



### DESIGN STANDARDS

EN 50618  
62930 IEC 131

### APPLICATION

Solen H1Z2Z2-K Solar cables conforming to European standard 'EN 50618' and international standard 'IEC 62930' are designed for installations in photovoltaic systems, solar parks, solar farms, rooftop solar systems and in interconnection of solar panels and inverter. They are intended for permanent use outdoor and indoor, for free movable, free hanging and fixed installation. Installation also in conduits and trunkings on, in or under plaster as well as in appliances. Suitable for the application in/at equipment with protective insulation (protection class II).

### CONSTRUCTION

|               |                                                                    |
|---------------|--------------------------------------------------------------------|
| Conductor     | Tinned annealed flexible copper-Class 5 according to IEC 60228     |
| Insulation    | Halogen free Cross-linked compound according to EN 50618 Table B.1 |
| Outer Sheath  | Halogen free Cross-linked compound according to EN 50618 Table B.1 |
| Sheath Colour | Black or Red (Blue and Green-yellow available upon request)        |

**Insulation and sheath are solidly bonded to increase insulation resistance**

### KEY FEATURES

- TÜV NORD approval certified
- REACH and RoHS Complaint
- CE-CPR rating Dca acc. to EN 50575 (Cca upon request)
- UKCA-CPR rating Dca to BS EN 50575
- Expected service lifetime (Min. 25 years acc. to EN 50618)
- Higher insulation resistance
- High current carrying capacity
- Compatible for all major connectors
- AD8 water submersion compatible
- AG2 Medium severity impact resistance
- Suitable for and wet, damp and humid locations
- Excellent flexibility
- Good stripping performance from conductor
- Abrasion resistant
- UV, Oil, Grease and Ozone resistant
- Resistance against Ammonia
- Acid and Alkaline resistant
- Anti rodent and Anti termite versions are available.
- Conditional Direct Burial



Customer:

Date:

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## DATA SHEET

### PV SOLAR CABLES H1Z2Z2-K



#### TECHNICAL CHARACTERISTICS

|                                          |                                                                     |
|------------------------------------------|---------------------------------------------------------------------|
| Rated Voltage (U0/U)                     | AC 1000 / 1000 V<br>DC 1500 V                                       |
| Max Voltage                              | AC 1200 / 1200 V<br>DC 1800 V                                       |
| Test Voltage                             | 6,5 kV AC, 15 kV DC (5 min.)                                        |
| Operating Temperature                    | -40°C / +90°C                                                       |
| Max. Temperature at Conductor            | +120°C based on EN 60216-1<br>(20.000 h, 50% residual elongation)   |
| Installations Temperature                | -25°C / +60°C                                                       |
| Short Circuit Temperature                | +250°C (Max. 5 sec.)                                                |
| Min. Bending Radius                      | > 4 x D as per EN 50565-1                                           |
| Insulation Resistance                    | EN 50395 Clause 8.1, IEC 60227-2 Clause 2.4                         |
| Surface Resistance of Sheath             | EN 50395 Clause 11, IEC 62821 Clause 5.1                            |
| Cold Bend Test                           | EN 60811-504 (-40°C)                                                |
| Cold Elongation Test                     | EN 60811-505 (-40°C)                                                |
| Cold Impact Test                         | EN 60811-506 & EN 50618 (-40°C)                                     |
| Damp Heat Test                           | EN 50618 (Table 2), EN 60068-2-78 (1000 hours, 90°C & %85 humidity) |
| Halogen Free Properties                  | EN 50525-1 (Annex B)                                                |
| Low Smoke Emission                       | EN 61034-2 (Light transmittance > 60%)                              |
| Flame Retardancy Ozone Resistance IEC6   | EN 60332-1-2                                                        |
| Ozone Resistance                         | IEC 60811-403, EN 50396 Clause 8.1.2                                |
| Weather / UV Resistance                  | EN 50618 (Annex E), IEC 62930                                       |
| Dynamic Penetration Test                 | IEC 62930, EN 50618 (Annex E)                                       |
| Impact Condition                         | AG2 acc.to EN 50618 and HD 60364-5-52                               |
| Vibration Condition                      | AH3 acc.to EN 50618 and HD 60364-5-52                               |
| Water Submersion                         | AD8 EN 50525-2-21 Appendix E (internal tested)                      |
| Acid and Alkaline Resistance             | EN 50618 (Annex B)                                                  |
| Ammonia Resistance                       | 30 days in saturated ammonia atmosphere (internal tested)           |
| Shrinkage Test                           | EN 60811-503, IEC 60811-503, EN 50618 (Table 2)                     |
| Durability of Print                      | EN 50618                                                            |
| Long Term Resistance of Insulation to DC | EN 50395 Clause 9, IEC 62821-2                                      |

#### DIRECT BURIAL CONDITIONS

Allowed to be direct burial to earth that does not contain any damaging chemicals, solvents, rodents, termites etc.  
Proper and correct installation methods based on VDE 0800-174 and VDE 0891-6 should be applied.  
Necessary cautions should be taken to avoid physical damage of cables during installation.  
It is better that installation to be in pipes/conduits/concrete channels.

