010.2936

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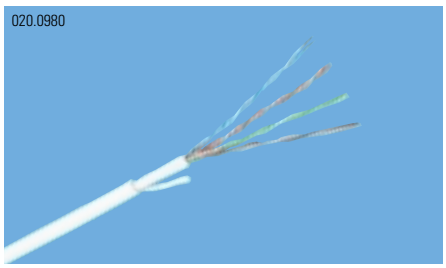
R&M guarantee on the system

- Products tested by independent labs
- Best performance characteristics
- Available in various designs
- 900 µm tight tube FO cables in dry, gelfree design

R&M

1



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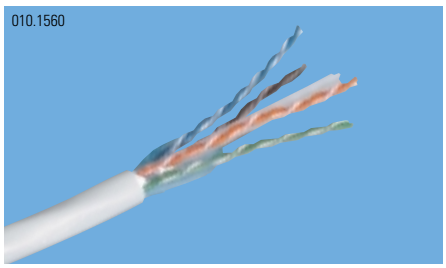

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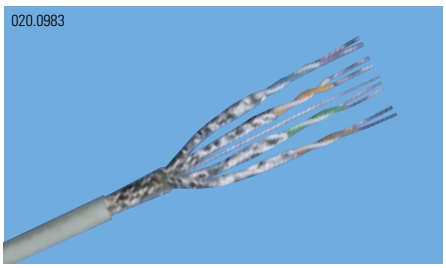

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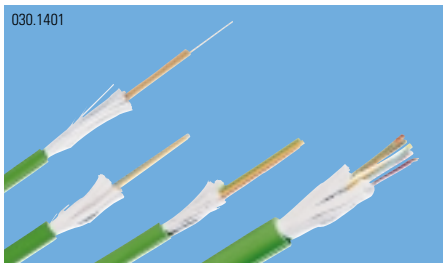

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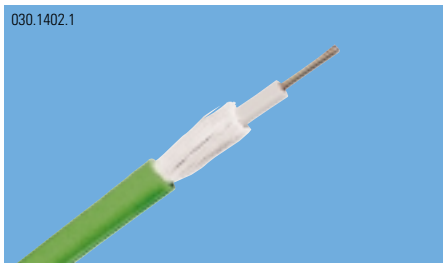

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Ordering Information	Description	Packing Unit	Part Number

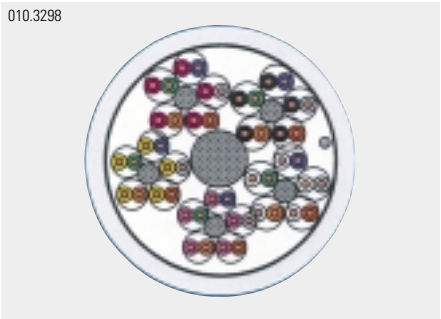
Multipair Installation Cables, Cat. 3
Multipair, U/UTP unshielded, Category 3 cables.
100 Ohm impedance. Designed for voice, video and data transmission at frequencies of up to 16 MHz.
Dimensions: pair x 2 x 0.5 mm (AWG24).
LSOH jacket.
Flame retardant and halogen-free in acc. with IEC 60332-1.

U/UTP, LSOH		
25 pair	300 m drum	R311322
50 pair	300 m drum	R311319
100 pair	300 m drum	R311320
F/UTP, LSOH		
25 pair	300 m drum	R311321
50 pair	300 m drum	R311323
100 pair	300 m drum	R311324

New cable designations acc. to ISO/IEC-11801 (2002)

List of reference

Old designations	New designations
UTP	U/UTP
FTP	F/UTP
S-FTP	SF/UTP
S-STP	S/FTP



Multipair Installation Cables, Cat. 5e
Multipair, U/UTP and F/UTP Central Office Cable
Designe for voice, video and data transmission at frequencies up to 100 MHz.
100 Ohm impendance.
Recommended Application: IEEE 802.3: 10 Base-T: 100 Base-T: ISDN: xDSL
IEEE 802.5 16 MB: ISDN: TPDDI: ATM 155 Mbit/s
Standards: EN 50173, ISO/IEC 11801
Fire rating: LSOH
IEC 60332-1: IEC 60754-2 IEC 61034

U/UTP, LSOH		
25 pair	300 m drum	R310918
50 pair	300 m drum	R310916
100 pair	300 m drum	R310917
F/UTP, LSOH		
25 pair	300 m drum	R310908
50 pair	300 m drum	R310920
100 pair	300 m drum	R310921

Unshielded 100 Ohm installation cables, designed for voice, video and data transmission at frequencies of up to 125 MHz.
Dimensions: 4 x 2 x 0.5 mm (AWG24).
(3P and Delta certificates available.)

