

PAS SOLAR

Trading

Solar Equipment
Distributor.

powering tomorrow
Growatt



PAS SOLAR

► PV Modules



► On-Grid / Off Grid / Hybrid Inverters



► Solar Battery



► DC Cables



ABOUT US:

PAS SOLAR is a Distributer of solar equipment based in UAE. Composed of a team of professionals with the goal to provide customers with the latest Tier 1 Solar equipment in the region. As a one-stop shop with the latest product generation available in stock to harness the energy from the sun and convert it to electricity for residential and commercial use.



VISION:

Our Vision is to increase the production of Solar Energy and the availability of its material for the users at the best price and time.



MISSION:

To achieve this, PAS SOLAR is providing all the required Products as a One Stop Shop, for the users to have an easier, faster, and cheaper procurement process and purchases hassle-free.

GROWATT SMART PHOTOVOLTAIC INVERTER SERIES



Residential on-grid inverters



Commercial on-grid inverters



Large commercial and
utility grade on-grid inverters



Residential storage inverters



Residential off-grid inverters



Monitoring solutions

MIC 750~3300 TL-X



GROWATT · PRODUCT

| Datasheet | MIC 750TL-X | MIC 1000TL-X | MIC 1500TL-X | MIC 2000TL-X | MIC 2500TL-X | MIC 3000TL-X | MIC 3300TL-X |
|---|--|--------------|--------------|--------------|--------------|--------------|--------------|
| Input data (DC) | | | | | | | |
| Max. recommended PV power (for module STC) | 1050W | 1400W | 2100W | 2800W | 3500W | 4200W | 4290W |
| Max. DC voltage | 500V | 500V | 500V | 500V | 550V | 550V | 550V |
| Start voltage | 50V | 50V | 50V | 50V | 80V | 80V | 80V |
| Nominal voltage | 120V | 180V | 250V | 360V | 360V | 360V | 360V |
| MPP voltage range | 50V-500V | 50V-500V | 50V-500V | 50V-500V | 65V-550V | 65V-550V | 65V-550V |
| No. of MPP trackers | 1 | | | | | | |
| No. of PV strings per MPP tracker | 1 | | | | | | |
| Max. input current per MPP tracker | 13A | | | | | | |
| Max. short-circuit current per MPP tracker | 16A | | | | | | |
| Output data (AC) | | | | | | | |
| AC nominal power | 750W | 1000W | 1500W | 2000W | 2500W | 3000W | 3300W |
| Max. AC apparent power | 750VA | 1000VA | 1500VA | 2000VA | 2500VA | 3000VA | 3300VA |
| Nominal AC voltage(range*) | 230V (180-280V) | | | | | | |
| AC grid frequency(range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | | | |
| Max. output current | 3,6A | 4,8A | 7,1A | 9,5A | 11,9A | 14,3A | 14,3A |
| Adjustable power factor | 0.8leading...0.8lagging | | | | | | |
| THDi | <3% | | | | | | |
| AC grid connection type | Single phase | | | | | | |
| Efficiency | | | | | | | |
| Max. efficiency | 97.4% | 97.4% | 97.4% | 97.4% | 97.6% | 97.6% | 97.6% |
| European efficiency | 96.5% | 96.5% | 97.0% | 97.0% | 97.0% | 97.1% | 97.1% |
| MPPT efficiency | 99.9% | | | | | | |
| Protection devices | | | | | | | |
| DC reverse polarity protection | Yes | | | | | | |
| DC switch | Yes | | | | | | |
| AC/DC surge protection | Type III / Type III | | | | | | |
| Insulation resistance monitoring | Yes | | | | | | |
| AC short-circuit protection | Yes | | | | | | |
| Ground fault monitoring | Yes | | | | | | |
| Grid monitoring | Yes | | | | | | |
| Anti-islanding protection | Yes | | | | | | |
| Residual-current monitoring unit | Yes | | | | | | |
| AFCI protection | Optional | | | | | | |
| General data | | | | | | | |
| Dimensions (W / H / D) | 274/254/138mm | | | | | | |
| Weight | 6kg | 6kg | 6kg | 6kg | 6.2kg | 6.2kg | 6.2kg |
| Operating temperature range | -25°C ... +60°C | | | | | | |
| Nighttime power consumption | < 0.5W | | | | | | |
| Topology | Transformerless | | | | | | |
| Cooling | Natural convection | | | | | | |
| Protection degree | IP65 | | | | | | |
| Relative humidity | 0-100% | | | | | | |
| Altitude | 4000m | | | | | | |
| DC connection | H4/MC4(Optional) | | | | | | |
| AC connection | Connector | | | | | | |
| Display | OLED+LED/WIFI+APP | | | | | | |
| Interfaces: RS485 / USB/Wi-Fi/ GPRS/ RF/LAN | Yes/Yes/Optional/Optional/Optional /Optional | | | | | | |
| Warranty: 5 years / 10 years | Yes /Optional | | | | | | |
| CE,AS4777, AS/NZS 3100, CEI 0-21, VDE-AR-N 4105, VDE 0126-1-1, UTE C 15-712-1, EN50549, IEC 60068, IEC 61683, IEC 62116, IEC 61727, INMETRO, G98, C10/C11, UNE217001, UNE206007, PO12.2 | | | | | | | |

