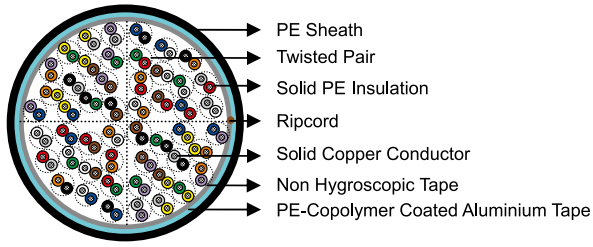
Solid PE Insulated & LAP Sheathed Air Core Cables to ICEA S-85-625

APPLICATION

The cables are designed for use as subscriber distribution cables and as connection between central offices. The cables are suitable for installation in ducts and aerial installation with integral suspension strand. A figure-8 self support option is offered for aerial installation.

STANDARDS

• ICEA S-85-625
(formerly RUS (REA) PE-22 & RUS (REA) PE-38)



CONSTRUCTION

- **Conductors:** Solid annealed bare copper, 0.4/0.5/0.63/0.9mm, as per ASTM B-3/class 1 of IEC 60228.
- **Insulation:** Solid polyethylene as per ASTM D 1248/IEC 60708.
- **Twisted Pairs:** Insulated conductors are twisted into pairs with varying lay length to minimize crosstalk.
- **Cabling Element:** Twisted Pairs.
- **Cable Core Assembly:** Cables of 25 pairs or less are assembled into cylindrical core. Cables larger than 25 pairs are assembled into units, which are then used to form the core. Units are identified by colour coded binders.
- **Core Wrapping:** One or more non-hygroscopic polyester tapes are helically or longitudinally laid with an overlap. These tapes furnish thermal, mechanical as well as high dielectric protection between shielding and individual conductors.
- **Moisture Barrier:** A layer of corrugated copolymer coated aluminium tape (0.2mm/8mil) is applied longitudinally with overlap over the cable core to provide 100% electrical shielding coverage and ensures a barrier against water vapor.
- **Sheath:** Black Low density or medium density polyethylene as per ASTM D 1248/IEC 60708, being able to withstand exposure to sunlight, temperature variations, ground chemicals and other environmental contaminants.
- **Ripcord:** Ripcord may be provided for slitting the sheath longitudinally to facilitate its removal.
- **Spare Pairs (optional):** Spare pairs may be provided for large pair cables.
- **Continuity Wire (optional):** One tinned copper drain wire may be longitudinally laid to ensure electrical continuity of the screen.

OPTIONAL CONSTRUCTION

- **Self-Support Cables:** A 7-strand galvanized steel strand is used as support wire. Black polyethylene sheath covers both core and support wire in a figure-8 construction.