Cable Construction		**Nominal Values**				
Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH	0.5	0.9 PE	4.1	5.3/5.5	32/33
2 x 4	PVC/LSOH	0.5	0.9 PE	4.1	5.3 x 11.0/5.5 x 11.5	64/66

Cable Properties

Bending	
Minimum bending radius, installation/ installed	8 x D/4 x D
Tensile strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature range	
During operation	–20 °C to +60 °C
During installation	0 °C to +50 °C
Fire classification	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
Fire load (4 pair)	
PVC	278 MJ/km
LSOH	639 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Mean characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalance, maximum	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Transfer impedance, IEC 96-1 1 MHz	–
10 MHz	–
Nominal velocity of propagation (NVP)	0.69 c

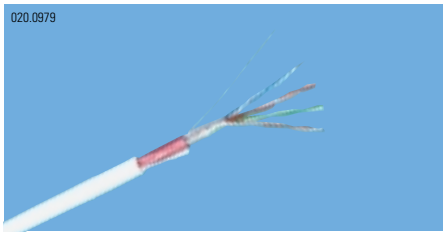
Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	–	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

Ordering Information	**Description**	**Packing Unit**	**Part Number**
	Installation Cable, Cat. 5e, U/UTP 4P, PVC	500 m drum	R35044 CLASSICsystem
	Installation Cable, Cat. 5e, U/UTP 4P, LSOH	500 m drum	R35045 CLASSICsystem
	Siamese Cable, Cat. 5e, U/UTP 2 x 4P, PVC	500 m drum	R35046 CLASSICsystem
	Siamese Cable, Cat. 5e, U/UTP 2 x 4P, LSOH	500 m drum	R35047 CLASSICsystem
	Installation Cable, Cat. 5e, U/UTP 4P, PVC	305 m box	**R35291** CLASSICsystem
	Installation Cable, Cat. 5e, U/UTP 4P, LSOH	305 m box	**R35292** CLASSICsystem

Cu Installation Cables
F/UTP Cat.5e 125 MHz



Foiled 100 Ohm installation cable. Designed for voice, video and data transmission at frequencies of up to 125 MHz.
Dimensions: 4 x 2 x 0.5 mm (AWG24).
Shield: aluminium foil
Drain wire: tin-coated copper wire (∅ 0.5 mm)
(3P and Delta certificates available.)

Cable Construction		**Nominal Values**				
Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH/LSFROH	0.5	1.1 PE	4.9	6.0/6.1/6.1	39/38/42
2 x 4	PVC/LSOH/LSFROH	0.5	1.1 PE	4.9	6.0 x 14.0/6.1 x 14. 0/6.1 x 14.0	79/76/84

Cable Properties

Bending	
Minimum bending radius, installation/installed	8 x D/4 x D
Tensile strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature range	
During operation	–20 °C to +60 °C
During installation	0 °C to +50 °C
Fire classification	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
Fire load (4 pair)	
PVC	430 MJ/km
LSOH	649 MJ/km
LSFROH	391 MJ/km

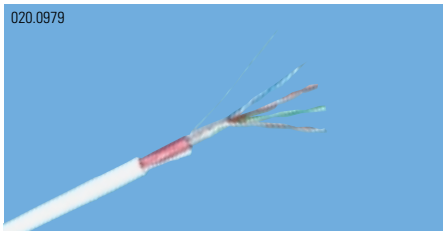
Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Mean Characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalance, maximum	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Transfer impedance, IEC 96-1	
1 MHz	44 mOhm/m
10 MHz	42 mOhm/m
Nominal velocity of propagation (NVP)	0.69 c

Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation. nom [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	–	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28



Ordering Information	**Description**	**Packing Unit**	**Part Number**
	Installation Cable, Cat. 5e, F/UTP 4P, PVC	500 m drum	R35048 CLASSICsystem
	Installation Cable, Cat. 5e, F/UTP 4P, LSOH	500 m drum	R35049 CLASSICsystem
	Installation Cable, Cat .5e, F/UTP, LSFROH	500 m drum	R302039 CLASSICsystem
	Siamese Cable, Cat. 5e, F/UTP 2 x 4P, PVC	500 m drum	R35050 CLASSICsystem
	Siamese Cable, Cat. 5e, F/UTP 2 x 4P, LSOH	500 m drum	R35051 CLASSICsystem
	Installation Cable, Cat. 5e, F/UTP 4P, PVC	305 m box	R300317 CLASSICsystem
	Installation Cable, Cat. 5e, F/UTP 4P, LSOH	305 m box	R300316 CLASSICsystem

R&M

Screened and foiled 100 Ohm installation cable.
Designed for voice, data and video transmission at frequencies of up to 125 MHz.
Dimensions: 4 x 2 x 0.5 mm (AWG24).
Shield: aluminium foil and tin-plaited copper braid.
(3P and Delta certificates available.)

Cable Construction / **Nominal Values**

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH/LSFROH	0.5	1.1 PE	5.4	6.3/6.5/6.5	41/42/46
2 x 4	PVC/LSOH/LSFROH	0.5	1.1 PE	5.4	6.3 x 13.8/6.5 x 14.4/6.5 x 14.4	83/85/92

Cable Properties

Bending	
Minimum bending radius, installation/installed	8 x D/4 x D
Tensile strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature range	
During operation	– 20 °C to + 60 °C
During installation	0 °C to + 50 °C
Fire classification	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
Fire load (4 pair)	
PVC	435 MJ/km
LSOH	688 MJ/km
LSFROH	427 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean Characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalance, maximum	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Transfer impedance, IEC 96-1	
1 MHz	20 mOhm/m
10 MHz	20 mOhm/m
Nominal velocity of propagation (NVP)	0.69 c

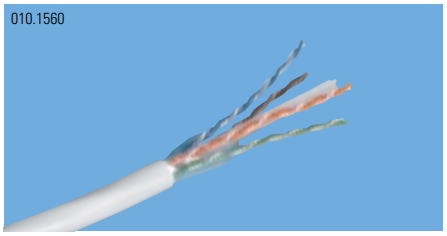
Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	–	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