* The AC voltage and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

MIN 2500~6000 TL-X



GROWATT · PRODUCT

| Datasheet | MIN 2500TL-X | MIN 3000TL-X | MIN 3600TL-X | MIN 4200TL-X | MIN 4600TL-X | MIN 5000TL-X | MIN 6000TL-X |
|---|--|--------------|--------------|--------------|--------------|--------------|--------------|
| Input Data (DC) | | | | | | | |
| Max. recommended PV power (for module STC) | 3500W | 4200W | 5040W | 5880W | 6440W | 7000W | 8100W |
| Max. DC voltage | 500V | 500V | 550V | 550V | 550V | 550V | 550V |
| Start voltage | 100V | | | | | | |
| Nominal voltage | 360V | | | | | | |
| MPP voltage range | 80V-500V | 80V-500V | 80V-550V | 80V-550V | 80V-550V | 80V-550V | 80V-550V |
| No. of MPP trackers | 2 | | | | | | |
| No. of PV strings per MPP tracker | 1 | | | | | | |
| Max. input current per MPP tracker | 13.5A* | | | | | | |
| Max. short-circuit current per MPP tracker | 16.9A | | | | | | |
| Output data (AC) | | | | | | | |
| AC nominal power | 2500W | 3000W | 3600W | 4200W | 4600W | 5000W | 6000W |
| Max. AC apparent power | 2500VA | 3000VA | 3600VA | 4200VA | 4600VA | 5000VA | 6000VA |
| Nominal AC voltage (range*) | 230V (180-280V) | | | | | | |
| AC grid frequency (range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | | | |
| Max. output current | 11.3A | 13.6A | 16A | 19A | 20.9A | 22.7A | 27.2A |
| Adjustable power factor | 0.8leading...0.8lagging | | | | | | |
| THDi | < 3% | | | | | | |
| AC grid connection type | Single phase | | | | | | |
| Efficiency | | | | | | | |
| Max. efficiency | 98.2% | 98.2% | 98.2% | 98.4% | 98.4% | 98.4% | 98.4% |
| European efficiency | 97.1% | 97.1% | 97.2% | 97.5% | 97.5% | 97.5% | 97.5% |
| MPPT efficiency | 99.9% | | | | | | |
| Protection Devices | | | | | | | |
| DC reverse polarity protection | yes | | | | | | |
| DC switch | yes | | | | | | |
| AC/DC surge protection | Type III / Type II | | | | | | |
| Insulation resistance monitoring | yes | | | | | | |
| AC short-circuit protection | yes | | | | | | |
| Ground fault monitoring | yes | | | | | | |
| Grid monitoring | yes | | | | | | |
| Anti-islanding protection | yes | | | | | | |
| Residual-current monitoring unit | yes | | | | | | |
| AFCI protection | Optional | | | | | | |
| General Data | | | | | | | |
| Dimensions (W / H / D) | 375/350/160mm | | | | | | |
| Weight | 10.8kg | | | | | | |
| Operating temperature range | -25°C ... +60°C | | | | | | |
| Noise emission (typical) | ≤35 dB(A) | | | | | | |
| Nighttime power consumption | < 1W | | | | | | |
| Topology | Transformerless | | | | | | |
| Cooling | Natural convection | | | | | | |
| Protection degree | IP65 | | | | | | |
| Relative humidity | 0-100% | | | | | | |
| Altitude | 4000m | | | | | | |
| DC connection | H4/MC4(Optional) | | | | | | |
| AC connection | Connector | | | | | | |
| Display | OLED + LED/WIFI + APP | | | | | | |
| Interfaces: RS485 / USB/Wi-Fi/ GPRS/ RF/LAN | Yes/Yes/Optional/Optional/Optional /Optional | | | | | | |
| Warranty: 5 years / 10 years | Yes /Optional | | | | | | |

