

SECTION - V

DATA & COMMUNICATION CABLES



PRODUCTS

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LiYCY

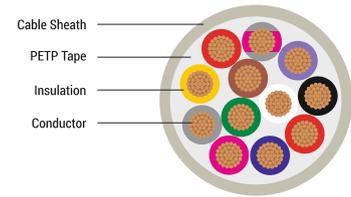
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LiYCY (TP)

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Application

These are special PVC data cables used for flexible use with free movement without tensile stress of forced movements in dry, moist and wet rooms but not suitable for open air, wherever the construction requirements call for a minimum outer diameter.

Technical Data

Standard : Based on VDE 0812

Voltage Grade (Not for power installation) : 0.14 mm² = 350 V; \geq 0.25 mm² = 500 V

Insulation Resistance : Min. 20 GΩ x cm

Temperature Range : Flexing -5°C to +70°C. Fixed installation -30°C to +70°C

Minimum Bending Radius : For flexible use 10 x cable ø

Test Voltage : Up to 0.25 mm² = 1200 V. From 0.34 mm² = 2000 V

Breakdown Voltage : Up to 0.25 mm² = 2400 V. From 0.34 mm² = 4000 V

Cable Construction

Bare copper, fine wire conductors stranded according to DIN VDE 0295/ EN 60228 cl. 5, Special PVC core insulation T12, to EN 50363-3.

Conductor make-up for

0.14 mm² = 18 x 0.10 mm.

0.25 mm² = 14 x 0.15 mm.

0.34 mm² = 19 x 0.15 mm.

Core colours as per DIN 47100 (Refer table no. 2-2).

Cores stranded in layers with optimal lay-length.

Plastic foil wrapping for 10 cores and above.

Special PVC outer sheath TM2, to EN 50363-4.1.

Colour grey (RAL 7032).

Properties

PVC self-extinguishing and flame retardant according to EN 60332-1-2.

Capacitance (approx. Value)

up to 0.5 mm² - 120 nF/km

above 0.5 mm² - 160 nF/km.

Inductance approx. 0.65 mH/km.

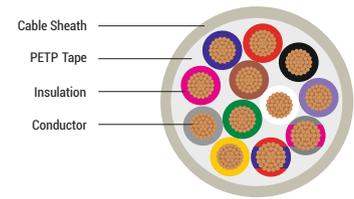
Cable Design Parameters

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050100201014	2 x 0.14	3.3	2.6	15.0
050100301014	3 x 0.14	3.4	3.9	17.4
050100401014	4 x 0.14	3.7	5.2	20.8
050100501014	5 x 0.14	4.0	6.5	24.5

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050100701014	7 x 0.14	4.6	9.1	32.4
050100801014	8 x 0.14	5.0	10.6	38.6
050101001014	10 x 0.14	5.5	13.2	48.0
050101201014	12 x 0.14	5.7	15.9	52.5
050101401014	14 x 0.14	6.0	18.5	58.4
050101601014	16 x 0.14	6.3	21.1	65.1
050102001014	20 x 0.14	6.9	26.7	80.3
050102501014	25 x 0.14	7.6	33.4	98.1
050103601014	36 x 0.14	8.7	48.0	131.8
050103701014	37 x 0.14	8.7	49.4	134.1
050104001014	40 x 0.14	9.0	53.4	142.8
050105001014	50 x 0.14	9.9	66.7	174.4
050105601014	56 x 0.14	10.4	74.7	193.9
050100201025	2 x 0.25	4.1	4.5	23.5
050100301025	3 x 0.25	4.3	6.8	27.6
050100401025	4 x 0.25	4.7	9.1	33.5
050100501025	5 x 0.25	5.1	11.3	40.0
050100701025	7 x 0.25	5.8	15.9	52.9
050100801025	8 x 0.25	6.3	18.5	63.7
050101001025	10 x 0.25	7.1	23.1	80.3
050101201025	12 x 0.25	7.3	27.7	88.2
050101401025	14 x 0.25	7.7	32.4	98.6
050101601025	16 x 0.25	8.1	37.0	110.4
050101801025	18 x 0.25	8.5	42.0	123.6
050102001025	20 x 0.25	9.0	46.7	137.5
050102501025	25 x 0.25	10.0	58.4	169.3
050103001025	30 x 0.25	10.5	70.0	193.8
050103201025	32 x 0.25	11.0	74.7	208.5
050103601025	36 x 0.25	11.4	84.0	229.6
050103701025	37 x 0.25	11.5	86.4	233.6
050104001025	40 x 0.25	11.9	93.4	249.3
050105001025	50 x 0.25	13.1	116.7	306.2
050100201034	2 x 0.34	4.2	6.2	25.8
050100301034	3 x 0.34	4.4	9.2	30.8
050100401034	4 x 0.34	4.8	12.3	37.6
050100501034	5 x 0.34	5.2	15.4	45.1
050100701034	7 x 0.34	5.7	21.5	57.0
050100801034	8 x 0.34	6.5	25.1	72.0

