSTEMS Ltd.**

## **Company Profile**

TELDOR is a world-class cable manufacturer committed to innovation and excellence. We have continually lived up to that commitment with the help of the best personnel, the latest equipment and future-oriented management. Today, *TELDOR* is recognized as a leading cable manufacturer in almost all the markets where cables are sold and installed. The company was established in 1966, with the intent of manufacturing power and telecommunication cables. Over the years it has diversified to additional fields, always seeking the most competitive and profitable markets.

TELDOR products are sold and distributed in more than 25 countries on all 5 continents, Fifty-five percent (55%) of all sales are exported. *TELDOR* cables can be found in the most prestigious cabling projects all around the world, marked either with the *TELDOR* brand name or with one of the many international cabling companies to whom we provide cable with a private label. *TELDOR* is a certified supplier to many companies and organizations such as Panduit, Hubbell, RIT, Leviton, RW-Data, Israeli Air Force, Israels Department of Defense, ECI Telecom, and more.

TELDOR also anticipates the demands of future markets with progressive research and development. The company continuously monitors and interprets industry trends, and uses state-of-the-art R&D methods to introduce innovative new products that meet the needs of the rapidly changing market.

TELDOR utilizes the most advanced marketing methods, including a state-of-the-art Internet site at [www.teldor.com](http://www.teldor.com). *TELDOR's* engineers lecture in international seminars and training sessions all over the world. They also represent Israel in international standardization organizations such as ISO/IEC, IEC, and IEEE.

TELDOR's quality system is approved to conform to the requirements of ISO-9001:2008. In addition, many of *TELDOR's* products are approved and verified by national and international certification bodies such as UL, ETL and SII .

## **Engineering**

- Product development management (from DRD to FDR)
- Consulting (materials, processing, applications, standards)
- Custom design (technical specs., drawings, modeling, prototype)
- Product verification (test regimes, standards conformance, simulations)
- Senior engineers with expertise in polymers, conductors, strength elements, advanced transmission systems
- Technology forecasting (based on active participation in all major national and international standards organizations)
- Rapid turnover, full NDA's, ISO 9001:2008 certified

### **Processing**

- Drawing, stranding and insulation of conductors
- Precise twinning and cabling (twist, planetary, reverse oscillating)
- Extrusion of polymers (thermoplastics, thermosets, PVC, HFFR, TPU, TPE, PEE and many more)
- Armoring and shielding (wire braid, served wire, Moisture Barrier, corrugated steel, dielectric materials)
- Polymer compounding and granulation
- Precise process control
- Winding, spooling and packaging

### **Testing**

- Fully equipped hi-frequency lab
- OTDR and OLS-PM testing for all major optical fibers and wavelengths
- Fully equipped mechanical testing laboratory
- Fully equipped chemical and materials testing laboratory
- Electric testing laboratory (up to 50 kV)
- Environmental testing (Temperature, Permeability, UV, Flame, Aging)
- Issuing of C.O.Cs and C.O.Ts



### Cable Performance Icons

Teldor Cable Catalogues use a system of easily recognizable icons to indicate cable performance. The icons that appear in each cable family chapter indicate characteristics common or available in that particular family. Below is a legend of the icons used throughout this catalogue and their meaning:



UV Sunlight Resistant



Rodent Resistant



Flame Retardant



Water-blocked



Oil / Fuel Resistant



Enhanced Tensile Strength



Enhanced Crush Resistance



Electromagnetically Shielded / Dielectric



Enhanced Flexibility



Armored - Direct Burial



Aerial Applications



Very Cold Environments



Very Hot Environments



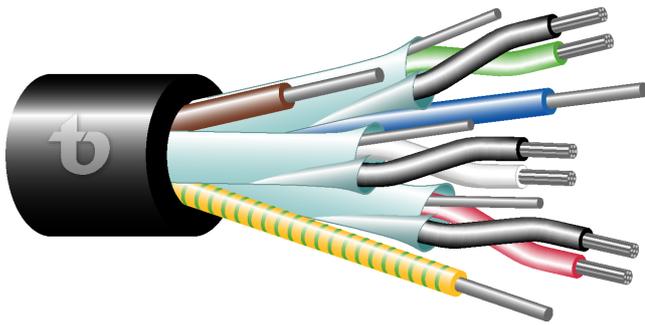
Robotic / Chain Applications



Highly Impact Resistant



For Petrochemical Environments



## Industrial BUS cabling

Advantages of Industrial Bus Systems are as follows:

- Less wiring/cabling, reduced floor space in switchboards, increased transparency, faster troubleshooting, improved availability, greater safety
- All these benefits lead to relevant cost advantages
- Differing requirements of the BUS-system, the variety of technical solutions as well as corporate policy lead to a variety of BUS-systems without a single standard
- Fieldbus is the generic name for all BUS-systems which are used in the control of process machinery on the production floor. These are:
- ProfiBus /InterBus / CANbus /FF-H1 (Foundation Fieldbus) H1

TELDOR Cables & Systems has a variety of cable designs for each BUS type and for almost any environmental installation scenario. Common to all BUS families are the following options:

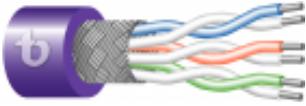
### Armor options

- SBA(Steel Braid Armor)
- SA (Corrugated Steel Armor)
- SWA (Serve Wire Armor)

### Jacket material options

- FR-PVC
- FR-LSZH (HFFR)
- XL-PE
- XL-HFFR
- PUR
- Other (per request)

### InterBus Cables



#### Applications

InterBus cables connect sensors and actuators with all standard equipment in automation. Our product range meets such special requirements as:

- Standard designs for fixed installation or limited bending
- HFFR (Halogen free & flame retardant)
- Options for Railway Systems
- Options for Marine and Submarine
- For use in chain applications
- Direct burial
- Options for Food industry

#### Cable design

Three 100  $\Omega$  impedance twisted pairs are cabled together with filler members, overall wrapped with special PET, overall shielded and jacketed with industrial grade compounds.

#### Shield options

- F/UTP
- SF/UTP
- S/UTP

#### Typical electrical properties (24 AWG, 20°C)

- Impedance: 0,064 MHz/120  $\Omega$   $\pm$  20 %, 1 to 20 MHz/100  $\Omega$   $\pm$  20 %.
- Pair capacity: 50 pF/m

### ProfiBus Cables



ProfiBus is a Bus cable family facilitating interconnections for L2 BUS components.

### Applications

Our product range meets such special requirements as:

- Standard designs for fixed installation or limited bending
- HFFR (Halogen free & flame retardant)
- Options for Railway Systems
- Options for Marine and Submarine
- Quick Strip property for special stripping tool (FC cable)
- For use in chain applications
- Direct burial
- Options for Food industry
- Highly flexible for automation equipment

### Cable design

One 150  $\Omega$  impedance twisted pair is cabled together with filler members, overall wrapped with special PET, and overall shielded and jacketed with industrial grade compounds.

### Shield options

- F/UTP
- SF/UTP
- S/UTP

### Typical electrical properties (24 AWG, 20°C)

- Impedance: 0,032 MHz/170  $\Omega$   $\pm$  20 %, 1 to 20 MHz/150  $\Omega$   $\pm$  15 %.
- Pair capacity: 42 pF/m

### DeviceNet Cables



#### Applications

DeviceNet cables connect sensors and actuators with communication channel and power feeding.

Our product range meets such special requirements as:

- Standard designs for fixed installation or limited bending
- HFFR (Halogen free & flame retardant)
- Options for Railway Systems
- Options for Marine and Submarine
- For use in chain applications
- Direct burial
- Options for Food industry
- Highly flexible for automation equipment

#### Cable design

One Shielded twisted pair 120  $\Omega$  impedance, one power feeding shielded twisted pair cabled together with a drain conductor and filler members, overall wrapped with special PET, overall shielded and jacketed with industrial grade compounds.