Ordering Information	Description	Packing Unit	Part Number
	Installation Cable, Cat. 5e, SF/UTP 4P, PVC	500 m drum	**R35052** CLASSIC*system*
	Installation Cable, Cat. 5e, SF/UTP 4P, LSOH	500 m drum	**R302089** CLASSIC*system*
	Installation Cable, Cat. 5e, SF/UTP, 4P, LSFROH	500 m drum	R35053 CLASSIC*system*
	Siamese Cable, Cat. 5e, SF/UTP 2 x 4P, PVC	500 m drum	R35054 CLASSIC*system*
	Siamese Cable, Cat. 5e, SF/UTP 2 x 4P, LSFROH	500 m drum	R35055 CLASSIC*system*
	Installation Cable, Cat. 5e, SF/UTP 4 x 4P, LSOH	500 m drum	R302088 CLASSIC*system*

Cu Installation Cables
U/UTP Cat. 6 250 MHz



Unshielded 100 Ohm installation cable. Designed for voice, video and data transmission at frequencies of up to 250 MHz.
Dimensions: 4 x 2 x 0.58 mm (AWG23).
(3P and Delta certificates available.)

Cable Construction		Nominal Values				
Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH	0.58	1.04	5.4	6.8/7.1	43/48

Cable Properties

Bending	
Minimum bending radius, installation/installed	8 x D/4 x D
Tensile strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature range	
During operation	–20 °C to +60°C
During installation	0 °C to +50°C
Fire classification	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
Fire load (4 pair)	
PVC	412 MJ/km
LSOH	1030 MJ/km

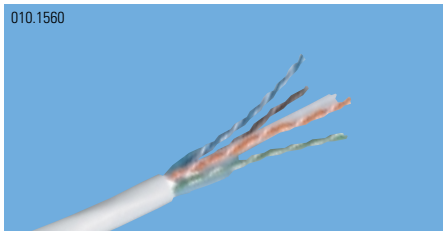
Electrical Characteristics 20 °C

Characteristic impedance (4 MHz<f<100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz<f<250 MHz)	100 ± 18 Ohm
Mean Characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalance, maximum	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Transfer impedance, IEC 96-1	
1 MHz	–
10 MHz	–
Nominal velocity of propagation (NVP)	0.67 c

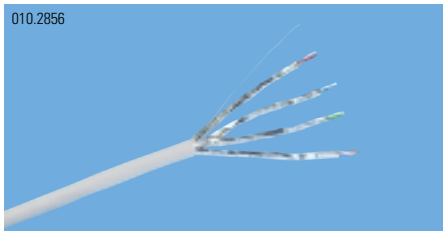
Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	1.9	76	74	-	73	71	69	66
4.0	3.6	67	63	23.0	64	60	57	54
10.0	5.6	61	55	25.0	58	52	49	46
16.0	7.1	59	52	25.0	56	49	45	42
20.0	8.0	57	49	25.0	54	46	44	41
31.25	10.1	55	45	23.6	52	42	40	37
62.5	14.5	52	38	21.5	49	35	35	32
100.0	18.7	51	32	20.1	48	29	31	28
155.0	23.7	51	27	18.8	48	24	28	25
200.0	27.3	50	23	18.0	47	20	27	24
250.0	31.0	50	19	17.3	47	16	25	22

Ordering Information	Description	Packing Unit	Part Number
	**Installation Cable, Cat. 6, U/UTP 4P, PVC**	500 m drum	**R35056** STARsystem
	Installation Cable, Cat. 6, U/UTP 4P, LSOH	500 m drum	**R35057** STARsystem

R&M



Pair-shielded 100 Ohm installation cable.
Designed for voice, video and data transmission at frequencies of up to 250 MHz (AWG24).
Dimensions: 4 x 2 x 0.55 mm.
Shield: aluminium foil.

Cable Construction		**Nominal Values**				
Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSOH	0.55	1.30 PE	5.8	7.0	50

Cable Properties

Bending	
Minimum bending radius, installation/installed	8 x D/4 x D
Tensile strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature range	
During operation	–20 °C to +60°C
During installation	0 °C to +50°C
Fire classification	
LSOH	IEC 61034, IEC 60754, IEC 60332-1
Fire load (4 pair)	
LSOH	790 MJ/km

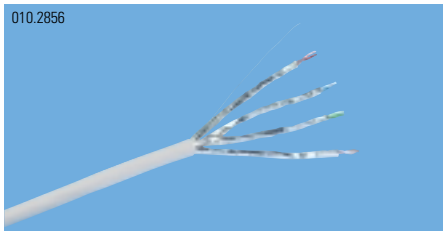
Electrical Characteristics 20 °C

Mean characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalance, maximum	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Transfer impedance, IEC 96-1 1 MHz	50 mOhm/m
10 MHz	100 mOhm/m
Nominal velocity of propagation (NVP)	0.75 c

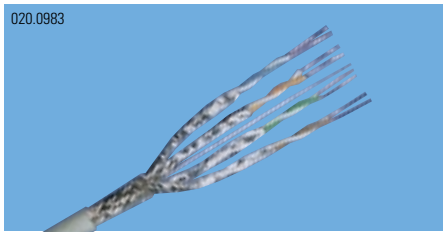
Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	90	88	–	87	85	67	64
4.0	3.6	88	84	23.0	85	81	59	56
10.0	5.7	85	79	25.0	82	76	51	48
16.0	7.2	84	77	25.0	81	74	47	44
20.0	8.1	83	75	25.0	80	72	45	42
31.25	10.2	82	72	23.6	79	69	41	38
62.5	14.7	80	85	21.5	77	62	35	32
100.0	18.9	79	60	20.1	76	57	31	28
155.0	24.0	78	54	18.8	75	51	27	24
200.0	27.0	78	51	18.0	75	48	25	22
250.0	31.4	77	46	17.3	74	43	23	20