CE, IEC62109, VDE0126-1-1, AS4777, AS/NZS 3100, VDE-AR-N4105, CQC, IEC61683, IEC60068, IEC61727, IEC62116, INMETRO

* Only the latest version with max. input current 13.5A per MPP tracker, for details please contact Growatt.
 * The AC voltage and frequency range may vary depending on specific country grid standard.
 All specifications are subject to change without notice.

MOD 3000~9000 TL3-X



GROWATT · PRODUCT

| Datasheet | MOD 3000TL3-X | MOD 4000TL3-X | MOD 5000TL3-X | MOD 6000TL3-X | MOD 7000TL3-X | MOD 8000TL3-X | MOD 9000TL3-X |
|---|---|---------------|---------------|---------------|---------------|---------------|---------------|
| Input data (DC) | | | | | | | |
| Max. recommended PV power (for module STC) | 4500W | 6000W | 7500W | 9000W | 10500W | 12000W | 13500W |
| Max. DC voltage | 1100V | | | | | | |
| Start voltage | 160V | | | | | | |
| Nominal voltage | 580V | | | | | | |
| MPPT voltage range | 140V-1000V | | | | | | |
| No. of MPP trackers | 2 | | | | | | |
| No. of PV strings per MPP tracker | 1 | | | | | | |
| Max. input current per MPP tracker | 13A | | | | | | |
| Max. short-circuit current per MPP tracker | 16A | | | | | | |
| Output data (AC) | | | | | | | |
| AC nominal power | 3000W | 4000W | 5000W | 6000W | 7000W | 8000W | 9000W |
| Max. AC apparent power | 3300VA | 4400VA | 5500VA | 6600VA | 7700VA | 8800VA | 9900VA |
| Nominal AC voltage (range*) | 220V/380V, 230V/400V (340-440V) | | | | | | |
| AC grid frequency (range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | | | |
| Max. output current | 5,0A | 6,7A | 8,3A | 10,0A | 11,7A | 13,3A | 15,0A |
| Adjustable power factor | 0,8leading...0,8lagging | | | | | | |
| THDi | <3% | | | | | | |
| AC grid connection type | 3W+N+PE | | | | | | |
| Efficiency | | | | | | | |
| MAX. efficiency | 98.3% | 98.3% | 98.3% | 98.3% | 98.6% | 98.6% | 98.6% |
| European efficiency | 97.5% | 97.5% | 97.5% | 97.5% | 98.1% | 98.1% | 98.1% |
| MPPT efficiency | 99.9% | | | | | | |
| Protection devices | | | | | | | |
| DC reverse polarity protection | Yes | | | | | | |
| DC Switch | Yes | | | | | | |
| AC/DC surge protection | Type II / Type II | | | | | | |
| Insulation resistance monitoring | Yes | | | | | | |
| AC short-circuit protection | Yes | | | | | | |
| Ground fault monitoring | Yes | | | | | | |
| Grid monitoring | Yes | | | | | | |
| Anti-islanding protection | Yes | | | | | | |
| Residual-current monitoring unit | Yes | | | | | | |
| String fault monitoring | Yes | | | | | | |
| AFCI protection | Optional | | | | | | |
| General data | | | | | | | |
| Dimensions (W / H / D) | 425/387/147mm | 425/387/147mm | 425/387/147mm | 425/387/147mm | 425/387/178mm | 425/387/178mm | 425/387/178mm |
| Weight | 12.5kg | 12.5kg | 12.5kg | 12.5kg | 14kg | 14kg | 14kg |
| Operating temperature range | - 25°C ... +60°C | | | | | | |
| Nighttime power consumption | < 1W | | | | | | |
| Topology | Transformerless | | | | | | |
| Cooling | Natural convection | | | | | | |
| Protection degree | IP66 | | | | | | |
| Relative humidity | 0~100% | | | | | | |
| Altitude | 4000m | | | | | | |
| DC connection | H4/MC4(Optional) | | | | | | |
| AC connection | Connector | | | | | | |
| Display | OLED+LED/WIFI+APP | | | | | | |
| Interfaces: USB/RS485/WiFi /GPRS/LAN/RF | yes/yes/Optional/Optional/Optional/Optional | | | | | | |
| Warranty: 5 / 10 years | Yes/Optional | | | | | | |
| CE, VDE0126, Greece, EN50549, C10/C11, UTE C 15-712, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, N4105, TOR Erzeuger G98/G99, G100, AS4777, UNE217001, UNE206007, PO12.2 | | | | | | | |