#### Shield options

- F/FTP
- S/FTP
- S/STP

#### Typical electrical properties (24 AWG, 20°C)

- Impedance: 120  $\Omega \pm 15\%$ .
- Capacitance: 45 pF/m
- Voltage rate: 300 V (other available per request)

## FF-H1 (Foundation Fieldbus- H1)



FF-H1 cables are suitable for long-distance installations for FOUNDATION fieldbus-H1 with additional power supply for devices. The cables are with low voltage drops along the line.

We offer cables for Non-Hazardous applications and for Hazardous applications. Our product range meets such special requirements as:

- Standard designs for fixed installation or limited bending
- Direct burial
- HFFR (Halogen free & flame retardant)
- Options for Food industry
- Options for Railway Systems
- Options for Marine and Submarine

### Cable design

One Shielded twisted pair 100  $\Omega$  impedance is overall shielded with plastic coated aluminum tape, metallic surface outside in contact with a tinned copper drain wire (optional) and tinned copper wire braid.

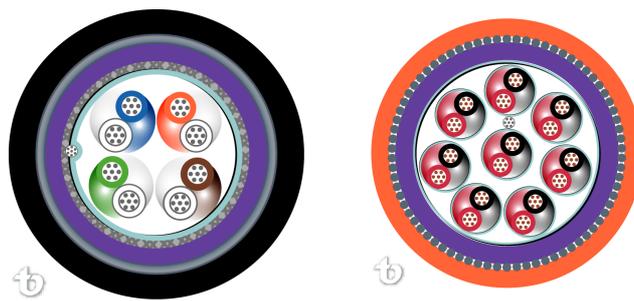
#### Shield options

- F/FTP
- S/FTP (standard)
- S/STP

#### Typical electrical properties (20°C)

- Screen resistance: 12  $\Omega$ /km nom.
- Attenuation (39 kHz): 3.0 dB/km max.
- Inductance: 0.7 mH/km nom.
- Mutual capacitance: 60 nF/km nom
- Capacitance unbalance to earth: 4 nF/km max.
- Impedance: 100  $\Omega \pm 20$  %.
- Propagation delay (7.9 kHz ... 39 kHz): 1.7 ns/km max.
- Test voltage (core / core and core / screen): 1500 V
- Operational voltage: 300 V max.




**Examples of Bus and Industrial Ethernet Cables**

Teldor P/N	Product Description	Outer Diameter (mm)	Weight (kg/km)	Impedance ( $\Omega$ )
4T00390xxx	CANbus 2x22/19 AWG SF/UTP+5x1.5 mm <sup>2</sup> PU	15.1	243	
9FY1P1Vxxx	CANbus 2x0.75 mm <sup>2</sup> S/UTP FR-PVC	9.2	85	120
9822D14xxx	DeviceNet Drop 2x24 AWG + 2x22 AWG S/FTP FR-LSZH	6.7	63	120
982PT18xxx	DeviceNet Trunk 2x18 AWG + 2x15 AWG S/FTP PU	12.1	175	120
982UT18xxx	DeviceNet Trunk 2x18 AWG +2x15 AWG S/FTP Indoor/Outdoor FR-PVC	14.2	253	120
982VD14xxx	DeviceNet Drop 2x24 AWG + 2x22 AWG S/FTP FR-PVC	6.7	60	120
9822A04xxx	Fieldbus H1 4x2x18/7 AWG F/FTP SWA FR-PVC/FR-PVC	21.6	667	100
9FA4DFVxxx	Fieldbus H1 8x2x18/7 AWG + 1x18/7 AWG F/FTP FR-PVC	22.2	510	100
9FA8D1Exxx	Fieldbus H1 2x18/7 AWG F/UTP SWA FR-PVC	11.0	245	100
9FF6D2Mxxx	Fieldbus H1 2x2x18 AWG F/FTP MB PE	16.4	250	100
8E35232xxx	Industrial Ethernet Cat. 5e 2x2x24/19 AWG SF/UTP reinforced PU	7.2	49	100
8E35234xxx	Industrial Ethernet Cat. 5e 4x2x24/19 AWG SF/UTP reinforced PU	7.2	57	100
8E55234xxx	Industrial Ethernet Cat. 5e 4x2x24/7 AWG SF/UTP Industrial FR-PVC	6.7	57	100
8E85144xxx	Industrial Ethernet Cat. 5e 4x2x24/7 AWG SF/UTP Industrial FR-PVC/FR-PVC	7.9	76	100
8295150xxx	ProfiBus 2x22 AWG F/UTP FR-PVC	8.2	70	150
9PF2215xxx	ProfiBus 2x22/19 AWG S/UTP - FC Torsion Application PU	8	80	150
9PF3205xxx	ProfiBus 2x22/19 AWG SF/UTP HFFR PU	7.7	60	150
9PF320Fxxx	ProfiBus 2x22/19 AWG SF/UTP PU + MB PE/PVC	14	187	150
9PF3212xxx	ProfiBus 2x22/19 AWG SF/UTP FC FR-LSZH	7.7	56	150
9PS320D101	ProfiBus PA/DP 2x22/1 AWG SF/UTP SWA FR-LSZH/FR-LSZH	10.7	165	150