Ordering Information	**Description**	**Packing Unit**	**Part Number**
	**Installation Cable, Cat. 6, U/FTP 4P, LSOH**	500 m drum	R308247 STARsystem
	Buldings Cable, Cat. 6, U/FTP 4 x 2	500 m drum	R309652 STARsystem

Cu Installation Cables
S/FTP Cat. 6e 250 MHz



Pair-shielded 100 Ohm installation cable.
Designed for voice, video and data transmission at frequencies of up to 250 MHz.
Dimensions: 4 x 2 x 0.55 mm (AWG24).
Shield: aluminium foil and tin-coated copper braid.
(3P and Delta certificates available.)

Cable Construction		Nominal Values				
Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSOH	0.55	1.35 PE	6.2	7.4	53

Cable Properties

Bending	
Minimum bending radius, installation/installed	8 x D/4 x D
Tensile strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature range	
During operation	–20 °C to +60°C
During installation	0 °C to +50°C
Fire classification	
LSOH	IEC 61034, IEC 60754, IEC 60332-1
Fire load (4 pair)	
LSOH	745 MJ/km

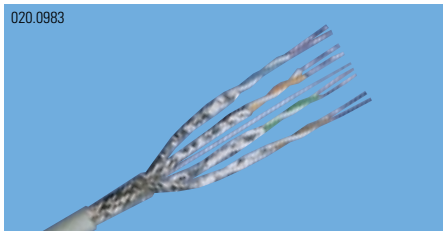
Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	1< 19 Ohm/100 m
Resistance unbalance, maximum	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Transfer impedance, IEC 96-1 1 MHz	10 mOhm/m
10 MHz	10 mOhm/m
Nominal velocity of propagation (NVP)	0.75 c

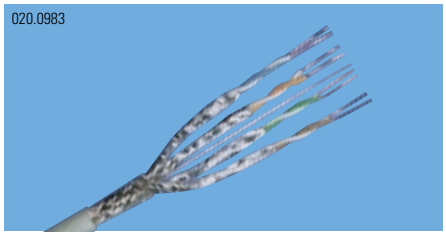
Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	90	88	–	87	85	67	64
4.0	3.6	88	84	23.0	85	81	59	56
10.0	5.7	85	79	25.0	82	76	51	48
16.0	7.2	84	77	25.0	81	74	47	44
20.0	8.1	83	75	25.0	80	72	45	42
31.25	10.2	82	72	23.6	79	69	41	38
62.5	14.7	80	85	21.5	77	62	35	32
100.0	18.9	79	60	20.1	76	57	31	28
155.0	24.0	78	54	18.8	75	51	27	24
200.0	27.0	78	51	18.0	75	48	25	22
250.0	31.4	77	46	17.3	74	43	23	20

Ordering Information	Description	Packing Unit	Part Number
	**Installation Cable, Cat. 6e, S/FTP 4P, LSOH**	500 m drum	R305649 STARsystem

R&M



Pair-shielded 100 Ohm installation cable.
Designed for voice, video and data transmission at frequencies of up to 750 MHz.
Dimensions: 4 x 2 x 0.58 mm (AWG23).
Screen: tin-coated copper braid and aluminium foil.
(3P and Delta certificates available.)

Cable Construction		**Nominal Values**				
Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSFROH	Grey, RAL 7035	0.58	1.4 PE	7.9	73
2 x 4	LSFROH	Grey, RAL 7035	0.58	1.4 PE	7.9	146

Cable Properties

Bending	
Minimum bending radius, installation	8 x D
Minimum bending radius, installed	4 x D
Tensile Strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	No stretch
Temperature Range	
During operation	– 20 to + 75 °C
During installation	0 to + 50 °C
Fire classification	
LSFROH	IEC 61034, IEC 60754-1, IEC 60332-24
Fire load (siamese cable)	
LSFROH	502 (1010) MJ/km

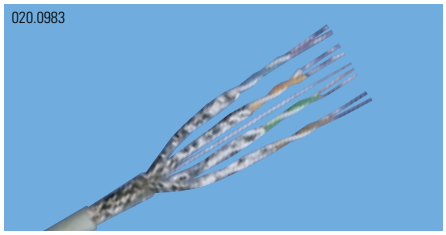
Electrical Characteristics 20 °C

Characteristic impedance (1– 600 MHz)	100 ± 15 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalanced, max.	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Optical braid coverage	65 %
Transfer impedance, IEC 96-1	
1 MHz	1.2 mOhm/m
10 MHz	1.1 mOhm/m
Nominal velocity of propagation (NVP)	0.75 c

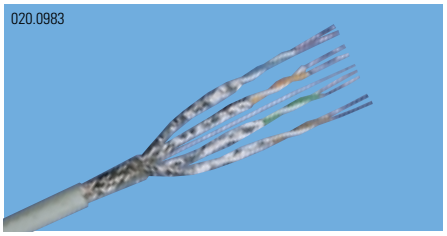
Subject to technical alterations.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	PS ELFEXT [dB]
1.0	1.9	95.0	93.1	–	92.0	90.1	84.1
10.0	5.5	95.0	89.5	23.0	92.0	86.5	80.5
20.0	8.4	95.0	86.6	25.0	92.0	83.6	77.6
31.25	10.4	94.0	83.6	25.0	91.0	80.6	75.6
62.5	14.4	94.0	79.6	23.6	91.0	76.6	69.6
100.0	18.0	92.0	74.0	21.5	89.0	71.0	65.0
300.0	32.1	90.0	57.9	18.0	87.0	54.9	45.9
600.0	46.9	82.0	35.1	17.3	79.0	32.1	25.1