ELECTRICAL PROPERTIES

Nominal Conductor Diameter	mm	0.4	0.5	0.63	0.9
Conductor Gauge Size	AWG	26	24	22	19
Maximum Average DC Resistance	Ω/km / Ω/mile	140/225	87/140	55/88.6	27.0/43.4
Maximum Individual DC Resistance	Ω/km / Ω/mile	144.2/232	89.5/144	56.5/91.0	28.0/45.0
Minimum Insulation Resistance @500V DC	MΩ·km / MΩ·mile	1600/1000	1600/1000	1600/1000	1600/1000
Maximum Average Resistance Unbalance	%	1.5	1.5	1.5	1.5
Maximum Individual Resistance Unbalance	%	5	5	5	5
Average Mutual Capacitance	nF/km / nF/kft	48.5-54.0 /14.8-16.5	48.5-54.0 /14.8-16.5	48.5-54.0 /14.8-16.5	48.5-54.0 /14.8-16.5
Maximum Individual Mutual Capacitance	nF/km / nF/kft	57/17.4	57/17.4	57/17.4	57/17.4
Maximum Individual Capacitance Unbalance pair-to-pair	pF/km / pF/kft	145/44	145/44	145/44	145/44
Capacitance Unbalance RMS pair-to-pair	pF/km / pF/kft	45/13.7	45/13.7	45/13.7	45/13.7
Maximum Individual Capacitance Unbalance pair-to-ground	pF/km / pF/kft	2625/800	2625/800	2625/800	2625/800
Maximum Average Capacitance Unbalance pair-to-ground	pF/km / pF/kft	574/175	574/175	574/175	574/175
Maximum Conductor Loop Resistance @20°C	Ω/km / Ω/mile	300/482	192/309	114/183.6	60/96.4
Impedance @1KHz	Ω	994	796	660	445
Impedance @100KHz	Ω	147	134	125	122
Impedance @512KHz	Ω	120	118	117	116
Impedance @1MHz	Ω	117	115	114	113
Maximum Average Attenuation @0.8KHz	dB/km / dB/kft	1.64/0.5	1.30/0.39	1.04/0.32	0.74/0.22
Maximum Average Attenuation @1KHz	dB/km / dB/kft	1.68/0.51	1.35/0.41	1.08/0.33	0.76/0.23
Maximum Average Attenuation @3KHz	dB/km / dB/kft	3.18/0.97	2.52/0.77	2.01/0.61	1.42/0.43
Maximum Average Attenuation @150KHz	dB/km / dB/kft	11.4/3.47	8.3/2.53	6.2/1.89	4.4/1.34
Maximum Average Attenuation @772KHz	dB/km / dB/kft	24.3/7.4	19.4/5.9	15.4/4.7	10.8/3.3
Maximum Average Attenuation @1000KHz	dB/km / dB/kft	27.1/8.25	21.4/6.52	17.5/5.33	12.8/3.89
Dielectric Strength					
Conductor to Conductor (3secs)	V DC	2400	3000	4000	5000
Conductor to Screen (3secs)	V DC	10000	10000	10000	10000
Minimum EL Far-end Cross-talk-Mean Power Sum					
@150KHz	dB/305m / dB/kft	61	63	63	65
@772KHz	dB/305m / dB/kft	47	49	49	57
@1.6MHz	dB/305m / dB/kft	41	42	43	44
@3.15MHz	dB/305m / dB/kft	35	37	37	39
@6.3MHz	dB/305m / dB/kft	29	31	31	33
Minimum Far-end Cross-talk-Worst Pair Power Sum					
@150KHz	dB/305m / dB/kft	57	57	57	59
@772KHz	dB/305m / dB/kft	43	43	43	45
@1.6MHz	dB/305m / dB/kft	37	37	37	39
@3.15MHz	dB/305m / dB/kft	31	31	31	33
@6.3MHz	dB/305m / dB/kft	25	25	25	27
Minimum Near-end Cross-talk-Mean Power Sum					
@150KHz	dB/305m / dB/kft	58	58	58	58
@772KHz	dB/305m / dB/kft	47	47	47	47
@1.6MHz	dB/305m / dB/kft	43	43	43	43
@3.15MHz	dB/305m / dB/kft	38	38	38	38

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@6.3MHz	dB/305m / dB/kft	34	34	34	34
Minimum Near-end Cross-talk-Worst Pair Power Sum					
@150KHz	dB/305m / dB/kft	53	53	53	53
@772KHz	dB/305m / dB/kft	42	42	42	42
@1.6MHz	dB/305m / dB/kft	38	38	38	38
@3.15MHz	dB/305m / dB/kft	33	33	33	33
@6.3MHz	dB/305m / dB/kft	29	29	29	29
Nominal Insulation Thickness	mm	0.15	0.2	0.26	0.3
Nominal Insulated Conductor Diameter	mm	0.7	0.9	1.15	1.5

MECHANICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -30°C – +70°C
Temperature range during installation (mobile state): -20°C – +50°C
Minimum bending radius: 10 x Overall Diameter (unarmoured cables);15 x Overall Diameter (armoured cables)

COLOUR CODE

Standard colour code is per ICEA S-85-625 given in Colour Code Chart

DIMENSIONS AND WEIGHT

Solid PE Insulated and LAP Sheathed Air Core Cable to ICEA S-85-625 (formerly RUS (REA) PE-22)