* The AC voltage range and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

MOD 10~15K TL3-X



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| Datasheet | MOD 10KTL3-X | MOD 11KTL3-X | MOD 12KTL3-X | MOD 13KTL3-X | MOD 15KTL3-X |
|---|---|--------------|--------------|--------------|--------------|
| Input data (DC) | | | | | |
| Max. recommended PV power (for module STC) | 15000W | 16500W | 18000W | 19500W | 22500W |
| Max. DC voltage | 1100V | | | | |
| Start voltage | 160V | | | | |
| Nominal voltage | 580V | | | | |
| MPPT voltage range | 140V-1000V | | | | |
| No. of MPP trackers | 2 | | | | |
| No. of PV strings per MPP tracker | 1 | 1 | 1/2 | 1/2 | 1/2 |
| Max. input current per MPP tracker | 13A | 13A | 13/26A | 13/26A | 13/26A |
| Max. short-circuit current per MPP tracker | 16A | 16A | 16/32A | 16/32A | 16/32A |
| Output data (AC) | | | | | |
| AC nominal power | 10000W | 11000W | 12000W | 13000W | 15000W |
| Max. AC apparent power | 11000VA* | 12100VA | 13200VA | 14300VA | 16500VA |
| Nominal AC voltage (range*) | 220V/380V, 230V/400V (340-440V) | | | | |
| AC grid frequency (range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | |
| Max. output current | 16.7A | 18,3A | 20A | 21.7A | 25A |
| Adjustable power factor | 0.8leading...0.8lagging | | | | |
| THDi | <3% | | | | |
| AC grid connection type | 3W+N+PE | | | | |
| Efficiency | | | | | |
| MAX. efficiency | 98.6% | | | | |
| European efficiency | 98.1% | 98.1% | 98.2% | 98.2% | 98.2% |
| MPPT efficiency | 99.9% | | | | |
| Protection devices | | | | | |
| DC reverse polarity protection | Yes | | | | |
| DC Switch | Yes | | | | |
| AC/DC surge protection | Type II / Type II | | | | |
| Insulation resistance monitoring | Yes | | | | |
| AC short-circuit protection | Yes | | | | |
| Ground fault monitoring | Yes | | | | |
| Grid monitoring | Yes | | | | |
| Anti-islanding protection | Yes | | | | |
| Residual-current monitoring unit | Yes | | | | |
| String fault monitoring | Yes | | | | |
| AFCI protection | Optional | | | | |
| General data | | | | | |
| Dimensions (W / H / D) | 425/387/178mm | | | | |
| Weight | 14kg | 14kg | 16kg | 16kg | 16kg |
| Operating temperature range | - 25°C ... +60°C | | | | |
| Nighttime power consumption | < 1W | | | | |
| Topology | Transformerless | | | | |
| Cooling | Natural convection | | | | |
| Protection degree | IP66 | | | | |
| Relative humidity | 0~100% | | | | |
| Altitude | 4000m | | | | |
| DC connection | H4/MC4(Optional) | | | | |
| AC connection | Connector | | | | |
| Display | OLED + LED/WIFI + APP | | | | |
| Interfaces: USB/RS485/WIFI /GPRS/LAN/RF | yes/yes/Optional/Optional/Optional/Optional | | | | |
| Warranty:5 years / 10 years | Yes/Optional | | | | |
| CE, VDE0126, Greece, EN50549, C10/C11, VFR 2019, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, N4105, TOR Erzeuger G98/G99, G100, AS4777, UNE217001, UNE206007, PO12.2 | | | | | |

* For Belgium C10/C11, MOD 10KTL3-X max. output power is limit to 10000VA.

