DATA CABLES

OPTOKON® Elektronik

MEMBER OF OPTOKON GROUP

OE250 Slim CAT 6 U/UTP LSZH B2 (4 x 2 x 0.54)

RoHS Compliant CE CPR COMPLIANT

Application

10Base-T, 100Base-T, 1000Base-T, and Fieldbus systems. Applicable for Power over Ethernet (PoE) / PoE+

Cable Construction

- 0.54 mm Bare Copper
- PE Insulation
- Pair Seperator
- Ø 5.60 ± 0.20 mm LSZH

Technical Properties

Cable Weight	40 kg/km
Copper Weight	17.3 kg/km
Min. Bending radius during draw in	50 mm
Min. Bending radius permanently installed	25 mm
Max. Tensile Strength	90 N
Min. Crush Resistance	1000 N/10 cm
Min. Impact	10 Impacts
Installation Temperature	0°C ... +50°C
Operating Temperature	-20°C ... +70°C
Packing	305 / 500 m

Electrical Properties at 20 °C

Max. Conductor Resistance	< 9.5 Ω / km
Max. Resistance Unbalance	< 2%
Min. Insulation Resistance	5000 MΩ x m
Mutual Capacitance	< 60 pF / m
Capacitance Unbalance	1600 pF / km
Impedance at 100 MHz	100 ± 5 Ω
Velocity of Propagation	66 %
Delay Skew	< 45 ns / 100 m
Test Voltage	1000 V
Operating Voltage	125 V

Standards

EIA/TIA-568
ISO/IEC 11801 Class E
IEC 61156-5, EN 50173-1
EN 50288-6-1

Euro Class
$B2_{ca}$, s1a, d1, a1

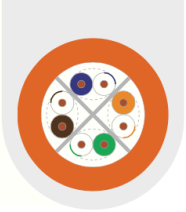
Flame Retardancy
EN 60332-1-2

Corrosive Gases Test
EN 50267-2-3

Smoke Density
EN 61034-2

Electrical Data (Nominal) @ 20 °C

Frequency (MHz)	Attenuation (dB / 100 m)	NEXT (dB)	PS - NEXT (dB)	ACR (dB / 100 m)	PS-ACR (dB / 100 m)	ACRF (dB / 100 m)	PS-ACRF (dB / 100 m)	Return Loss (dB)
1	2.0	83	80	85	82	83	80	25
4	3.6	73	70	70	67	70	67	31
10	6.0	73	70	65	62	60	57	30
100	19.5	55	52	40	37	35	32	25
200	28.5	50	47	25	22	30	27	22
250	32.0	45	42	25	22	22	19	22



OE400 CAT 6 U/UTP LSZH D (4 x 2 x 0.56)

RoHS Compliant CE CPR COMPLIANT

Application

10Base-T, 100Base-T, 1000Base-T, and Fieldbus systems. Applicable for Power over Ethernet (PoE) / PoE+

Cable Construction

- 0.56 mm Bare Copper
- PE Insulation
- Pair Seperator
- Ø 6.20 ± 0.20 mm LSZH

Technical Properties

Cable Weight	46 kg/km
Copper Weight	19.1 kg/km
Min. Bending radius during draw in	50 mm
Min. Bending radius permanently installed	25 mm
Max. Tensile Strength	90 N
Min. Crush Resistance	1000 N/10 cm
Min. Impact	10 Impacts
Installation Temperature	0°C ... +50°C
Operating Temperature	-20°C ... +70°C
Packing	305 / 500 m

Electrical Properties at 20 °C

Max. Conductor Resistance	< 9.5 Ω / km
Max. Resistance Unbalance	< 2%
Min. Insulation Resistance	5000 MΩ x m
Mutual Capacitance	< 60 pF / m
Capacitance Unbalance	1600 pF / km
Impedance at 100 MHz	100 ± 5 Ω
Velocity of Propagation	66 %
Delay Skew	< 45 ns / 100 m
Test Voltage	1000 V
Operating Voltage	125 V