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050101001034	10 x 0.34	7.3	31.4	90.8
050101201034	12 x 0.34	7.6	37.7	100.3
050101401034	14 x 0.34	7.9	43.9	112.5
050101601034	16 x 0.34	8.4	50.2	126.2
050101801034	18 x 0.34	8.8	57.0	141.6
050102001034	20 x 0.34	9.3	63.4	157.6
050102101034	21 x 0.34	9.3	66.5	160.3
050102501034	25 x 0.34	10.3	79.2	195.1
050103001034	30 x 0.34	10.9	95.0	223.3
050103601034	36 x 0.34	11.8	114.1	265.0
050104001034	40 x 0.34	12.2	126.7	288.2
050105001034	50 x 0.34	13.5	158.4	354.7
050100201050	2 x 0.5	4.8	9.2	35.2
050100301050	3 x 0.5	5.1	13.8	42.4
050100401050	4 x 0.5	5.5	18.4	52.2
050100501050	5 x 0.5	6.0	23.0	63.0
050100601050	6 x 0.5	6.6	27.6	75.0
050100701050	7 x 0.5	6.7	32.2	80.3
050100801050	8 x 0.5	7.6	37.6	101.1
050101001050	10 x 0.5	8.6	47.0	128.2
050101201050	12 x 0.5	8.9	56.4	142.2
050101401050	14 x 0.5	9.3	65.8	160.0
050101601050	16 x 0.5	9.8	75.2	179.9
050102001050	20 x 0.5	11.0	94.9	225.6
050102501050	25 x 0.5	12.2	118.6	280.3
050103001050	30 x 0.5	12.9	142.3	321.8
050104001050	40 x 0.5	14.6	189.7	416.8
050100201075	2 x 0.75	5.1	13.8	42.8
050100301075	3 x 0.75	5.4	20.7	52.5
050100401075	4 x 0.75	5.9	27.6	65.2
050100501075	5 x 0.75	6.5	34.5	79.1
050100701075	7 x 0.75	7.2	48.4	101.8
050100801075	8 x 0.75	8.1	56.4	127.1
050101001075	10 x 0.75	9.2	70.5	161.4
050101201075	12 x 0.75	9.5	84.6	180.4
050101601075	16 x 0.75	10.6	112.7	229.7

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050102001075	20 x 0.75	11.8	142.3	288.5
050102501075	25 x 0.75	13.2	177.9	359.2
050100200001	2 x 1	5.6	18.4	53.4
050100300001	3 x 1	6.0	27.6	66.0
050100500001	5 x 1	7.2	46.1	100.3
050100201105	2 x 1.5	6.7	27.0	75.7
050100301105	3 x 1.5	7.1	40.5	93.9
050100401105	4 x 1.5	7.8	54.0	117.4



Application

LiYY (TP) is applicable in the short runs and tight spaces, where the main requirements are smaller outer diameter and bending radii. The cable ideally meets these requirements.

Technical Data

Standard : Based on VDE 0812

Voltage Grade (Not for power installation) : 0.14 mm² = 350 V; \geq 0.25 mm² = 500 V

Insulation Resistance : Min. 20 G Ω x cm

Temperature Range : Flexing -5°C to +70°C. Fixed installation -30°C to +70°C

Minimum Bending Radius : For flexible use 10 x cable ϕ

Test Voltage : Up to 0.25 mm² = 1200 V. From 0.34 mm² = 2000 V

Breakdown Voltage : Up to 0.25 mm² = 2400 V
From 0.34 mm² = 4000 V

Mutual Capacitance (approx.) : Up to 0.5 mm² - 120nF/km
Above 0.5 mm² - 160nF/km

Inductance : Approx. 0.65mH/km

Cable Construction

Bare copper, fine wire conductors stranded according to DIN VDE 0295

Conductor make-up for

0.14 mm² = 18 x 0.10 mm.

0.25 mm² = 14 x 0.15 mm.

0.34 mm² = 19 x 0.15 mm.

Core insulation of special PVC T12 EN 50363-3.

Core colours as per DIN 47100 (Refer table no. 2-1).

Pairs stranded in layers with optimal lay-length.

Plastic foil wrapping over laid up pairs.

Outer sheath of special PVC, TM2 to EN 50363-4.1.

Colour grey (RAL 7032).

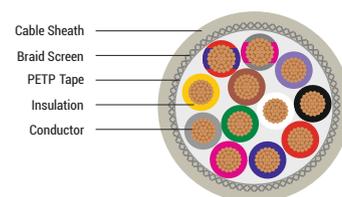
Properties

PVC self-extinguishing and flame retardant according to EN 60332-1-2.