* The AC voltage range and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

MID 15~25K TL3-X



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| Datasheet | MID 15KTL3-X | MID 17KTL3-X | MID 20KTL3-X | MID 22KTL3-X | MID 25KTL3-X |
|---|--|--------------|--------------|--------------|--------------|
| Input data (DC) | | | | | |
| Max. recommended PV power (for module STC) | 22500W | 25500W | 30000W | 33000W | 37500W |
| Max. DC voltage | 1100V | | | | |
| Start Voltage | 250V | | | | |
| Nominal voltage | 580V | | | | |
| MPPT voltage range | 160V-1000V | | | | |
| No. of MPP trackers | 2 | | | | |
| No. of PV strings per MPP tracker | 2 | 2 | 2 | 2 | 2/3 |
| Max. input current per MPPT tracker* | 27A | 27A | 27A | 27A | 27A/40.5A |
| Max. short circuit current per MPPT | 33.8A | 33.8A | 33.8A | 33.8A | 33.8A/50.7A |
| Output data (AC) | | | | | |
| Rated AC output power | 15000W | 17000W | 20000W | 22000W | 25000W |
| Max. AC apparent power | 16600VA | 18800VA | 22000VA | 24400VA | 27700VA |
| Nominal AC voltage(range*) | 220V/380V, 230V/400V (340-440V) | | | | |
| AC grid frequency;(range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | |
| Max. output current | 24.2A | 27.4A | 31.9A | 35.5A | 40.2A |
| Adjustable power factor | 0.8leading...0.8lagging | | | | |
| THDi | <3% | | | | |
| AC grid connection type | 3W+N+PE | | | | |
| Efficiency | | | | | |
| Max.efficiency | | | 98.75% | | |
| European efficiency | | | 98.6% | | |
| MPPT efficiency | | | 99.9% | | |
| Protection devices | | | | | |
| DC reverse polarity protection | Yes | | | | |
| DC Switch | Yes | | | | |
| AC/DC surge protection | TypeII/Type II | | | | |
| Insulation resistance monitoring | Yes | | | | |
| AC short-circuit protection | Yes | | | | |
| Ground fault monitoring | Yes | | | | |
| Grid monitoring | Yes | | | | |
| Anti-islanding protection | Yes | | | | |
| Residual-current monitoring unit | Yes | | | | |
| String monitoring | Yes | | | | |
| AFCI protection | Optional | | | | |
| General data | | | | | |
| Dimensions (W / H / D) | 525/395/222mm | | | | |
| Weight | 23kg | | | | |
| Operating temperature range | -25 °C ... +60 °C | | | | |
| Self-Consumption (night) | <1W | | | | |
| Topology | Transformerless | | | | |
| Cooling | Smart air cooling | | | | |
| Protection degree | IP65 | | | | |
| Relative Humidity | 0~100% | | | | |
| Altitude | 4000m | | | | |
| DC connection | H4/MC4(Optional) | | | | |
| AC connection | Cable gland+OT terminal | | | | |
| Display | OLED+LED/WIFI+APP | | | | |
| Interfaces: RS485 / USB / WIFI/ GPRS / RF/ LAN | Yes/Yes /Optional/Optional/Optional/Optional | | | | |
| Warranty: 5 years / 10 years | Yes /Optional | | | | |
| CE, VDE0126, Greece, EN50549, C10/C11, UTE C 15-712, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, N4105, TOR Erzeuger, G98/G99, G100, UNE217001, UNE206007, PO12.2, KSC8565 | | | | | |

* The AC voltage range and frequency range may vary depending on specific country grid standard. All specifications are subject to change without notice.

* Only the latest version with max. input current 13.5A per string, for details please contact Growatt.