Standards

EIA/TIA-568
ISO/IEC 11801 Class E
IEC 61156-5, EN 50173-1
EN 50288-6-1

Euro Class
D_{ca}

Flame Retardancy
EN 60332-1-2

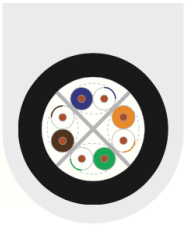
Corrosive Gases Test
EN 50267-2-3

Smoke Density
EN 61034-2

Electrical Data (Nominal) @ 20 °C

Frequency (MHz)	Attenuation (dB / 100 m)	NEXT (dB)	PS - NEXT (dB)	ACR (dB / 100 m)	PS-ACR (dB / 100 m)	ACRF (dB / 100 m)	PS-ACRF (dB / 100 m)	Return Loss (dB)
1	2.0	83	80	85	82	83	80	25
4	3.6	73	70	70	67	70	67	31
10	6.0	73	70	65	62	60	57	30
100	19.5	55	52	40	37	35	32	25
200	28.5	50	47	25	22	30	27	22
250	32.0	45	42	25	22	22	19	22
300	33.0	40	37	15	12	20	17	22
400	39.0	40	37	7	4	20	17	20

OPTOKON ELEKTRONIK



OE400 CAT 6 U/UTP PE F (4 x 2 x 0.56)

Application

10Base-T, 100Base-T, 1000Base-T, and Fieldbus systems. Applicable for Power over Ethernet (PoE) / PoE+

Cable Construction

- 0.56 mm Bare Copper
- PE Insulation
- Pair Seperator
- Ø 6.20 ± 0.20 mm PE

Technical Properties

Cable Weight	41 kg/km
Copper Weight	19.1 kg/km
Min. Bending radius during draw in	50 mm
Min. Bending radius permanently installed	25 mm
Max. Tensile Strength	90 N
Min. Crush Resistance	1000 N/10 cm
Min. Impact	10 Impacts
Installation Temperature	0°C ... +50°C
Operating Temperature	-20°C ... +70°C
Packing	305 / 500 m

Electrical Properties at 20 °C

Max. Conductor Resistance	< 9.5 Ω / km
Max. Resistance Unbalance	< 2%
Min. Insulation Resistance	5000 MΩ x m
Mutual Capacitance	< 60 pF / m
Capacitance Unbalance	1600 pF / m
Impedance at 100 MHz	100 ± 5 Ω
Velocity of Propagation	66 %
Delay Skew	< 45 ns / 100 m
Test Voltage	1000 V
Operating Voltage	125 V

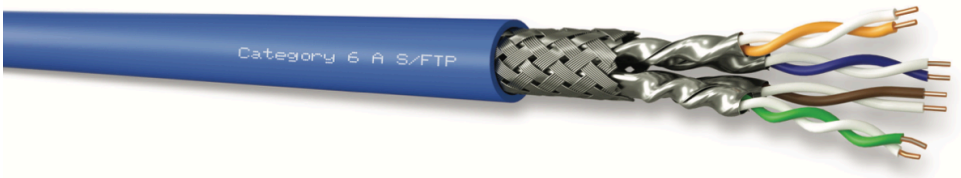
Standards

EIA/TIA-568
ISO/IEC 11801 Class E
IEC 61156-5, EN 50173-1
EN 50288-6-1

Euro Class
F_{ca}

Electrical Data (Nominal) @ 20 °C

Frequency (MHz)	Attenuation (dB / 100 m)	NEXT (dB)	PS - NEXT (dB)	ACR (dB / 100 m)	PS-ACR (dB / 100 m)	ACRF (dB / 100 m)	PS-ACRF (dB / 100 m)	Return Loss (dB)
1	2.0	83	80	85	82	83	80	25
4	3.6	73	70	70	67	70	67	31
10	6.0	73	70	65	62	60	57	30
100	19.5	55	52	40	37	35	32	25
200	28.5	50	47	25	22	30	27	22
250	32.0	45	42	25	22	22	19	22
300	33.0	40	37	15	12	20	17	22
400	39.0	40	37	7	4	20	17	20



OE500 CAT 6A S/FTP LSZH C (4 x 2 x 0.56 /30% TCWB)

Application

10Base-T, 100Base-T, 1000Base-T, 10GBase-T, and Filedbus systems. Applicable for Power over Ethernet PoE / PoE+

Cable Construction

- 0.56 mm Bare Copper
- Skin/Foam/Skin PE Insulation
- Al-Pet Foil 100% Coverage
- Tinned Copper Wire Braiding 22% Coverage
- Ø 7.10 ± 0.20 mm LSZH

Technical Properties

Cable Weight	56 kg/km
Copper Weight	21.9 kg/km
Min. Bending radius during draw in	60 mm
Min. Bending radius permanently installed	30 mm
Max. Tensile Strength	90 N
Min. Crush Resistance	1000 N/10 cm
Min. Impact	10 Impacts
Installation Temperature	0°C ... +50°C
Operating Temperature	-20°C ... +70°C
Packing	305 / 500 m