**Examples of Bus and Industrial Ethernet Cables**

<b>Teldor P/N</b>	<b>Product Description</b>	<b>Outer Diameter (mm)</b>	<b>Weight (kg/km)</b>	<b>Impedance (<math>\Omega</math>)</b>
4T00172xxx	RS-485/422 2x2x26 AWG + 2x16 AWG S/FTP SBA PU/PU	10.2	182	100
9822S02101	RS-485/422 2x2x22/7 AWG SF/FTP SBA PE	12.8	240	100
9FA8G2Axxx	RS-485/422 2x2x24/7 AWG U/FTP SBA PVC	11	171	100
9FY8F1Uxxx	RS-485 2x22/19 AWG U/FTP PUR	5.8	30	120
9FY9F1Bxxx	RS-485 2x22/7 AWG SF/UTP SWA FR-PVC	9.4	156	120
9FY9F2Bxxx	RS-485/422 2x2x22/7 AWG SF/UTP SWA FR-PVC	14.1	292	120
9FY9F2Fxxx	RS-485/422 2x2x22/7 AWG SF/UTP SBA FR-LSZH	14.2	315	120
9FY9F4Axxx	RS-485/422 4x2x22/7 AWG SF/UTP SBA PVC Low Temp.	17.0	390	120
9FF9FDZxxx	RS-485/422 2x2x22 AWG SF/UTP + 2x16 AWG OFS FR -PVC	10.9	110	120
982AM10xxx	RS-485/422 10x2x20/7 AWG S/UTP MB PE	18.5	351	100
9IF2603xxx	InterBus 6x2x24/7 AWG S/UTP PU Jacket	8.9	81	100
9IF3402xxx	InterBus 3x2x24/7 AWG SF/UTP FR-LSZH	7.5	63	100 (pair)
9IF4401xxx	InterBus 3x2x24/7 AWG SF/UTP PVC	7.4	63	100
9IS2402xxx	InterBus 3x2x24/1 AWG S/UTP FR-LSZH jacket	6.8	59	100
9001070101	6x2x20/19 S/FTP LOW CAPACITANCE 600 V PU Jacket	13.2	180	
829P101xxx	Twinaxial 120 $\Omega$ PU jacket	4.7	21	120

### Warranty Applicable to Products Sold by Teldor Cables & Systems Ltd. ("Teldor")

1. Teldor warrants that the products, under normal use, shall meet in all material respects the specifications of Teldor for such products as reflected in the respective Teldor Data Specifications Sheet, for the following periods of time from the time of completion of production (the "Warranty Period"):

A Warranty Period of 15 years shall apply to the products expressly listed below only:

- Data transmission cables with 100  $\Omega$  characteristic impedance, made of twisted pairs, designated as Category 5, Category 5e, Category 6, Category 6<sub>A</sub>, Category 7, Category 7<sub>A</sub>, or "Category 8"
- Data transmission cables made of optical fibers
- Instrumentation, Control and signal cables made of copper conductors
- Telecom cables made of twisted pairs of copper conductors
- Low voltage electric power cables
- Coaxial, Twinaxial and Triaxial cables
- Electronic and Audio cables for analog and/or digital transmission
- Industrial Ethernet or Industrial BUS cables

A Warranty Period of one year shall apply to all products, other than those expressly listed above.