Ordering Information	**Description**	**Packing Unit**	**Part Number**
	**Installation Cable, Cat. 7, S/FTP 4P, LSFROH**	500 m drum	**R35060** STARsystem
	Siamese Cable, Cat. 7, S/FTP 2 x 4P, LSFROH	500 m drum	R35061 STARsystem

Cu Installation Cables
S/FTP Cat. 7 1200 MHz



Pair-shielded 100 Ohm installation cable.
Designed for voice, video and data transmission at frequencies of up to 1200 MHz.
Dimensions: 4 x 2 x 0.64 mm (AWG22).
Shield: tin-coated copper braid and aluminium foil.

Cable Construction		Nominal Values					
Number of pairs	Sheath material	Colour	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSFROH	Grey, RAL 7035	0.64	1.6 PE	7	8.2	76

Cable Properties

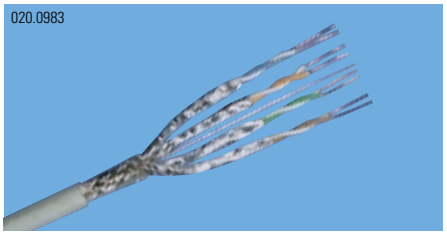
Bending	
Minimum bending radius, installation/installed	8 x D/4 x D
Tensile Strength	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	0 N
Temperature Range	
During operation	–20 °C to +60°C
During installation	0 °C to +50°C
Fire classification	
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
Fire load (siamese cable)	
LSFROH	550 MJ/km

Electrical Characteristics 20 °C

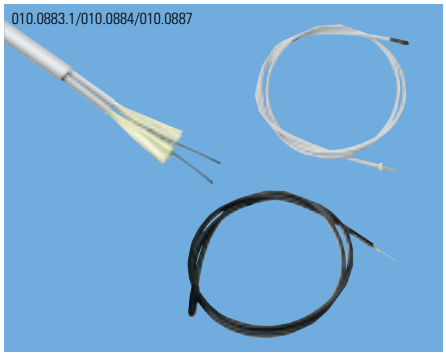
Characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	< 19 Ohm/100 m
Resistance unbalanced, max.	2 %
Propagation delay (100 MHz)	< 534 ns/100 m
Skew, maximum (100 MHz)	< 40 ns/100 m
Nominal velocity of propagation (NVP)	0.75 c
Transfer impedance, IEC 96-1	
1 MHz	10 mOhm/m
10 MHz	20 mOhm/m
30 MHz	30 mOhm/m

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	1.8	100	98	–	97	95	80	77
4.0	3.3	98	95	23.0	95	92	68	65
10.0	5.1	95	90	25.0	92	87	60	57
16.0	6.5	94	87	25.0	91	84	56	53
20.0	7.3	93	86	25.0	90	83	54	51
100.0	16.6	88	71	20.1	85	68	40	37
200.0	24.1	84	59	18.0	81	56	34	31
250.0	27.2	82	55	17.3	79	52	32	29
300.0	30.0	81	51	17.3	78	48	31	28
600.0	44.1	76	32	17.3	73	29	24	21
862.0	54.2	74	20	15.7	71	17	21	18
1000.0	59.1	73	14	15.1	70	11	20	17
1200.0	65.7	72	6	14.3	69	3	18	15

Ordering Information	Description	Packing Unit	Part Number
	**Installation Cable, Cat. 7, S/FTP 4P, LSFROH**	500 m drum	R306257 OSTARsystem

R&M

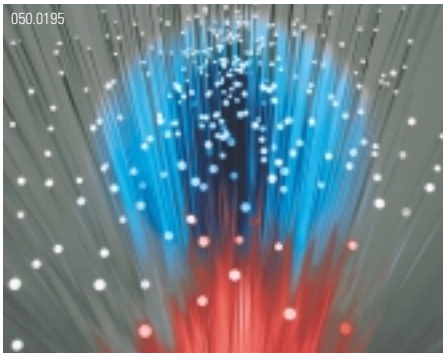


The VISION*system* FO cabling system embraces a wide range of fiber optic installation cables.
Fiber optic cables of the VISION*system* cabling system can be used for data, voice and video transmission, as well as for all presently known and planned protocols. Depending on the application and installation, FO Duplex cables, and FO loose tube cable of the types mini breakout or full breakout and various others are there to choose from. For campus cabling there are ideal outdoor or indoor/outdoor cables (loose tube cables) available. For building backbone applications the indoor/outdoor cables (mini breakout) are best since they permit fast and easy field-termination of ST, SC or LC connectors. Moreover, SC-RJ, LSH and other connectors can be spliced on as pigtails.
FO Duplex cables are for example used in horizontal cabling, providing a simple fiber to the desk or fiber to the office solution with connectors that can be field-terminated.