MID 25~40K TL3-X



GROWATT · PRODUCT

| Datasheet | MID 25KTL3-X1 | MID 30KTL3-X | MID 33KTL3-X | MID 36KTL3-X | MID 40KTL3-X |
|--|---|--------------|--------------|--------------|--------------|
| Input data (DC) | | | | | |
| Max. recommended PV power (for module STC) | 37500W | 45000W | 49500W | 54000W | 60000W |
| Max. DC voltage | 1100V | | | | |
| Start Voltage | 250V | | | | |
| Normal Voltage | 600V | | | | |
| MPPT voltage range | 200-1000V | | | | |
| No. of MPP trackers | 3 | 3 | 3 | 4 | 4 |
| No. of PV strings per MPP tracker | 2 | | | | |
| Max.input current per MPP tracker | 26A | | | | |
| Max. short-circuit current per MPP tracker | 32A | | | | |
| Output data (AC) | | | | | |
| AC nominal power | 25000W | 30000W | 33000W | 36000W | 40000W |
| Max. AC apparent power | 27700VA | 33300VA | 36600VA | 39600VA | 44000VA |
| Nominal AC voltage (range*) | 220V/380V, 230V/400V (340-440V) | | | | |
| AC grid frequency (range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | |
| Max. output current | 40A | 50.5A | 55.5A | 60.0A | 66.6A |
| Adjustable power factor | 0.8leading...0.8lagging | | | | |
| THDi | <3% | | | | |
| AC grid connection type | 3W+N+PE | | | | |
| Efficiency | | | | | |
| Max.efficiency | 98.8% | | | | |
| European efficiency | 98.5% | | | | |
| MPPT efficiency | 99.9% | | | | |
| Protection devices | | | | | |
| DC reverse polarity protection | Yes | | | | |
| DC Switch | Yes | | | | |
| AC/DC surge protection | Type II / Type II | | | | |
| Insulation resistance monitoring | Yes | | | | |
| AC short-circuit protection | Yes | | | | |
| Ground fault monitoring | Yes | | | | |
| Grid monitoring | Yes | | | | |
| Anti-islanding protection | Yes | | | | |
| Residual-current monitoring unit | Yes | | | | |
| String monitoring | Yes | | | | |
| AFCI protection | Optional | | | | |
| General data | | | | | |
| Dimensions (W / H / D) | 580/435/230mm | | | | |
| Weight | 29.5kg | 29.5kg | 29.5kg | 30.5kg | 30.5kg |
| Operating temperature range | - 25°C ... + 60°C | | | | |
| Nighttime power consumption | < 1W | | | | |
| Topology | Transformerless | | | | |
| Cooling | Smart air cooling | | | | |
| Protection degree | IP66 | | | | |
| Relative humidity | 0-100% | | | | |
| Altitude | 4000m | | | | |
| DC connection | H4/MC4(Optional) | | | | |
| AC connection | Cable gland+OT terminal | | | | |
| Display | OLED+LED/WIFI+APP | | | | |
| Interfaces: RS485 / USB / WIFI/ GPRS / RF/ LAN | Yes/Yes/Optional/Optional/Optional/Optional | | | | |
| Warranty: 5 years / 10 years | Yes/Optional | | | | |

CE, VDE0126, Greece, EN50549, C10/C11, UTE C 15-712, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, CEI0-16, N4105, TOR Erzeuger, G98/G99, G100, AS/NZS 3100, AS4777, UNE217001, UNE206007, PO12.2, KSC8565