Electrical Properties at 20 °C

Max. Conductor Resistance	< 9.5 Ω / km
Max. Resistance Unbalance	< 2%
Min. Insulation Resistance	5000 MΩ x m
Mutual Capacitance	< 56 pF / m
Capacitance Unbalance	1600 pF / km
Impedance at 100 MHz	100 ± 5 Ω
Velocity of Propagation	76 %
Delay Skew	< 25 ns / 100 m
Coupling Attenuation	> 70 dB
Segregation Class	C
Transfer Impedance 1/10/30 MHz	< 10/10/30 mΩ/m
Test Voltage	1000 V
Operating Voltage	125 V

Standards

EIA/TIA-568
ISO/IEC 11801 Class F
IEC 61156-5, EN 50173-1
EN 50288-4-1

Euro Class
C_{ca}, s1a, d2, a1

Flame Retardancy
EN 60332-1-2

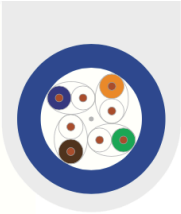
Corrosive Gases Test
EN 50267-2-3

Smoke Density
EN 61034-2

Electrical Data (Nominal) @ 20 °C

Frequency (MHz)	Attenuation (dB / 100 m)	NEXT (dB)	PS - NEXT (dB)	ACR (dB / 100 m)	PS-ACR (dB / 100 m)	ACRF (dB / 100 m)	PS-ACRF (dB / 100 m)	Return Loss (dB)
1	2.0	95	92	90	87	100	97	25
4	3.6	95	92	90	87	100	97	25
10	5.4	95	92	85	82	90	87	28
100	18.3	87	84	75	72	75	72	25
200	25.0	87	84	75	72	70	67	25
250	29.1	85	82	52	49	65	62	23
400	37.4	75	72	41	48	55	52	23
500	41.5	75	72	30	27	55	52	21

OPTOKON ELEKTRONIK



OE500 CAT 6A U/FTP LSZH C (4 x 2 x 0.56)

RoHS Compliant CE CPR COMPLIANT

Application

10Base-T, 100Base-T, 1000Base-T, 10GBase-T, and Filedbus systems. Applicable for Power over Ethernet PoE / PoE+

Cable Construction

- 0.56 mm Bare Copper
- Skin/Foam/Skin PE Insulation
- Al-Pet Foil 100% Coverage
- Tinned Copper Drain Wire
- Ø 7.70 ± 0.20 mm LSZH

Technical Properties

Cable Weight	66 kg/km
Copper Weight	21.1 kg/km
Min. Bending radius during draw in	60 mm
Min. Bending radius permanently installed	30 mm
Max. Tensile Strength	95 N
Min. Crush Resistance	1000 N/10 cm
Min. Impact	10 Impacts
Installation Temperature	0°C ... +50°C
Operating Temperature	-20°C ... +70°C
Packing	305 / 500 m

Electrical Properties at 20 °C

Max. Conductor Resistance	< 9.5 Ω / km
Max. Resistance Unbalance	< 2%
Min. Insulation Resistance	5000 MΩ x m
Mutual Capacitance	< 56 pF / m
Capacitance Unbalance	1600 pF / km
Impedance at 100 MHz	100 ± 5 Ω
Velocity of Propagation	76 %
Delay Skew	< 25 ns / 100 m
Coupling Attenuation	> 55 dB
Segregation Class	C
Transfer Impedance 1/10/30 MHz	< 50/100/200 mΩ/m
Test Voltage	1000 V
Operating Voltage	125 V

Standards

EIA/TIA-568
ISO/IEC 11801 Class F
IEC 61156-5, EN 50173-1
EN 50288-4-1

Euro Class
C_{ca}, s1a, d2, a1

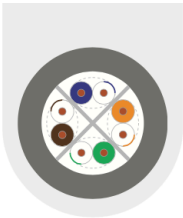
Flame Retardancy
EN 60332-1-2

Corrosive Gases Test
EN 50267-2-3

Smoke Density
EN 61034-2

Electrical Data (Nominal) @ 20 °C

Frequency (MHz)	Attenuation (dB / 100 m)	NEXT (dB)	PS - NEXT (dB)	ACR (dB / 100 m)	PS-ACR (dB / 100 m)	ACRF (dB / 100 m)	PS-ACRF (dB / 100 m)	Return Loss (dB)
1	2.0	95	92	90	87	100	97	25
4	3.6	95	92	90	87	100	97	25
10	5.4	95	92	85	82	90	87	28
100	18.3	87	84	75	72	75	72	25
200	25.0	87	84	75	72	70	67	25
250	29.1	85	82	52	49	65	62	23
400	37.4	75	72	41	48	55	52	23
500	41.5	75	72	30	27	55	52	21