Features

- Cable designs for all cabling environments and customer requirements available
- Various fiber types available
- All fiber types are Gigabit Ethernet compliant
- 1 GBit, 10 GBit, Ethernet, OM1, OM2, OM3, OS1
- Indoor cables and combined indoor/outdoor cables are flame retardant or LSZH (low smoke zero halogen)

Other cable jacket materials, cable designs and types, numbers and grades of fibers are available on request.



The VISION*system* FO cabling system embraces a wide range of fiber optic cables.
They comply with the latest specifications of international standards.
This means you have the guarantee of future-proof installations.

Features

- All fibers are Gigabit and 10 Gigabit Ethernet compliant
- Multimode (50/125 and 62.5/125 µm) and singlemode FO
- Standards EN 50173-X, ISO/IEC 11801

Technical Data of the Fibers

In acc. with standard	ISO/IEC 11801	OM1	OM2	OM3	OS1
Fibers	[µm]	G62.5/125	G50/125	G50/125	E9/125
Core ∅	[µm]	62.5 ± 2.5	50 ± 2.5	50 ± 2.5	9.2
Cladding ∅	[µm]	125 ± 2	125 ± 2	125 ± 1	125 ± 1
Primary coating ∅	[µm]	250 ± 15	250 ± 15	250 ± 15	245 ± 15
Effective refraction index	(850 nm)	1.496	1.482	1.482	–
	(1300 nm)	1.491	1.477	1.477	–
	(1310 nm)	–	–	–	1.467
	(1550 nm)	–	–	–	1.467
Attenuation (cable)	[dB/km] (850 nm)	< 3.20	< 2.70	< 3.00	–
	[dB/km] (1300 nm)	< 1.00	< 0.80	< 1.00	–
	[dB/km] (1310 nm)	–	–	–	0.40
	[dB/km] (1550 nm)	–	–	–	0.25
Bandwidth x length product	[MHz x km]] (850 nm)	≥ 200	≥ 500	≥ 1500/2000*	–
	[MHz x km] (1300 nm)	≥ 600	≥ 800	≥ 500	–
Chromatic dispersion	[ps/(km x nm)] (1310 nm)	–	–	–	3.00
	[ps/(km x nm)] (1550 nm)	–	–	–	≤ 18

* Restricted launch condition

Color code used with R&M products
Standard Code (acc. to DIN VDE 0888)

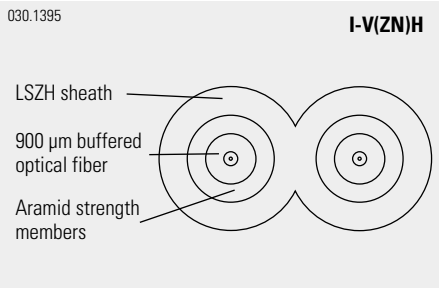
1/13	2/14	3/15	4/16	5/17	6/18	7/19	8/20	9/21	10/22	11/23	12/24
red	green	blue	yellow	white	gray	brown	violet	turquoise	black	orange	pink

Different color codes on request.

The Duplex tight tube cable forms part of a range of cables used as connecting cables, patch cables or for connections within buildings.

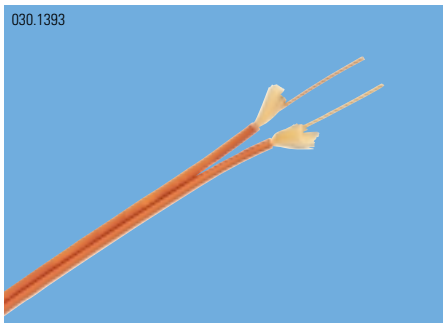
Features

- Direct plug connection
- Compact and strong construction
- Flame retardant, halogen-free LSZH sheath (Low Smoke Zero Halogen)
- 900 µm tight tube



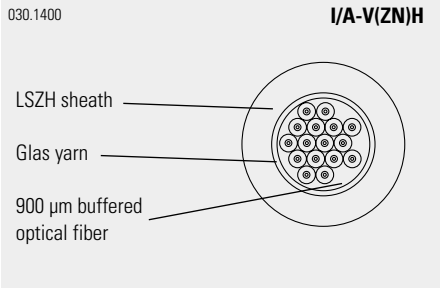
Technical Data of the Duplex Cables

Cable ∅ [mm]	2.8 x 5.6
Nominal weight [kg/km]	16
Tensile strength [N]	600
Crush resistance [N/10 cm]	5000
Min. bending radius, operating [mm]	25
Temperature range [°C]	– 20 to + 70



Ordering Information	Description	Packing Unit	Part Number
	Duplex Cable, 2 fibers, 62.5/125 µm (OM1)	2000 m	R304069 VISIONsystem
	Duplex Cable, 2 fibers, 50/125 µm (OM2)	2000 m	R304068 VISIONsystem
	Duplex Cable, 2 fibers, 50/125 µm (OM3)	2000 m	R308319 VISIONsystem

Singlemode optical fibers (OS1 and OM3) available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.



The fiber to the desk solution for direct connector mounting. The cable is easy to install and is a cost-effective solution in confined spaces. The mini breakout cable comes standard with an LSZH sheath.