Cable Code	Number of Pairs	Nominal Sheath Thickness mm/inch	Nominal Overall Diameter mm/inch	Nominal Weight kg/km / lbs/kft
0.4mm Conductor, 0.7mm Insulated Wire				
TP22-2Y(L)2Y-3P04	3	1.5/0.059	8.0/0.32	55/37
TP22-2Y(L)2Y-5P04	5	1.5/0.059	8.5/0.33	60/40
TP22-2Y(L)2Y-6P04	6	1.5/0.059	9.0/0.35	65/44
TP22-2Y(L)2Y-10P04	10	1.5/0.059	9.5/0.37	80/54
TP22-2Y(L)2Y-12P04	12	1.5/0.059	10.0/0.39	90/60
TP22-2Y(L)2Y-15P04	15	1.5/0.059	10.5/0.41	100/67
TP22-2Y(L)2Y-20P04	20	1.5/0.059	11.0/0.43	120/81
TP22-2Y(L)2Y-25P04	25	1.5/0.059	12.0/0.47	140/94
TP22-2Y(L)2Y-30P04	30	1.5/0.059	12.5/0.49	155/104
TP22-2Y(L)2Y-40P04	40	1.5/0.059	13.5/0.53	190/128
TP22-2Y(L)2Y-50P04	50	1.5/0.059	14.5/0.57	220/148
TP22-2Y(L)2Y-75P04	75	1.5/0.059	16.5/0.65	300/202
TP22-2Y(L)2Y-100P04	100	1.5/0.059	18.0/0.71	380/255
TP22-2Y(L)2Y-150P04	150	1.5/0.059	21.0/0.83	540/363
TP22-2Y(L)2Y-200P04	200	1.5/0.059	24.0/0.94	690/464
TP22-2Y(L)2Y-300P04	300	1.5/0.059	30.5/1.20	1000/672
TP22-2Y(L)2Y-400P04	400	1.8/0.071	31.5/1.24	1300/874
TP22-2Y(L)2Y-600P04	600	2.0/0.079	37.5/1.48	1900/1277

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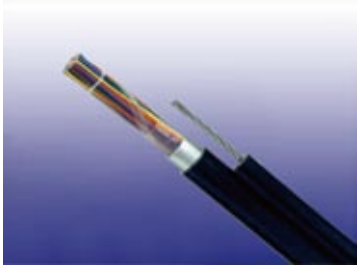
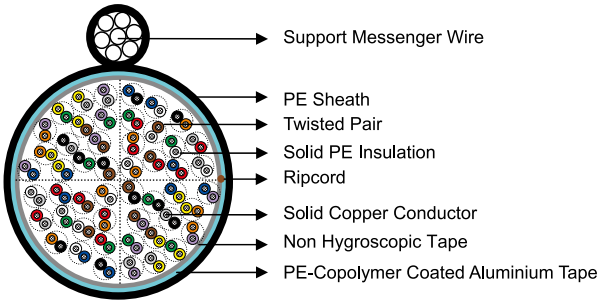
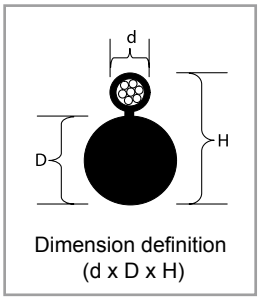
Cable Code	Number of Pairs	Nominal Sheath Thickness mm/inch	Nominal Overall Diameter mm/inch	Nominal Weight kg/km / lbs/kft
TP22-2Y(L)2Y-800P04	800	2.3/0.091	43.0/1.69	2800/1882
TP22-2Y(L)2Y-900P04	900	2.3/0.091	46.0/1.81	2961/1990
TP22-2Y(L)2Y-1000P04	1000	2.5/0.098	48.0/1.89	3264/2193