2. Teldor warrants further that at the time of delivery the products shall be adequately contained, packed and labeled and conform in all material respects to statements made by Teldor on any container packaging or label.

3. Under no circumstances shall Teldor be liable for any repair or replacement needed in whole or in part (i) as a result of inappropriate environment, improper storage, transportation, handling, installation, use, removal, modification, maintenance or repair, negligence or fault, by any party other than by Teldor; or (ii) as a result of accident.

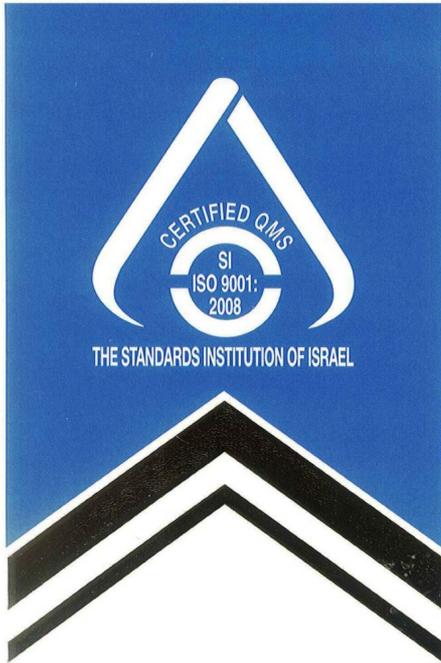
4. During the Warranty Period Teldor shall, at Teldor's discretion, either repair, replace or give credit for the purchase price of, any defective products found to fail to comply with this Warranty and returned by the Buyer to Teldor. In no event shall Teldor be liable for damages in excess of the purchase price received by Teldor for the product. Teldor shall acquire the ownership of all the products that have been replaced or given credited for. This Warranty shall also apply to the repaired or replacement part during the remaining portion of the Warranty Period, if any.

5. This Warranty applies only if (i) Teldor has received a written notice from the Buyer giving details of the defective item before the end of the Warranty Period, (ii) Teldor has been afforded a reasonable opportunity to inspect the item in question, and (iii) the Buyer has provided at its expense all assistance and support needed by Teldor to fulfill its obligations under this Warranty.

6. To the extent permitted by applicable law, this Warranty is exclusive and constitutes the entire warranty and liability of Teldor with respect to the products, and all other warranties or liabilities imposed or implied by statute, law or custom are explicitly excluded. In no circumstances shall Teldor have any liability for consequential or indirect loss or damage no matter how arising, or of any loss arising out or in connection with the ability or inability to use the products. Teldor expressly excludes liability for all costs associated with the installation of the replacement items, the removal of the items being removed, and the repair of defective items other than at Teldor's premises.

The full description of the terms, conditions and limitations of the Teldor warranty are agreed on a case-by-case basis.





# Certificate

This is to certify that the  
**Quality Management System**  
 of

**TELDOR CABLES & SYSTEMS LTD**

**EIN-DOR, GESHUR, ISRAEL**

has been audited by SII and found to comply with the Quality  
 Management Standard SI ISO 9001: 2008

scope:

MANUFACTURE AND DESIGN OF WIRES & CABLES FOR  
 TELECOMMUNICATION, INSTRUMENTATION, ELECTRONICS,  
 DATA COMMUNICATION AND ELECTRICAL PURPOSES.

The Certificate is granted in accordance with SII's Rules for the Certification of Quality Systems (SII procedure-002). The validity of the Certificate is subject to the continuous maintenance of the Quality System according to the above standard, and the follow-up surveillance performed by SII. Further clarifications regarding the scope of the certificate and applicability of ISO 9001:2008 requirements may be obtained by consulting the organization.

921E(01/09)RVA

Date of initial approval: 16 . 03 . 1993  
 Date of expiration: 15 . 01 . 2013

License No: 52665  
 Date of issue: 06 . 01 . 2010

[www.sii.org.il](http://www.sii.org.il)

THE STANDARDS INSTITUTION OF ISRAEL



*Doron Tamir*  
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C096  
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 the RvA





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