Cable Design Parameters

Part Number	No. of Pairs & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050200221014	2 x 2 x 0.14	4.95	5.13	26.82
050200321014	3 x 2 x 0.14	5.02	7.70	31.61
050200421014	4 x 2 x 0.14	5.53	10.26	38.55

Part Number	No. of Pairs & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050200521014	5 x 2 x 0.14	5.98	12.83	45.25
050200621014	6 x 2 x 0.14	6.38	15.39	51.77
050201021014	10 x 2 x 0.14	7.73	25.65	76.76
050201221014	12 x 2 x 0.14	8.30	30.79	88.84
050201621014	16 x 2 x 0.14	9.32	41.05	112.47
050200221025	2 x 2 x 0.25	6.16	8.98	40.21
050200321025	3 x 2 x 0.25	6.26	13.47	48.84
050200421025	4 x 2 x 0.25	6.96	17.96	60.62
050200621025	6 x 2 x 0.25	8.13	26.94	83.26
050200821025	8 x 2 x 0.25	9.12	35.92	105.16
050201021025	10 x 2 x 0.25	9.99	44.90	126.57
050200221050	2 x 2 x 0.5	7.30	18.24	59.10
050200321050	3 x 2 x 0.5	7.43	27.36	74.31
050200421050	4 x 2 x 0.5	8.31	36.49	93.73
050200821050	8 x 2 x 0.5	11.04	72.97	168.14
050201021050	10 x 2 x 0.5	12.13	91.22	204.28
050200221075	2 x 2 x 0.75	7.80	27.36	71.94
050200321075	3 x 2 x 0.75	7.94	41.05	92.30
050200421075	4 x 2 x 0.75	8.89	54.73	117.35
050200821075	8 x 2 x 0.75	11.86	109.46	214.00
050201021075	10 x 2 x 0.75	13.05	136.82	261.15



Application

These cables are used for data and signal transmission application in the electronics of computer systems, electronic control equipment and measuring devices in the tool making and machine industries.

The optimum screening substantially reduces the effect of electromagnetic interferences.

Technical Data

Standard : Based on VDE 0812

Voltage grade (not for power installation) : 0.14 mm² = 350 V; \geq 0.25 mm² = 500 V

Insulation Resistance : Min. 20 GΩ x cm

Temperature Range : Flexing -5°C to +70°C. Fixed installation -30°C to +70°C

Minimum Bending Radius : Flexing 15 x cable ø. Fixed installation 6 x cable ø

Test Voltage : Up to 0.25 mm² : 1200 V; $>$ 0.34 mm² : 1500 V.

Mutual capacitance (approx.)

Up to 0.34 mm²

C/C = 120 nF/km. C/S = 160 nF/km.

0.5 mm² to 1.5 mm²

C/C = 160 nF/km. C/S = 240 nF/km.

Inductance : Approx. 0.65 mH/km

Cable Construction

Bare copper, fine wire conductors stranded according to DIN VDE 0295

Special PVC core insulation T12, to EN 50363-3.

Conductor make-up for

0.14 mm² = 18 x 0.1 mm.

0.25 mm² = 14 x 0.15 mm.

0.34 mm² = 19 x 0.15 mm.

Colour coded to DIN 47100 (Refer table no. 2-2).

Cores stranded in layers with optimal lay-length.

Plastic foil over the laid up cores.

Tinned copper braided screen, approx 85% coverage.

Special PVC outer sheath TM2, to EN 50363-4.1.

Colour grey (RAL 7032).

Properties

PVC self-extinguishing and flame retardant according to EN 60332-1-2.

Cable Design Parameters

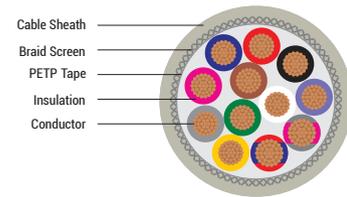
Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050300201014	2 x 0.14	4.0	9.38	14.2
050300301014	3 x 0.14	4.1	10.73	15.7
050300401014	4 x 0.14	4.4	12.52	17.9

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050300501014	5 x 0.14	4.6	15.00	21.0
050300701014	7 x 0.14	5.0	18.24	24.9
050300801014	8 x 0.14	5.4	20.80	28.2
050301001014	10 x 0.14	6.0	25.05	33.6
050301201014	12 x 0.14	6.2	28.05	36.9
050301401014	14 x 0.14	6.4	31.45	40.8
050301501014	15 x 0.14	6.7	33.50	43.5
050301601014	16 x 0.14	6.7	34.66	44.7
050301801014	18 x 0.14	7.0	38.41	49.0
050302001014	20 x 0.14	7.5	42.18	54.0
050302101014	21 x 0.14	7.5	43.39	55.2
050302501014	25 x 0.14	8.2	51.24	64.5
050302801014	28 x 0.14	8.6	55.66	69.8
050303001014	30 x 0.14	8.6	58.27	72.4
050303201014	32 x 0.14	8.9	61.82	76.6
050303601014	36 x 0.14	9.2	67.85	83.5
050304001014	40 x 0.14	9.5	74.06	90.3
050304401014	44 x 0.14	10.2	81.35	99.2
050305001014	50 x 0.14	10.4	89.63	107.9
050300201025	2 x 0.25	4.9	14.92	22.4
050300301025	3 x 0.25	4.9	15.81	23.4
050300401025	4 x 0.25	5.3	19.47	27.9
050300501025	5 x 0.25	5.7	22.48	31.9
050300701025	7 x 0.25	6.2	28.32	38.8
050300801025	8 x 0.25	6.8	32.23	44.1
050301001025	10 x 0.25	7.6	39.10	52.9
050301201025	12 x 0.25	7.8	44.27	58.6
050301401025	14 x 0.25	8.1	50.02	65.2
050301501025	15 x 0.25	8.6	53.10	69.3
050301601025	16 x 0.25	8.6	55.36	71.6
050301801025	18 x 0.25	9.0	61.57	78.9
050302001025	20 x 0.25	9.6	67.53	86.6
050302101025	21 x 0.25	9.6	69.81	88.9
050302501025	25 x 0.25	10.5	82.36	104.0
050302801025	28 x 0.25	11.1	90.24	113.4
050303001025	30 x 0.25	11.1	94.82	118.0