#### CABLE MARKING

**SOLEN CABLE TUV NORD EN 50618 H1Z2Z2-K 1xN mm<sup>2</sup> 1,5 kV DC / 62930 IEC 131 HALOGEN FREE LOW SMOKE SCXXXX <CE> Dca (yyyy) XX MT**

\*N: Cross Section \*SCXXXX: Traceability Code \*(yyyy): Year marking \*XX MT: Meter Marking

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|----------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------|
|  | <b>DATA SHEET</b><br><br><b>PV SOLAR CABLES H1Z2Z2-K</b> |  |
|----------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------|

## DIMENSIONAL PARAMETERS

| PART NO.      | NUMBER OF CORES | CROSS SECTIONS mm <sup>2</sup> | CONDUCTOR DIAMETER mm | OVERALL DIAMETER mm | BENDING RADIUS (min.) mm | WEIGHT kg/km |
|---------------|-----------------|--------------------------------|-----------------------|---------------------|--------------------------|--------------|
| SPV50015CL000 | 1               | 1,5                            | 1,6                   | 4,50 -0,2 /+0,3     | 22                       | 33           |
| SPV50025CL000 | 1               | 2,5                            | 2,0                   | 4,90 -0,2 /+0,3     | 24                       | 41           |
| SPV50040CL000 | 1               | 4                              | 2,5                   | 5,50 -0,2 /+0,3     | 26                       | 57           |
| SPV50060CL000 | 1               | 6                              | 3,0                   | 5,90 -0,2 /+0,3     | 30                       | 73           |
| SPV50100CL000 | 1               | 10                             | 4,0                   | 6,90 -0,2 /+0,3     | 35                       | 110          |
| SPV50160CL000 | 1               | 16                             | 5,0                   | 8,00 -0,2 /+0,3     | 40                       | 170          |
| SPV50250CL000 | 1               | 25                             | 6,1                   | 10,00 -0,3 /+0,5    | 50                       | 260          |
| SPV50350CL000 | 1               | 35                             | 7,4                   | 11,00 -0,3 /+0,5    | 56                       | 360          |
| SPV50500CL000 | 1               | 50                             | 8,8                   | 13,20 -0,3 /+0,5    | 65                       | 500          |
| SPV50500CL000 | 1               | 70                             | 10,3                  | 14,90 -0,3 /+0,5    | 75                       | 715          |
| SPV50950CL000 | 1               | 95                             | 11,9                  | 16,70 -0,3 /+0,5    | 83                       | 933          |

CL refers to colour for :

Red replace RD

Green/Yellow replace GY

Black replace BK

Blue replace BL

## ELECTRICAL PARAMETERS

| PART NO.      | NUMBER OF CORES | CROSS SECTIONS mm <sup>2</sup> | CONDUCTOR RESISTANCE 20 °C ohm/km | CURRENT CARRYING CAPACITY (*) at 60 °C Ambient Temperature |                           |                                       | SHORT CIRCUIT CURRENT (5s. From 90 °C to 250°C) kA |
|---------------|-----------------|--------------------------------|-----------------------------------|------------------------------------------------------------|---------------------------|---------------------------------------|----------------------------------------------------|
|               |                 |                                |                                   | Single Cable in Free Air                                   | Single Cable on Surface A | Two Loaded Cables Touching on Surface |                                                    |
| SPV50015CL000 | 1               | 1,5                            | 13,7                              | 30                                                         | 29                        | 24                                    | 0,09                                               |
| SPV50025CL000 | 1               | 2,5                            | 8,21                              | 41                                                         | 39                        | 33                                    | 0,15                                               |
| SPV50040CL000 | 1               | 4                              | 5,09                              | 55                                                         | 52                        | 44                                    | 0,25                                               |
| SPV50060CL000 | 1               | 6                              | 3,39                              | 70                                                         | 67                        | 57                                    | 0,37                                               |
| SPV50100CL000 | 1               | 10                             | 1,95                              | 98                                                         | 93                        | 79                                    | 0,63                                               |
| SPV50160CL000 | 1               | 16                             | 1,24                              | 132                                                        | 125                       | 107                                   | 1                                                  |
| SPV50250CL000 | 1               | 25                             | 0,795                             | 176                                                        | 167                       | 142                                   | 1,6                                                |
| SPV50350CL000 | 1               | 35                             | 0, 5229                           | 218                                                        | 207                       | 176                                   | 2,2                                                |
| SPV50500CL000 | 1               | 50                             | 0,393                             | 276                                                        | 262                       | 221                                   | 3,2                                                |
| SPV50700CL000 | 1               | 70                             | 0,277                             | 347                                                        | 330                       | 278                                   | 4,40                                               |
| SPV50950CL000 | 1               | 95                             | 0,21                              | 416                                                        | 395                       | 333                                   | 6,00                                               |

(\*) Max. conductor temperature: 120 °C.

Based on EN50618 Table A.2 and A.3

NOTE: The expected period of use at a max. conductor temperature of 120 °C and at a max. ambient temperature of 90 °C is limited to 20 000 h.

## CURRENT RATING CONVERSION FACTORS FOR DIFFERENT AMBIENT TEMPERATURES

|                     |      |      |      |      |
|---------------------|------|------|------|------|
| Ambient temperature | < 60 | 70   | 80   | 90   |
| Conversion factor   | 1    | 0,92 | 0,84 | 0,75 |

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