TP22-2Y(L)2Y-1200P04	1200	2.8/0.110	52.0/2.05	3873/2603
TP22-2Y(L)2Y-1500P04	1500	2.8/0.110	58.0/2.28	4819/3238
TP22-2Y(L)2Y-1800P04	1800	3.2/0.126	63.0/2.48	5777/3882
TP22-2Y(L)2Y-2100P04	2100	3.2/0.126	68.0/2.68	6731/4523
TP22-2Y(L)2Y-2400P04	2400	3.5/0.138	72.0/2.83	7645/5137
TP22-2Y(L)2Y-2700P04	2700	3.5/0.138	76.0/2.99	8556/5749
TP22-2Y(L)2Y-3000P04	3000	3.5/0.138	80.0/3.15	9466/6361
0.5mm Conductor, 0.9mm Insulated Wire				
TP22-2Y(L)2Y-6P05	6	1.5/0.059	9.40/0.37	82/55
TP22-2Y(L)2Y-12P05	12	1.5/0.059	10.92/0.43	119/80
TP22-2Y(L)2Y-25P05	25	1.5/0.059	13.72/0.54	201/135
TP22-2Y(L)2Y-50P05	50	1.5/0.059	17.02/0.67	335/225
TP22-2Y(L)2Y-100P05	100	1.5/0.059	22.35/0.88	595/400
TP22-2Y(L)2Y-200P05	200	1.5/0.059	30.48/1.20	1108/745
TP22-2Y(L)2Y-300P05	300	1.5/0.059	35.56/1.40	1622/1090
TP22-2Y(L)2Y-400P05	400	1.5/0.059	40.64/1.60	2128/1430
TP22-2Y(L)2Y-600P05	600	1.5/0.059	48.26/1.90	3154/2120
TP22-2Y(L)2Y-900P05	900	1.5/0.059	58.42/2.30	4627/3110
0.63mm Conductor, 1.15mm Insulated Wire				
TP22-2Y(L)2Y-6P063	6	1.5/0.059	10.16/0.40	104/70
TP22-2Y(L)2Y-12P063	12	1.5/0.059	12.45/0.49	164/110
TP22-2Y(L)2Y-25P063	25	1.5/0.059	16.00/0.63	283/190
TP22-2Y(L)2Y-50P063	50	1.5/0.059	22.86/0.90	484/325
TP22-2Y(L)2Y-100P063	100	1.5/0.059	27.94/1.10	885/595
TP22-2Y(L)2Y-200P063	200	1.5/0.059	35.56/1.40	1696/1140
0.9mm Conductor, 1.5mm Insulated Wire				
TP22-2Y(L)2Y-6P09	6	1.5/0.059	12.45/0.49	164/110
TP22-2Y(L)2Y-12P09	12	1.5/0.059	15.75/0.62	268/180
TP22-2Y(L)2Y-25P09	25	1.5/0.059	20.07/0.79	476/320
TP22-2Y(L)2Y-50P09	50	1.5/0.059	27.94/1.10	878/590