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050303201025	32 x 0.25	11.5	100.42	124.7
050303601025	36 x 0.25	12.0	109.27	134.9
050304001025	40 x 0.25	12.4	121.11	147.9
050305001025	50 x 0.25	13.6	147.73	177.9
050306101025	61 x 0.25	14.8	176.02	209.6
050300201034	2 x 0.34	5.0	15.27	22.9
050300301034	3 x 0.34	5.0	18.52	26.3
050300401034	4 x 0.34	5.4	22.72	31.4
050300501034	5 x 0.34	5.8	26.70	36.3
050300701034	7 x 0.34	6.3	34.45	45.2
050300801034	8 x 0.34	6.9	39.20	51.4
050301001034	10 x 0.34	7.8	47.64	61.8
050301201034	12 x 0.34	8.0	54.48	69.2
050301401034	14 x 0.34	8.4	61.93	77.5
050301501034	15 x 0.34	8.8	65.90	82.6
050301601034	16 x 0.34	8.8	68.97	85.6
050301801034	18 x 0.34	9.2	77.21	95.0
050302001034	20 x 0.34	9.8	84.65	104.2
050302101034	21 x 0.34	9.8	87.76	107.3
050302501034	25 x 0.34	10.8	102.99	125.3
050302801034	28 x 0.34	11.4	113.92	137.7
050303001034	30 x 0.34	11.4	120.13	143.9
050303201034	32 x 0.34	11.9	127.76	152.7
050303601034	36 x 0.34	12.4	139.20	165.5
050304001034	40 x 0.34	12.8	155.20	182.7
050305001034	50 x 0.34	14.1	189.54	220.7
050300201050	2 x 0.5	5.8	20.13	30.6
050300301050	3 x 0.5	5.8	25.08	35.8
050300401050	4 x 0.5	6.3	30.85	42.8
050300501050	5 x 0.5	6.8	36.84	50.1
050300601050	6 x 0.5	7.3	43.13	57.8
050300701050	7 x 0.5	7.4	47.71	62.6
050300801050	8 x 0.5	8.1	54.24	71.1
050301001050	10 x 0.5	9.1	66.98	86.6
050301201050	12 x 0.5	9.4	76.60	97.1
050301401050	14 x 0.5	9.9	87.26	109.0

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050301601050	16 x 0.5	10.4	97.91	121.1
050301801050	18 x 0.5	10.9	109.29	134.1
050301901050	19 x 0.5	10.9	113.91	138.7
050302001050	20 x 0.5	11.8	120.19	148.8
050302401050	24 x 0.5	13.0	142.32	174.8
050302501050	25 x 0.5	13.1	146.98	179.5
050302701050	27 x 0.5	13.3	156.84	190.2
050303001050	30 x 0.5	13.8	172.11	206.9
050300201075	2 x 0.75	6.4	25.98	38.5
050300301075	3 x 0.75	6.5	32.85	45.6
050300401075	4 x 0.75	7.0	41.37	55.6
050300501075	5 x 0.75	7.5	49.35	65.1
050300701075	7 x 0.75	8.2	64.96	82.7
050300801075	8 x 0.75	9.0	74.16	94.2
050301001075	10 x 0.75	10.1	91.35	114.6
050301201075	12 x 0.75	10.4	106.17	130.4
050301801075	18 x 0.75	12.0	153.48	182.8
050302501075	25 x 0.75	14.0	207.72	243.5
050303001075	30 x 0.75	14.8	244.37	282.6
050300200001	2 x 1	7.0	31.67	46.6
050300300001	3 x 1	7.0	41.39	56.6
050300400001	4 x 1	7.6	51.91	68.9
050300500001	5 x 1	8.2	62.76	81.7
050300700001	7 x 1	9.0	83.12	104.4
050301000001	10 x 1	11.1	117.31	145.4
050301200001	12 x 1	11.5	136.90	166.2
050301800001	18 x 1	13.3	199.05	234.6
050302500001	25 x 1	15.6	270.56	314.0
050300201105	2 x 1.5	7.7	42.16	60.4
050300301105	3 x 1.5	7.8	55.88	74.5
050300401105	4 x 1.5	8.5	71.49	92.3
050300501105	5 x 1.5	9.2	86.50	109.6
050300601105	6 x 1.5	10.0	101.92	127.6
050300701105	7 x 1.5	10.1	115.53	141.6
050300801105	8 x 1.5	11.1	131.75	161.4
050301001105	10 x 1.5	12.5	163.84	198.4

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050301201105	12 x 1.5	12.9	191.62	227.6
050301401105	14 x 1.5	13.5	220.60	258.9
050301601105	16 x 1.5	14.3	249.79	290.8
050301901105	19 x 1.5	15.0	294.69	338.5
050302401105	24 x 1.5	17.8	394.72	448.7
050302701105	27 x 1.5	18.2	437.24	492.7
050303701105	37 x 1.5	20.6	583.86	648.9



Application

The high level of screening reduces substantially the effects of electrical disturbances. These cables are used for data & signal transmission. These cables are integral part of instrumentation in industries for precise signal and data transmission.