* The AC voltage range and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

MAX 50~80K TL3 LV



GROWATT · PRODUCT

| Datasheet | MAX 50KTL3 LV | | MAX 60KTL3 LV | | MAX 70KTL3 LV | | MAX 80KTL3 LV | |
|---|-------------------------------------|--|---------------|--|---------------|--|---------------|--|
| Input data (DC) | | | | | | | | |
| Max. recommended PV power (for module STC) | 75000W | | 90000W | | 105000W | | 120000W | |
| Max.DC voltage | 1100V | | | | | | | |
| Start voltage | 250V | | | | | | | |
| Nominal voltage | 585V | | 585V | | 600V | | 600V | |
| MPPT voltage range | 200V-1000V | | | | | | | |
| No. of MPP trackers | 6 | | 6 | | 7 | | 7 | |
| No. of PV strings per MPP tracker | 2 | | | | | | | |
| Max. input current per MPP tracker | 26A | | | | | | | |
| Max. short-circuit current per MPP tracker | 32A | | | | | | | |
| Output data (AC) | | | | | | | | |
| AC nominal power | 50000W | | 60000W | | 70000W | | 80000W | |
| Max. AC apparent power | 55500VA | | 66600VA | | 77700VA | | 88800VA | |
| Nominal AC voltage(range*) | 220V/380V, 230V/400V (340-440V) | | | | | | | |
| AC grid frequency(range*) | 50/60 Hz (45-55Hz/55-65 Hz) | | | | | | | |
| Max. output current | 80.5A | | 96.6A | | 112.7A | | 128.8A | |
| Adjustable power factor | 0.8leading ...0.8lagging | | | | | | | |
| THDi | <3% | | | | | | | |
| AC grid connection type | 3W+N+PE | | | | | | | |
| Efficiency | | | | | | | | |
| Max.efficiency | 98.8% | | 98.8% | | 99% | | 99% | |
| European efficiency | 98.4% | | 98.4% | | 98.5% | | 98.5% | |
| MPPT efficiency | 99.9% | | | | | | | |
| Protection devices | | | | | | | | |
| DC reverse polarity protection | Yes | | | | | | | |
| DC switch | Yes | | | | | | | |
| DC surge protection | Type II / Type II | | | | | | | |
| Insulation resistance monitoring | Yes | | | | | | | |
| AC short-circuit protection | Yes | | | | | | | |
| Ground fault monitoring | Yes | | | | | | | |
| Grid monitoring | Yes | | | | | | | |
| Anti-islanding protection | Yes | | | | | | | |
| Residual-current monitoring unit | Yes | | | | | | | |
| String monitoring | Yes | | | | | | | |
| AFCI protection | Yes | | | | | | | |
| General data | | | | | | | | |
| Dimensions (W / H / D) | 860/600/300mm | | | | | | | |
| Weight | 82kg | | 82kg | | 86kg | | 86kg | |
| Operating temperature range | -25°C ... +60°C | | | | | | | |
| Self-consumption | < 1W | | | | | | | |
| Topology | Transformerless | | | | | | | |
| Cooling | Smart air cooling | | | | | | | |
| Protection degree | IP65 | | | | | | | |
| Relative humidity | 0-100% | | | | | | | |
| Altitude | 4000m | | | | | | | |
| DC connection | H4/MC4(Optional) | | | | | | | |
| AC connection | Cable gland+ OT terminal | | | | | | | |
| Display | LED/WIFI+ APP | | | | | | | |
| Interfaces: RS485 / USB /WIFI/ RF/GPRS | Yes/Yes /Optional/Optional/Optional | | | | | | | |
| Warranty: 5 years / 10 years | Yes /Optional | | | | | | | |
| CE , VDE0126, Greece, EN50438, EN50549, C10/C11, UTE C 15-712, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, CEI 0-16, N4105, BDEW, DRRG, TOR Erzeuger G98/G99, G100, AS/NZS3100, AS4777, UNE217001, UNE206007, PO12.2, NRS 097-2-1, MEA , PEA , KSC8565 | | | | | | | | |