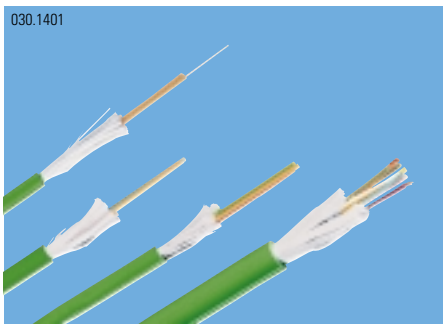
Features

- 900 µm tight buffer
- Indoor and outdoor cable
- Differently coloured tight buffer elements for reliable identification
- Fiber to the desk
- Light weight, easily installed
- Flame retardant, halogen-free LSZH jacket (Low Smoke Zero Halogen)

Technical Data of the Mini Breakout Cable

Number of fibers	4	6	8	12	24
Cable ∅ [mm]	6.0	6.0	6.5	7.0	8.5
Nominal weight [kg/km]	35	40	50	55	90
Tensile strength [N]	500	1000	1000	1000	1500
Crush resistance [N]	2000	2000	2000	2000	2000
Min. bending radius					
at installation [mm]	50	50	75	75	115
Temperature range [C°]	−20/+70	−20/+70	−20/+70	−20/+70	−20/+70

Ordering Information | **Description** | **Packing Unit** | **Part Number**



Mini Breakout Cable

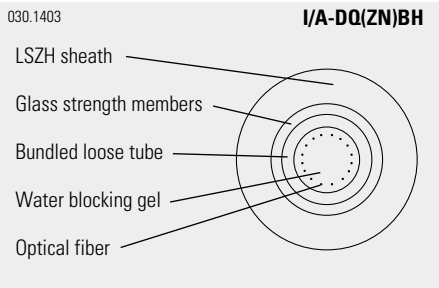
Number of fibers	∅ (mm)	Fiber type [µm]	Packing Unit	Part Number	
4	6.0	62.5/125 (OM1)	2000 m	R304081	VISIONsystem
4	6.0	50/125 (OM2)	2000 m	**R304073**	VISIONsystem
4	6.0	50/125 (OM3)	2000 m	R308315	VISIONsystem
6	6.0	62.5/125 (OM1)	2000 m	R304082	VISIONsystem
6	6.0	50/125 (OM2)	2000 m	R304074	VISIONsystem
6	6.0	50/125 (OM3)	2000 m	R308316	VISIONsystem
8	6.5	62.5/125 (OM1)	2000 m	R304083	VISIONsystem
8	6.5	50/125 (OM2)	2000 m	**R304075**	VISIONsystem
8	6.5	50/125 (OM3)	2000 m	R308313	VISIONsystem
12	7.0	62.5/125 (OM1)	2000 m	R304084	VISIONsystem
12	7.0	50/125 (OM2)	2000 m	**R304076**	VISIONsystem
12	7.0	50/125 (OM3)	2000 m	R308318	VISIONsystem
24	8.5	62.5/125 (OM1)	2000 m	R304086	VISIONsystem
24	8.5	50/125 (OM2)	2000 m	**R304078**	VISIONsystem
24	8.5	50/125 (OM3)	2000 m	R308317	VISIONsystem

Singlemode optical fibers (OS1) available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.

The cable comprises a loose tube of 2.8 mm in diameter (for max. 16 fibers), and the full cable a loose tube of 3.5 mm in diameter (for max. 24 fibers). All individually colour-coded primary-coated 250 µm fibers run through a central loose tube with gel filling. The strength members are made of glass twisted around the loose tube. The cable sheath consists of LSZH (indoor and outdoor cable). The cable is rodent-protected.

Features

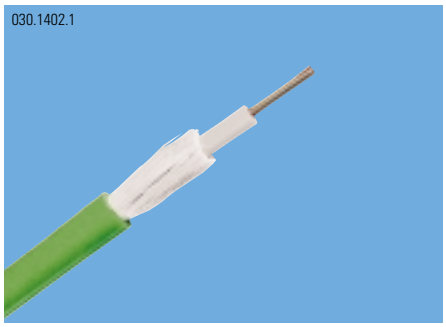
- Metal-free. Lightweight, easily installed
- Central loose tube, diameter 2.8 mm or 3.5 mm
- Easy stripped back
- Gel-filled bundled loose tube
- Flame retardant halogen-free LSZH jacket (Low Smoke Zero Halogen)
- Rodent-protected
- Water-proof



Technical Data of the Loose Tube Cable

Number of fibers	2 – 12	24
Cable ∅ [mm]	6.5	7
Nominal weight [kg/km]	33	35
Tensile strength [N]	1000	1800
Crush resistance [N]	2000	2000
Min. bending radius at installation [mm]	100	100
Temperature range [C°]	– 30 / + 70	– 30 / + 70

Ordering Information



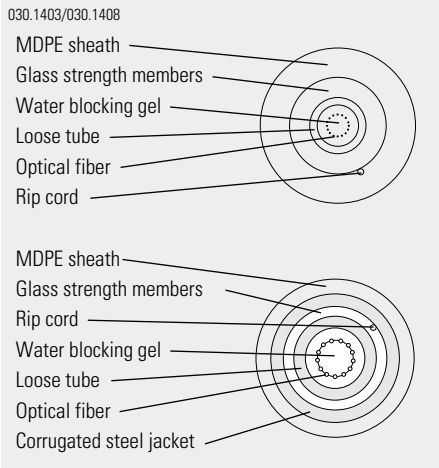
Description | **Packing Unit** | **Part Number**