Technical Data

Standard : Based on VDE 0812

Voltage grade (not for power installation) : 0.14 mm² = 350 V; \geq 0.25 mm² = 500V

Insulation Resistance : Min. 20 GΩ x cm

Temperature Range : Flexing -5°C to +70°C. Fixed installation -30°C to +70°C

Minimum Bending Radius : Flexing 15 x cable ø. Fixed installation 6 x cable ø

Test Voltage : Up to 0.25 mm² : 1200 V; $>$ 0.34 mm² : 1500 V.

Capacitance (approx. Value)

Up to 0.34 mm²

C/C = 120 nF/km. C/S = 160 nF/km

0.5 mm² to 1.5 mm²

C/C = 160 nF/km. C/S = 240 nF/km

Inductance : Approx. 0.65 mH/km

Cable Construction

Bare copper, fine wire conductors stranded according to DIN VDE 0295/ EN 60228 cl. 5,

Conductor make-up for

0.14 mm² = 18 x 0.1 mm.

0.25 mm² = 14 x 0.15 mm.

0.34 mm² = 19 x 0.15 mm.

Special PVC core insulation TI2, to EN 50363-3.

Colour coded to DIN 47100 (Refer table no. 2-1).

Cores stranded in pair with optimal lay-length.

Cores stranded in layers with optimal lay-length.

Tinned copper braided screen, approx 85% coverage.

Special PVC outer sheath TM2, to EN 50363-4.1.

Sheath colour grey (RAL 7032).

Properties

PVC self-extinguishing and flame retardant according to EN 60332-1-2.

The twisted pair construction further reduces crosstalk and electromagnetic interferences, enhancing the signal transmission characteristics

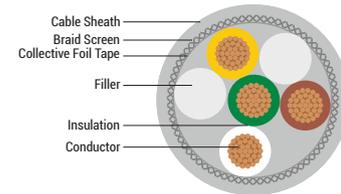
Cable Design Parameters

Part Number	No. of Pairs & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050400221014	2 x 2 x 0.14	5.4	14.6	38
050400321014	3 x 2 x 0.14	5.5	17.3	43
050400421014	4 x 2 x 0.14	6.0	21.5	52
050400621014	6 x 2 x 0.14	6.9	29.2	68
050400821014	8 x 2 x 0.14	7.6	36.2	82

Part Number	No. of Paires & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050401021014	10 x 2 x 0.14	8.2	43.3	97
050401221014	12 x 2 x 0.14	8.8	50.0	110
050401621014	16 x 2 x 0.14	9.8	63.9	138
050402021014	20 x 2 x 0.14	10.7	75.4	162
050402521014	25 x 2 x 0.14	11.7	92.1	195
050400221025	2 x 2 x 0.25	6.6	22.0	55
050400321025	3 x 2 x 0.25	6.7	26.8	64
050400421025	4 x 2 x 0.25	7.4	33.5	78
050400621025	6 x 2 x 0.25	8.6	45.6	104
050400821025	8 x 2 x 0.25	9.6	57.4	129
050401021025	10 x 2 x 0.25	10.5	69.4	154
050401221025	12 x 2 x 0.25	11.3	80.8	177
050401621025	16 x 2 x 0.25	12.7	102.8	223
050402521025	25 x 2 x 0.25	15.3	151.7	322
050400221034	2 x 2 x 0.34	6.8	25.9	60
050400321034	3 x 2 x 0.34	6.9	32.2	71
050400421034	4 x 2 x 0.34	7.6	40.4	87
050400621034	6 x 2 x 0.34	8.9	56.5	117
050400821034	8 x 2 x 0.34	9.9	71.8	146
050401021034	10 x 2 x 0.34	10.8	87.0	174
050401221034	12 x 2 x 0.34	11.6	101.2	200
050401621034	16 x 2 x 0.34	13.0	130.7	254
050402521034	25 x 2 x 0.34	15.8	195.1	371
050400221050	2 x 2 x 0.5	7.8	35.3	78
050400321050	3 x 2 x 0.5	7.9	44.7	94
050400421050	4 x 2 x 0.5	8.8	56.1	116
050400621050	6 x 2 x 0.5	10.3	78.6	158
050400821050	8 x 2 x 0.5	11.5	101.0	199
050401221050	12 x 2 x 0.5	13.6	143.3	276
050401621050	16 x 2 x 0.5	15.4	186.1	353
050400221075	2 x 2 x 0.75	8.3	45.6	92
050400321075	3 x 2 x 0.75	8.4	59.6	113
050400421075	4 x 2 x 0.75	9.4	76.4	141
050400521075	5 x 2 x 0.75	10.2	92.5	168
050400621075	6 x 2 x 0.75	11.0	108.7	195
050400821075	8 x 2 x 0.75	12.3	140.9	248
050401221075	12 x 2 x 0.75	14.6	202.0	348
050400220001	2 x 2 x 1	9.1	57.0	112
050400320001	3 x 2 x 1	9.3	75.7	139
050400420001	4 x 2 x 1	10.3	97.9	175
050400520001	5 x 2 x 1	11.3	118.7	209

Li2Y(St)CY (TP)

REACH | RoHS | CE



Application

These data cables with twisted pairs are used for interference-free transmission of data and signals over longer distances. The high transmission rate are suitable for RS 422 and RS 485 interfaces. This cable forms an integral part of supervisory control and data acquisition (SCADA) systems.

