Prysmian

A Brand of Prysmian Group

SUNCONNECT (N)A2XY 1,8/3kV AC | 1,5/1,5kV DC

Low voltage cables with PVC sheath

SUNCONNECT is a new brand of cables, manufactured by Prysmian, designed for their exclusive use in PV Solar Plants. Typically, the maximum voltage of the PV systems is either 600V, for residential systems, or 1.000V (or 1.500V), for utility-scale systems.

SUNCONNECT are power cables with aluminum conductors, XLPE insulation and PVC outer sheath. They are for fixed indoor / outdoor electrical installations, laying in ground, in open air, in concrete, in cable ducts, and in water, where mechanical protection is not required during installation and operation, and where the PVC outer sheath is not attacked by corrosive agents. In case of corrosive ground, extra protection for the cables is requested.

SUNCONNECT cables connect PV panels, Combiner Boxes, Inverters and Transformers (LV).

Conductor shape round, class 2 = stranded; black outer sheath

GENERAL INFORMATION

Brand	Prysmian
Application	Building Installations;Residential Installations;Industrial Installations;Sustainable Energy & Installations;Power Distribution

STANDARDS AND CERTIFICATIONS

Eco Cable	Voluntary ecological label of Prysmian, based on measurable and recognized sustainability criteria, and in line with the EU Eco-labels
ISO 14067:2018	Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification
ISO 15270:2008	Plastics - Guidelines for the recovery and recycling of plastics waste
EN 60228	Conductors of insulated cables
IEC 60502-1	Cables for rated voltages of 1 kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV)
EN/IEC 60332-1-2	Test for vertical flame propagation for a single insulated wire or cable

CABLE DESIGN

Conductor material	Aluminium
Core insulation material	XLPE
Material outer sheath	Polyvinyl chloride (PVC)
Cable shape	Round

ELECTRICAL & THERMAL PARAMETERS

Nominal voltage U0 [V]	1,800
Nominal voltage U [V]	3,000
Nominal voltage DC U [V]	1,500
Max. voltage DC Um [V]	1,800
Test voltage [kV]	6.5
Rated voltage U0/U (Um)	1,8/3 (3,6) kV
Max. conductor temperature [°C]	90
Max. conductor temperature at short circuit [°C]	250
Laying temperature (min) [°C]	-5
Laying temperature (max) [°C]	50

CHEMICAL PROPERTIES

Flame retardant	In accordance with EN/IEC 60332-1-2
UV resistant	Yes
Silicon free	Yes
Lead free	Yes

CHARACTERISTICS

Outdoor installation	Yes
Underground installation	Yes
Suitable as installation cable	Yes
Bending radius (rule)	During installing: 15 x D single-core cables; 12 x D multi-cores cables

GENERAL ACCEPTED CONDITIONS FOR INSTALLATION

Installation	In ground / in buried ducts / in air
Max pulling force during installation	Al conductors: 30N/mm^2
Test after installation	Max 3 kV DC for PVC sheath
External influences (IEC 60364-5-51):	Withstanding to below conditions:
Presence of water	AD7: possibility of intermittent, partial, or total covering by water
Presence of corrosive or polluting substances	AF2: medium severity
Mechanical shock	AG2: standard industrial conditions
Vibrations	AH2: standard industrial conditions
Presence of flora	AK1: no hazard
Presence of fauna	AL1: no hazard
Solar and UV radiation	AN2: medium severity

CABLE PROPERTIES

Basic construction	Type	SAP code	Variant	Nominal thickness insulation [mm]	Nominal outer diameter [mm]	Cable weight [kg/km]	Bending radius, during laying (min) [mm]	Conductor resistance at 20° C [Ohm/km]	Short circuit current conductor (1sec) [kA]
1x150RM	-O	20416068	N/A	2	21.3	614	320	0.206	14.5
1x185RM	-O	20416069	N/A	2	23.1	745	347	0.164	17.9
1x240RM	-O	20415203	N/A	2	25.7	931	386	0.125	23.1
1x300RM	-O	20416141	N/A	2	27.9	1,132	419	0.1	28.8
1x400RM	-O	20416151	N/A	2	31	1,411	465	0.0778	38.3
1x500RM	-O	20416070	N/A	2.2	34.6	1,786	519	0.0605	47.8
3x150SM	-J	20415312	Tape	2	40	1,899	480	0.206	14.5
3x185SM	-J	34000000036	Tape	2	43	2,288	516	0.164	17.9
3x240SM	-O	34000000039	Tape	2	47.5	2,873	570	0.125	23.1

CABLE PROPERTIES - INDUCTANCE & IMPEDANCE

Cross-section (mm^2)	Inductance (mH/km)		Impedance (Ω/km)	
	Trefoil	Flat	Trefoil	Flat
1x185	0,237	0,453	0,244	0,254
1x240	0,232	0,446	0,177	0,213
1x300	0,228	0,441	0,149	0,189
1x400	0,223	0,435	0,124	0,170
1x500	0,233	0,433	0,107	0,157

Cross-section (mm^2)	Inductance (mH/km)	Impedance (Ω/km)
3x150	0,239	0,275
3x185	0,232	0,223
3x240	0,227	0,177

CURRENT CARRYING CAPACITY

Cross-section (mm^2)	Direct in ground single-core DC (A)	Direct in ground multi-cores (A)	Direct in ground single-core trefoil (A)	Air single-core DC (A)	Air multi-cores (A)	Air single-core trefoil (A)
16	-	-	-	-	-	-
25	177	112	114	136	102	106
35	212	135	136	166	126	130
50	252	158	162	205	149	161
70	310	196	199	260	191	204
95	372	234	238	321	234	252
120	425	268	272	376	273	295
150	476	300	305	431	311	339
185	541	342	347	501	360	395
240	631	398	404	600	427	472
300	716	457	457	696	507	547
400	825	529	525	821	600	643
500	952	609	601	971	695	754
630	1102	-	687	1151	-	882
800	1267	-	776	1355	-	1019
1000	1448	-	865	1580	-	1157

Ground temperature: 20°C; Air temperature: 30°C
Depth of laying: 0,7 m; Soil resistivity, moist: 1 K.m/W

DERATING FACTORS FOR LAYING IN GROUND AND BURIED DUCTS, FUNCTION OF SOIL TEMPERATURE

10 (°C)	15 (°C)	20 (°C)	25 (°C)	30 (°C)	35 (°C)	40 (°C)	45 (°C)	50 (°C)	55 (°C)	60 (°C)	65 (°C)	70 (°C)	75 (°C)	80 (°C)
1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76	0.71	0.65	0.60	0.53	0.46	0.38

DERATING FACTORS FOR LAYING IN AIR, FUNCTION OF AIR TEMPERATURE

10 (°C)	15 (°C)	20 (°C)	25 (°C)	30 (°C)	35 (°C)	40 (°C)	45 (°C)	50 (°C)	55 (°C)	60 (°C)	65 (°C)	70 (°C)	75 (°C)	80 (°C)
1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41