Loose Tube Cable, rodent-protected

Number of fibers	∅ [mm]	Fasertyp [µm]	Packing Unit	Part Number	
4	6.5	62.5/125 (OM1)	2000 m	R304093	VISIONsystem
4	6.5	50/125 (OM2)	2000 m	**R304088**	VISIONsystem
4	6.5	50/125 (OM3)	2000 m	R308217	VISIONsystem
6	6.5	62.5/125 (OM1)	2000 m	R304094	VISIONsystem
6	6.5	50/125 (OM2)	2000 m	R304089	VISIONsystem
6	6.5	50/125 (OM3)	2000 m	R308310	VISIONsystem
8	6.5	62.5/125 (OM1)	2000 m	R304095	VISIONsystem
8	6.5	50/125 (OM2)	2000 m	**R304090**	VISIONsystem
8	6.5	50/125 (OM3)	2000 m	R308218	VISIONsystem
12	6.5	62.5/125 (OM1)	2000 m	R304096	VISIONsystem
12	6.5	50/125 (OM2)	2000 m	**R304091**	VISIONsystem
12	6.5	50/125 (OM3)	2000 m	R308214	VISIONsystem
24	7.0	62.5/125 (OM1)	2000 m	R304097	VISIONsystem
24	7.0	50/125 (OM2)	2000 m	**R304092**	VISIONsystem
24	7.0	50/125 (OM3)	2000 m	R308215	VISIONsystem

i Singlemode optical fibers (OS1) available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.

FO Outdoor Cables, rodent-protected
Loose Tube Cable



A product range of indoor and outdoor cables for installation in raceways where protection against rodents is required. The cable can contain one central or several stranded loose tubes. They are gel-filled, with 12 or 24 differently coloured singlemode or multimode fibers. The glass braiding protects against longitudinal water intrusion, and the non-metal protection yarns between the tubes and the PE sheath against any rodents. Optionally, as additional protection the cable can be wrapped in a plastic-coated corrugated steel jacket underneath an outer PE sheath.

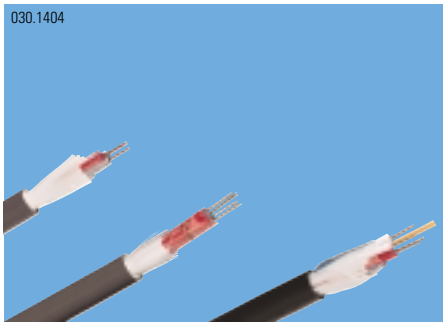
Features

- Rodent protection
- Gel-filled loose tubes
- Water intrusion barrier
- PE sheath
- Optional corrugated steel jacket and PE sheath

Technical Data of Bundled Loose Tube Cables, rodent-resistant with optional corrugated steel jacket

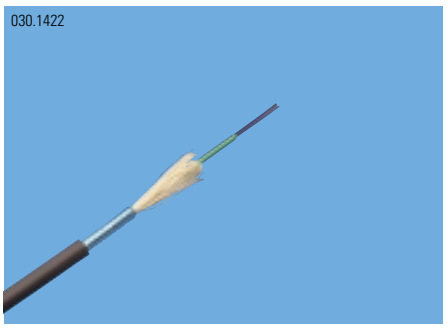
Steel armouring	No	No	No	Yes	Yes
Rodent protection	Yes	Yes	Yes	Yes	Yes
Number of fibers	12	24	48	12 – 24	25 – 72
Cable Ø [mm]	8	8.5	11	8.5 – 9.5	14.5
Nominal weight [kg/km]	50	60	120	60 – 70	215
Tensile strength [N]	1500	1500	4800	1000	1800
Crush resistance [N]	3000	3000	3000	2000	3000
Min. bending radius in installation [mm]	100	100	150	110	290
Temperature range [°C]	– 40 / +70	– 40 / +70	– 40 / +70	– 40 / +70	– 40 / +70
Number of loose tubes	1	1	4	1	3 – 6

Ordering Information



Loose Tube Cable, rodent-protected

Number of fibers	∅ [mm]	Fiber type [µm]	Packing Unit	Description	Part Number	
12	8.0	62.5/125 (OM1)	2000 m		R304153	VISIONsystem
12	8.0	50/125 (OM2)	2000 m		R304150	VISIONsystem
12	8.0	50/125 (OM3)	2000 m		R311387	VISIONsystem
24	8.5	62.5/125 (OM1)	2000 m		R304154	VISIONsystem
24	8.5	50/125 (OM2)	2000 m		R304151	VISIONsystem
24	8.5	50/125 (OM3)	2000 m		R311388	VISIONsystem
48	11.0	62.5/125 (OM1)	2000 m		R304155	VISIONsystem
48	11.0	50/125 (OM2)	2000 m		R304152	VISIONsystem
48	11.0	50/125 (OM3)	2000 m		R311389	VISIONsystem



Loose Tube Cable, corrugated steel tape

Number of fibers	∅ [mm]	Fiber type [µm]	Packing Unit	Description	Part Number	
12	8.5	62.5/125 (OM1)	2000 m		R304213	VISIONsystem
12	8.5	50/125 (OM2)	2000 m		R304210	VISIONsystem
12	8.5	50/125 (OM3)	2000 m		R311390	VISIONsystem
24	9.5	62.5/125 (OM1)	2000 m		R304214	VISIONsystem
24	9.5	50/125 (OM2)	2000 m		R304211	VISIONsystem
24	9.5	50/125 (OM3)	2000 m		R311391	VISIONsystem
48	14.5	62.5/125 (OM1)	2000 m		R304215	VISIONsystem
48	14.5	50/125 (OM2)	2000 m		R304212	VISIONsystem
48	14.5	50/125 (OM3)	2000 m		R311392	VISIONsystem

Singlemode optical fibers (OS1) available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.