These cables are suitable for fixed installations as well as for flexing applications, for free movement without forced motion and without tensile stress in dry and moist environment.

Technical Data

Standard : Based on VDE 0812

Voltage Grade (Not for power installation) : Max. 250 V

Test Voltage : Core/core 2000 V. Core/screen 1000 V

Insulation Resistance : Min. 5000 G Ω x cm

Mutual Capacitance* : Max. 60 nF/km

Characteristic Impedance* : 100 Ω \pm 15

Cross-talk Attenuation : Upto 1 MHz min. 50 dB. Upto 10 MHz min. 40 dB

Inductance : Approx. 0.65 mH/km

Temperature Range : Flexing -5°C to +70°C. Fixed installation -30°C to +70°C

Minimum Bending Radius : Flexing 15 x cable \varnothing . Fixed installation 6 x cable \varnothing

Cable Construction

Bare copper stranded 7 wire conductor

Conductor make-up for

0.22 mm² = 7 x 0.20 mm

0.34 mm² = 7 x 0.25 mm

0.5 mm² = 7 x 0.30 mm

Conductor resistance (loop) at 20°C

0.22 mm² = 186 Ω /km (max.)

0.34 mm² = 115 Ω /km (max.)

0.5 mm² = 78.5 Ω /km (max.)

Metal coated copper is also offered on request.

Core insulation of PE (Polyethylene).

Core colours as per DIN 47100 (Refer table no. 2-1)

Cores stranded in pair with optimal lay-length.

Pair stranded in layers with optimal lay-length.

Aluminium backed PETP foil over the laid up pairs.

Tinned copper braided screen, approx 85% coverage.

Special PVC outer sheath TM2, to EN 50363-4.1.

Sheath colour grey (RAL 7032).

Type Yv with reinforced black outer sheath suitable for outdoor application.

For underground burial, armoured version available on request.

Properties

PVC self-extinguishing and flame retardant according to EN 60332-1-2.

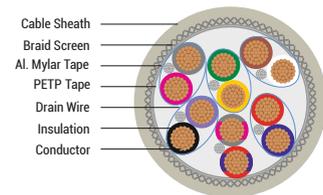
The twisted-pair lay-up prevents electrical unbalances within the cable and this thus effectively suppresses cross-talking effects.

*applicable upto 0.5 Sq. mm.

Cable Design Parameters

	Part Number	No. of Pairs & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
Li2Y(S)CY (TP) Grey	050500221022	2 x 2 x 0.22	8.1	25.0	67
	050500321022	3 x 2 x 0.22	8.2	29.1	77
	050500421022	4 x 2 x 0.22	9.2	36.0	93
	050500821022	8 x 2 x 0.22	12.0	60.7	154
	050501021022	10 x 2 x 0.22	13.2	71.8	182
	050500121034	2 x 2 x 0.34	8.6	31.7	78
	050500221034	3 x 2 x 0.34	8.7	37.6	90
	050500321034	4 x 2 x 0.34	9.7	46.4	110
	050500421034	8 x 2 x 0.34	12.9	81.7	185
	050500821034	10 x 2 x 0.34	14.1	96.7	219
	050500221050	2 x 2 x 0.5	9.1	38.9	89
	050500321050	3 x 2 x 0.5	9.2	48.1	105
	050500421050	4 x 2 x 0.5	10.3	59.9	129
	050500821050	8 x 2 x 0.5	13.7	106.6	221
	050501021050	10 x 2 x 0.5	15.0	127.9	263
	050500221075	2 x 2 x 0.75	9.7	50.1	106
	050500321075	3 x 2 x 0.75	9.9	63.5	127
	050500421075	4 x 2 x 0.75	11.1	80.8	158
	050500821075	8 x 2 x 0.75	14.8	145.2	274
	050501021075	10 x 2 x 0.75	16.3	178.3	331
Li2Y(S)CYv (TP)	050500220001	2 x 2 x 1	10.4	60.2	122
	050500320001	3 x 2 x 1	10.6	81.8	152
	050500420001	4 x 2 x 1	11.9	103.0	189
	050500820001	8 x 2 x 1	15.9	189.1	333
	050501020001	10 x 2 x 1	17.5	229.1	401
	050600221022	2 x 2 x 0.22	8.4	25.0	73
	050600321022	3 x 2 x 0.22	8.5	29.1	83
	050600421022	4 x 2 x 0.22	9.5	36.0	100
	050600821022	8 x 2 x 0.22	12.3	60.7	163
	050601021022	10 x 2 x 0.22	13.5	71.8	191
	050600221034	2 x 2 x 0.34	8.9	31.7	84
	050600321034	3 x 2 x 0.34	9.0	37.6	96
	050600421034	4 x 2 x 0.34	10.0	46.4	117
	050600821034	8 x 2 x 0.34	13.2	81.7	195
	050601021034	10 x 2 x 0.34	14.4	96.7	229