Dimension definition
(d x D x H)

Fig 8 Solid PE Insulated & LAP Sheathed Air Core Cable to ICEA S-85-625 (formerly RUS (REA) PE-38)

Cable Code	Number of Pairs	Support Messenger Wire Diameter mm/inch	Nominal Sheath Thickness mm/inch	Nominal Overall Dimension d x D x H mm/inch	Nominal Weight kg/km / lbs/kft
0.4mm Conductor, 0.7mm Insulated Wire					
TP38-2Y(L)2Y-3P04-SS	3	7/2.03 / 7/0.08	1.5/0.059	9.1X8.0X20.0 / 0.36X0.315X0.787	245/165
TP38-2Y(L)2Y-5P04-SS	5	7/2.03 / 7/0.08	1.5/0.059	9.1X8.5X20.5 / 0.36X0.335X0.807	250/168
TP38-2Y(L)2Y-6P04-SS	6	7/2.03 / 7/0.08	1.5/0.059	9.1X9.0X21.0 / 0.36X0.354X0.827	260/175
TP38-2Y(L)2Y-10P04-SS	10	7/2.03 / 7/0.08	1.5/0.059	9.1X9.5X21.5 / 0.36X0.374X0.846	270/181
TP38-2Y(L)2Y-12P04-SS	12	7/2.03 / 7/0.08	1.5/0.059	9.1X10.0X22.0 / 0.36X0.394X0.866	280/188
TP38-2Y(L)2Y-15P04-SS	15	7/2.03 / 7/0.08	1.5/0.059	9.1X10.5X22.5 / 0.36X0.413X0.886	290/195
TP38-2Y(L)2Y-20P04-SS	20	7/2.03 / 7/0.08	1.5/0.059	9.1X11.0X23.5 / 0.36X0.433X0.925	310/208
TP38-2Y(L)2Y-25P04-SS	25	7/2.03 / 7/0.08	1.5/0.059	9.1X12.0X24.0 / 0.36X0.472X0.945	330/222
TP38-2Y(L)2Y-30P04-SS	30	7/2.03 / 7/0.08	1.5/0.059	9.1X12.5X24.5 / 0.36X0.492X0.965	350/235
TP38-2Y(L)2Y-40P04-SS	40	7/2.03 / 7/0.08	1.5/0.059	9.1X13.5X25.5 / 0.36X0.531X1.000	390/262
TP38-2Y(L)2Y-50P04-SS	50	7/2.03 / 7/0.08	1.5/0.059	9.1X14.5X26.5 / 0.36X0.571X1.040	410/276
TP38-2Y(L)2Y-75P04-SS	75	7/2.03 / 7/0.08	1.5/0.059	9.1X16.5X28.5 / 0.36X0.650X1.120	490/329
TP38-2Y(L)2Y-100P04-SS	100	7/2.03 / 7/0.08	1.5/0.059	9.1X18.0X30.0 / 0.36X0.709X1.180	570/383
TP38-2Y(L)2Y-150P04-SS	150	7/2.03 / 7/0.08	1.5/0.059	9.1X21.0X33.0 / 0.36X0.827X1.300	730/491
TP38-2Y(L)2Y-200P04-SS	200	7/2.03 / 7/0.08	1.5/0.059	9.1X23.5X36.0 / 0.36X0.925X1.420	880/591
TP38-2Y(L)2Y-300P04-SS	300	7/2.03 / 7/0.08	1.5/0.059	9.1X27.5X39.5 / 0.36X1.080X1.560	1220/820
TP38-2Y(L)2Y-400P04-SS	400	7/2.03 / 7/0.08	1.5/0.059	9.7X31.5X44.0 / 0.382X1.240X1.73	1490/1001
0.5mm Conductor, 0.9mm Insulated Wire					
TP38-2Y(L)2Y-6P05-SS	6	7/2.03 / 7/0.08	1.5/0.059	9.1X9.4X22.0 / 0.36X0.37X0.866	305/205
TP38-2Y(L)2Y-12P05-SS	12	7/2.03 / 7/0.08	1.5/0.059	9.1X10.92X23.5 / 0.36X0.43X0.925	342/230
TP38-2Y(L)2Y-25P05-SS	25	7/2.03 / 7/0.08	1.5/0.059	9.1X13.72X26.0 / 0.36X0.54X1.024	424/285
TP38-2Y(L)2Y-50P05-SS	50	7/2.03 / 7/0.08	1.5/0.059	9.1X17.02X29.0 / 0.36X0.67X1.14	558/375
TP38-2Y(L)2Y-100P05-SS	100	7/2.03 / 7/0.08	1.5/0.059	9.1X22.86X34.5 / 0.36X0.90X1.36	833/560
0.63mm Conductor, 1.15mm Insulated Wire					
TP38-2Y(L)2Y-6P063-SS	6	7/2.03 / 7/0.08	1.5/0.059	9.1X10.15X23.0 / 0.36X0.40X0.906	327/220
TP38-2Y(L)2Y-12P063-SS	12	7/2.03 / 7/0.08	1.5/0.059	9.1X12.45X25.0 / 0.36X0.49X0.984	387/260
TP38-2Y(L)2Y-25P063-SS	25	7/2.03 / 7/0.08	1.5/0.059	9.1X15.49X28.0 / 0.36X0.61X1.10	498/335
TP38-2Y(L)2Y-50P063-SS	50	7/2.03 / 7/0.08	1.5/0.059	9.1X20.57X32.5 / 0.36X0.81X1.28	722/485
0.9mm Conductor, 1.5mm Insulated Wire					
TP38-2Y(L)2Y-6P09-SS	6	7/2.03 / 7/0.08	1.5/0.059	9.1X12.45X25.0 / 0.36X0.49X0.984	387/260
TP38-2Y(L)2Y-12P09-SS	12	7/2.03 / 7/0.08	1.5/0.059	9.1X15.75X28.0 / 0.36X0.62X1.10	491/330
TP38-2Y(L)2Y-25P09-SS	25	7/2.03 / 7/0.08	1.5/0.059	9.1X20.57X33.0 / 0.36X0.81X1.30	714/480