Patch Cord CAT 6 U/UTP LSZH Stranded 24 AWG E

RoHS Compliant CE CPR COMPLIANT

Application

10Base-T, 100Base-T, 1000Base-T, and Fieldbus systems. Applicable for Power over Ethernet (PoE) / PoE+

Cable Construction

- 24 AWG/7 Stranded Bare Copper
- PE Insulation
- Pair Seperator
- Ø 6.40 ± 0.20 mm LSZH

Technical Properties

Cable Weight	42 kg/km
Copper Weight	16 kg/km
Min. Bending radius during draw in	50 mm
Min. Bending radius permanently installed	25 mm
Max. Tensile Strength	90 N
Min. Crush Resistance	1000 N/10 cm
Min. Impact	10 Impacts
Installation Temperature	0°C ... +50°C
Operating Temperature	-20°C ... +70°C
Packing	0,35 m ... 30 m

Electrical Properties at 20 °C

Max. Conductor Resistance	< 9.5 Ω / km
Max. Resistance Unbalance	< 2%
Min. Insulation Resistance	5000 MΩ x m
Mutual Capacitance	< 60 pF / m
Capacitance Unbalance	1600 pF / km
Impedance at 100 MHz	100 ± 5 Ω
Velocity of Propagation	66 %
Delay Skew	< 45 ns / 100 m
Test Voltage	1000 V
Operating Voltage	125 V

Standards

EIA/TIA-568
ISO/IEC 11801 Class E
IEC 61156-5, EN 50173-1
EN 50288-6-1

Euro Class
E_{ca}

Flame Retardancy
EN 60332-1-2

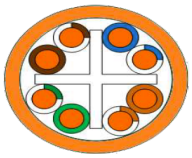
Corrosive Gases Test
EN 50267-2-3

Smoke Density
EN 61034-2

Electrical Data (Nominal) @ 20 °C

Frequency (MHz)	Attenuation (dB / 100 m)	NEXT (dB)	PS - NEXT (dB)	Return Loss (dB)
4	5.0	67	64	23
10	7.0	61	58	25
100	23.0	46	43	20
200	33.0	41	38	17
250	37.0	40	37	17
300	42.0	35	33	16
400	50.0	32	31	15

OPTOKON ELEKTRONIK



U/UTP CAT 6A LSZH 72V
(4x2x23 Awg)

Application

They are used in cabling in offices, management, R&D buildings with high terminal density, signal communication in information communication systems.

10 Base-T (IEEE 802.3)
100 Base-T (IEEE 802.3u)
1000Base-T (IEEE 802.3u)
10G Base-T Gigabit Ethernet
IEEE 802.3af (Type 1 PoE)
IEEE 802.3at (Type 2 PoE)
IEEE 802.3bt (Type 3 PoE)
IEEE 802.3bt (Type 4 PoE)
ATM 155
Token ring (IEEE 805.5)
TP-PMD (ANSI X3T9.5)
Power over HDBaseT (PoH)

Construction

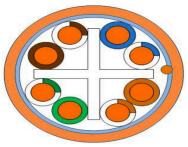
Conductor	Electrolytic solid copper conductor (Awg 23)
Insulation	Polyethylene compound
Stranding	4 pair common twist with central element
Outer sheath	Lszh compound
Outer sheath color	RAL 2003

Flame propagation	Smoke density	Corrosive gases	Halogen free
IEC 60332-1-2; VDE 0482-332-1-2; EN 60332-1-1	IEC 61034-2 VDE 0482-1034-2 EN 61034-2	IEC 60754-2 VDE 0482-267-2-3 EN 60754-2	IEC 60754-1 VDE 0482-267-2-1 EN 60754-1