	Part Number	No. of Pairs & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
Li2Y(St)CYv (TP)	050600221050	2 x 2 x 0.5	9.4	38.9	96
	050600321050	3 x 2 x 0.5	9.5	48.1	112
	050600421050	4 x 2 x 0.5	10.6	59.9	137
	050600821050	8 x 2 x 0.5	14.0	106.6	231
	050601021050	10 x 2 x 0.5	15.3	127.9	274
	050600221075	2 x 2 x 0.75	10.0	50.1	113
	050600321075	3 x 2 x 0.75	10.2	63.5	134
	050600421075	4 x 2 x 0.75	11.4	80.8	166
	050600821075	8 x 2 x 0.75	15.1	145.2	285
	050601021075	10 x 2 x 0.75	16.6	178.3	343
	050600220001	2 x 2 x 1	10.7	60.2	129
	050600320001	3 x 2 x 1	10.9	81.8	160
	050600420001	4 x 2 x 1	12.2	103.0	198
	050600820001	8 x 2 x 1	16.2	189.1	345
	050601020001	10 x 2 x 1	17.8	229.1	414



Application

Absolute disturbance-free data transfer both for installed terminals in all areas of medicine and data technology. Also suitable for use in machine tool and steel producing industries, traffic signal systems, assembly lines and food processing.

Technical Data

Standard : Based on VDE 0812

Voltage Grade (Not for power installation) : Max. 250 V

Test Voltage : Core / core 2000 V. Core / screen 1000V

Insulation Resistance : Min. 5000 GΩ x cm

Mutual Capacitance

0.22 mm² max., 70 nF/km

0.34 mm² max., 70 nF/km

0.5 mm² max., 75 nF/km

1 mm² max., 85 nF/km

Inductance : Approx. 0.4 mH/km

Cross-Talk Attenuation : Min. 80 dB up to 1 MHz

Characteristic Impedance at : approx. 85 Ω (>1 MHz)

Minimum Bending Radius : Fixed 10 x cable ø

Temperature Range : Flexing -5°C to +70°C. Fixed installation -30°C to +70°C

Cable Construction

Bare copper stranded 7 wire conductor.

Conductor make-up for

0.22 mm² = 7 x 0.20 mm

0.34 mm² = 7 x 0.25 mm

0.5 mm² = 7 x 0.30 mm

0.75 mm² = 7 x 0.37 mm

1 mm² = 7 x 0.43 mm

Conductor Resistance (loop) at 20°C

0.22 mm² = 186 Ω/km (max.)

0.34 mm² = 115 Ω/km (max.)

0.5 mm² = 78.5 Ω/km (max.)

0.75 mm² = 58 Ω/km (max.)

1 mm² = 39.2 Ω/km (max.)

Core colours as per DIN 47100 (Refer table no. 2-1 of appendix)

PiMF : (pair in metal foil) cores twisted in pairs, foil wrapped plastic coated aluminium foil and copper drain-wire tinned, 100% coverage.

PiMFs are stranded in layer.

Core wrapping with plastic tapes.

Overall copper screened braiding, 85 % coverage.

Special PVC outer sheath TM2, to EN 50363-4.1.

Colour grey (RAL 7032).

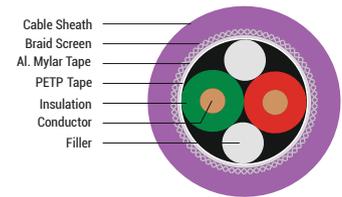
Properties

PVC self-extinguishing and flame retardant according to EN 60332-1-2.

The twisted-pair lay-up prevents electrical unbalances within the cable and this thus effectively suppresses cross-talking effects.

Cable Design Parameters

Part Number	No. of Pairs & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
050700221022	2 x 2 x 0.22	8.0	33.5	76
050700321022	3 x 2 x 0.22	8.3	47.8	96
050700421022	4 x 2 x 0.22	9.3	68.8	127
050700821022	8 x 2 x 0.22	12.4	191.2	286
050701021022	10 x 2 x 0.22	13.8	284.0	398
050700221034	2 x 2 x 0.34	8.5	44.1	90
050700321034	3 x 2 x 0.34	8.8	67.2	120
050700421034	4 x 2 x 0.34	9.9	97.5	161
050700821034	8 x 2 x 0.34	13.2	283.3	389
050701021034	10 x 2 x 0.34	14.7	421.5	548
050700221050	2 x 2 x 0.5	9.0	56.3	106
050700321050	3 x 2 x 0.5	9.3	88.8	146
050700421050	4 x 2 x 0.5	10.4	132.7	203
050700521050	5 x 2 x 0.5	11.4	185.7	268
050700821050	8 x 2 x 0.5	14.1	405.5	523
050701021050	10 x 2 x 0.5	15.6	591.3	731
050700220001	2 x 2 x 1	10.3	76.3	138
050700320001	3 x 2 x 1	10.6	116.1	187
050700420001	4 x 2 x 1	12.0	167.3	254
050701020001	10 x 2 x 1	17.7	636.3	808



PROcess Field BUS is a standard for fieldbus communication in automation technology.

PROcess Field BUS links controller or control systems with decentralized field devices (sensors and actuators) via a single bus cable on the field level. It also enables consistent data exchange with higher ranking communication systems. Consistency of PROcess Field BUS is enabled by utilizing a single, standardized, application-independent communication protocol (named PROcess Field BUS DP), which, without any difference, supports fieldbus solutions both in factory and process automation as well as in motion control and safety-related tasks.

To ensure correct interaction between the numerous devices of an automation solution, the basic device functions and services must match in regard to communication, functionality and industry sector solutions. This uniformity is achieved by means of "application profiles" which refer to device families or special industry sector requirements, e.g. process automation (PA Devices), Motion Control (PROFIdrive) or integration of HART devices.

PROcess Field BUS DP is in the central position and carries communication data between a controller and field devices, preferably in Factory Automation (FA). PROcess Field BUS PA string is connected through a coupler or linking device to enable typical process automation (PA) applications, e.g. in a hazardous environments. The controller is connected to PROcess Field NET as system bus and interface to MES and ERP levels. PA segments can also be connected directly to PROcess Field NET using proxy technology.

Technical Data

Standard : Adapted to DIN 19245 & EN 50170

Operating Voltage: 250V (not for power installation)

Insulation Resistance : 5000 G x cm

Temperature Range : Flexing 12 x cable ϕ
Fixed 6 x cable ϕ

Minimum Bending Radius : Flexing 12 x cable ϕ . Fixed installation 6 x cable ϕ

Test Voltage : 1500V

Flame Retardant : Complies to IEC 60332-1-2

Cable Design Parameters

Bare copper stranded 7 wire conductor.

	Variants	Size	Configuration	Construction	Application	Sheath Colour	Approx. Cable Dia. (mm)
Li2Y(St)CYv (TP)	02Y(St) CY DP	22 AWG x 1PR (0.32 Sq. mm)	1/0.64 mm	ABC solid/Foam PE/PETP/AL. Mylar/ATC Braid 65%/PVC Outer sheath	Fixed installation, indoor usage	Violet	8.0
	02Y(St) C11Y DP	22 AWG x 1PR (0.32 Sq. mm)	1/0.64 mm	ABC solid/Foam PE/PETP/AL. Mylar/ATC Braid 65%/PUR Outer sheath	Fixed installation, Industrial Area	Black	8.0
	02Y(St)CY DP Armoured	22 AWG x 1PR (0.32 Sq. mm)	1/0.64 mm	ABC solid/Foam PE/PETP/AL. Mylar/ATC Braid 65%/PVC Inner sheath/GI armour wires/PVC Outer sheath	Direct Burial	Black (Outer) Inner (Violet)	13.0
PROcess Field BUS PA	02Y(St)CY PA Solid	18 AWG x 1PR (0.8 Sq. mm)	1/1.02 mm (1/18 AWG)	ABC solid/Foam PE/PETP/AL. Mylar/ATC Braid 65%/PVC Outer sheath	Fixed installation, indoor usage	Blue	9.2
	02Y(St)CY PA Armoured	18 AWG x 1PR (0.8 Sq. mm)	1/1.02 mm (1/18 AWG)	ABC solid/Foam PE/PETP/AL. Mylar/ATC Braid 65%/PVC Inner sheath/GI armour wires/PVC Outer sheath	Direct Burial	Black (Outer) Inner (Blue)	14.0

Electrical Parameters

PROcess Field BUS DP :

Conductor Resistance (Loop) at 20°C : 110 /km (Max.)

Mutual Capacitance : 35 nf/km (Max.)

Inductance : 0.65 mH/km (Nom.)

Frequency	Characteristic Impedance (Ω)	Attenuation (dB/100m)
9.6 kHz	270 \pm 27	\leq 0.25
38.4 kHz	185 \pm 18.5	\leq 0.40
4 MHz	150 \pm 15	\leq 2.2
16 MHz	150 \pm 15	\leq 4.2

PROcess Field BUS PA:

Conductor Resistance (Loop) at 20°C : 44 /km (Max.)

Mutual Capacitance : 55 nf/km (Max.)

Characteristic Impedance @ 31.25 kHz : 100 \pm 15

Attenuation @ 39 KHz : \leq 3 dB/km

Inductance : 0.65 mH/km (Nom.)

Baud Rate (kbit/s)	Segment Length (Meters)	Segment Length (Feet)
9.6	1200	3940
19.2	1200	3940
45.45	1200	3940
93.75	1200	3940
187.5	1000	3280
500	400	1310
1500	200	656
3000	100	328
6000	100	328
12000	100	328

More Variants Available

PROcess Field BUS DP and PA for flexible applications

PROcess Field BUS DP and PA with steel braid

Halogen free variant with Low Smoke Zero Halogen (LSZH) outer sheath.

Note :

HART = Highway Addressable Remote Transducer

DP = Decentralized Peripherals

PA = Process Automation