Frequency	Attenuation	Near end crosstalk	Ps-Next	Return Loss	ACR-N	ACR-F (ELFEXT)	PS-ACR-F (PS-ELFEXT)
MHz	dB/100	dB	dB	dB/100	dB/100	dB/100	dB/100
4	3,6	90	80	23	70	90	90
10	5,6	95	90	26	60	85	90
16	7,1	95	90	28	55	95	90
31,25	10,5	90	85	25	46	85	85
62,5	14,6	90	90	25	37	80	80
100	18,3	90	90	23	29	75	70
250	29,5	90	75	20	10	70	65
400	36	75	75	23	-20	55	65
500	42	75	75	23	-23	55	55
600	46	85	75	23	-25	55	50

Conductor resistance	Resistance imbalance	Capacitance	Capacity imbalance	Velocity of propagation	Signal delay	Characteristic impedance	Test voltage
max.75 Ω/km	max %1	nom. 43 pF/m	max. 1600 pF/km	78%	max.45 ns/100m	100 ± 5 Ω @100MHz	1000V

Transfer Impedance	TCL	Coupling attenuation	Segregation class	Bending radius	Temperature range	Insulation resistance	Operating voltage
Grade 1	min. level 2	Type 1b	C	fixed min. 4 x D flexing min. 8 x D	fixed -20°C ...+60°C flexing 0°C ...+50°C	min 5000 MΩ x m	72V
at 1/10/30/100 Mhz	50 dB ≥	30 to 100 Mhz					
10<10<30<100 mΩ/m	55 dB	≥ 70					



F/UTP CAT6A LSZH
4x2x23 AWG

Application

They are used in cabling in offices, management, R&D buildings with high terminal density, signal communication in information communication systems.

10 Base-T (IEEE 802.3)
100 Base-T (IEEE 802.3u)
1000Base-T (IEEE 802.3u)
10G Base-T Gigabit Ethernet
IEEE 802.3af (Type 1 PoE)
IEEE 802.3at (Type 2 PoE)
Token ring (IEEE 805.5)
TP-PMD (ANSI X3T9.5)
Power over HDBaseT (PoH)
IEEE 802.3bt (Type 3 PoE)
IEEE 802.3bt (Type 4 PoE)
ATM 155

Construction

Conductor	Electrolytic solid copper conductor (Awg 23)
Insulation	Solid polyethylene
Stranding	Cores are twisted in pairs, and all the pairs are twisted together
Screen	Tinned copper drain wire;Aluminium/pet tape
Outer sheath	Lszh compound

Flame propagation	Smoke density	Corrosive gases	Halogen free
IEC 60332-1-2; VDE 0482-332-1-2; EN 60332-1-1	IEC 61034-2 VDE 0482-1034-2 EN 61034-2	IEC 60754-2 VDE 0482-267-2-3 EN 60754-2	IEC 60754-1 VDE 0482-267-2-1 EN 60754-1

Frequency	Attenuation	Near end crosstalk	Ps-Next	Return Loss	ACR-N	ACR-F (ELFEXT)	PS-ACR-F (PS-ELFEXT)
MHz	dB/100	dB	dB	dB/100	dB/100	dB/100	dB/100
4	3,6	90	80	23	70	90	90
10	5,6	95	90	26	60	85	90
16	7,1	95	90	28	55	95	90
31,25	10,5	90	85	25	46	85	85
62,5	14,6	90	90	25	37	80	80
100	18,3	90	90	23	29	75	70
250	29,5	90	75	20	10	70	65
400	36	75	75	23	-20	55	65
500	42	75	75	23	-23	55	55
600	46	85	75	23	-25	55	50

Conductor resistance	Resistance imbalance	Capacitance	Capacity imbalance	Velocity of propagation	Signal delay	Characteristic impedance	Test voltage
max.75 Ω/km	max %1	nom. 43 pF/m	max. 1600 pF/km	78%	max.45 ns/100m	100 ± 5 Ω @100MHz	1000V

Transfer Impedance	TCL	Coupling attenuation	Segregation class	Bending radius	Temperature range	Insulation resistance	Operating voltage
Grade 1	min. level 2	Type 1b	C	fixed min. 4 x D flexing min. 8 x D	fixed -20°C ...+60°C flexing 0°C ...+50°C	min 5000 MΩ x m	72V
at 1/10/30/100 Mhz	50 dB ≥	30 to 100 Mhz					
10<10<30<100 mΩ/m	55 dB	≥ 70					

OPTOKON ELEKTRONIK

OPTOKON Elekttronik Limited Şirketi

E-Mail : turkey@optokon.com

WWW.OPTOKONElektronik.COM