* The AC voltage range and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

MAX 100~125K TL3-X LV



GROWATT · PRODUCT

| Datasheet | MAX 100KTL3-X LV | | MAX 110KTL3-X LV | | MAX 120KTL3-X LV | | MAX 125KTL3-X LV | |
|---|----------------------------|--|----------------------------|--|---|--|----------------------------|--|
| Input data (DC) | | | | | | | | |
| Max. DC voltage | | | | | 1100V | | | |
| Start voltage | | | | | 195V | | | |
| Nominal voltage | | | | | 600V | | | |
| MPP voltage range | | | | | 180V-1000V | | | |
| No. of MPP trackers | | | | | 10 | | | |
| No. of PV strings per MPP tracker | | | | | 2 | | | |
| Max. input current per MPP tracker | | | | | 32A | | | |
| Max. short-circuit current per MPP tracker | | | | | 40A | | | |
| Output data (AC) | | | | | | | | |
| AC nominal power | 100000W | | 110000W | | 120000W | | 125000W | |
| Max. AC apparent power | 110000VA | | 121000VA | | 132000VA | | 137500VA | |
| Nominal AC voltage(range*) | | | | | 400V/380V(340-440VAC) | | | |
| AC grid frequency (range*) | | | | | 50/60 Hz(45~55Hz/55-65 Hz) | | | |
| Max. output current | 158.8A@400V 167.1A@380V | | 174.6A@400V 183.8A@380V | | 190.5A@400V 200.5A@380V | | 198.5A@400V 208.9A@380V | |
| Adjustable power factor | | | | | 0.8leading ...0.8lagging | | | |
| THDi | | | | | <3% | | | |
| AC grid connection type | | | | | 3W/N/PE | | | |
| Efficiency | | | | | | | | |
| Max.efficiency | | | | | 98.8% | | | |
| European efficiency | 98.4% | | 98.5% | | 98.5% | | 98.5% | |
| MPPT efficiency | | | | | 99.9% | | | |
| Protection devices | | | | | | | | |
| DC reverse polarity protection | | | | | Yes | | | |
| DC switch | | | | | Yes | | | |
| AC/DC surge protection | | | | | Type II / Type II | | | |
| Insulation resistance monitoring | | | | | Yes | | | |
| AC short-circuit protection | | | | | Yes | | | |
| Ground fault monitoring | | | | | Yes | | | |
| String detection | | | | | Yes | | | |
| Anti PID function | | | | | Opt | | | |
| Arc fault detection (AFCI) | | | | | Opt | | | |
| General data | | | | | | | | |
| Dimensions (W / H / D) | | | | | 970/640/345mm | | | |
| Weight | | | | | 84kg | | | |
| Operating temperature range | | | | | -30°C ... +60°C | | | |
| Nighttime power consumption | | | | | < 1W | | | |
| Topology | | | | | Transformerless | | | |
| Cooling | | | | | Smart Cooling | | | |
| Protection degree | | | | | IP66 | | | |
| Relative humidity | | | | | 0~100% | | | |
| Altitude | | | | | 4000m | | | |
| DC connection | | | | | H4/MC4 (Max.6mm²) | | | |
| AC connection | | | | | OT Terminal (Max. 240mm²) | | | |
| Display | | | | | LED/WIFI+APP | | | |
| Interfaces: RS485 / USB /PLC/GPRS/4G/WIFI | | | | | Yes/Yes/Optional/Optional/Optional/Optional | | | |
| Warranty: 5 years / 10 years | | | | | Yes /Optional | | | |
| CE,IEC62116, IEC61727, CQC, VDE0126, VFR2019, EN50549-1/2, C10/C11, UNE206007, G99 CEI 0-21/0-16, N4105&N4110, UNE206006,MEA, PEA, KSC8565 | | | | | | | | |

* The AC voltage range and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

SPH 3000~6000TL BL-UP



GROWATT · PRODUCT

| Datasheet | SPH3000TL BL-UP | SPH3600TL BL-UP | SPH4000TL BL-UP | SPH4600TL BL-UP | SPH5000TL BL-UP | SPH6000TL BL-UP |
|--|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Input data(PV) | | | | | | |
| Max. recommended PV power (for module STC) | 6000W | 7200W | 8000W | 9200W | 10500W | 11200W |
| Max. DC voltage | 550V | | | | | |
| Start voltage | 120V | | | | | |
| MPP voltage range | 120-550V/360V | | | | | |
| No. of MPP trackers | 2 | | | | | |
| No. of PV strings per MPP tracker | 1 | | | | | |
| Max. input current per MPP tracker | 13,5A | | | | | |
| Max. short-circuit current per MPP tracker | 16,5A | | | | | |
| | | | | | | |
| AC nominal power | 3000W | 3680W | 4000W | 4600W | 5000W | 6000W |
| Max. AC apparent power | 3000VA | 3680VA | 4000VA | 4600VA | 5000VA | 6000VA |
| Nominal AC voltage (range) | 230V/ (180Vac-270Vac) | | | | | |
| AC grid frequency (range) | 50Hz/60Hz (45Hz-55Hz/55Hz-65Hz) | | | | | |
| Max. output current | 16A | 16A | 22A | 22A | 27A | 27A |
| Adjustable power factor | 0,8leading...0,8lagging | | | | | |
| THDi | <3% | | | | | |
| AC grid connection type | Single phase | | | | | |
| Battery data (DC) | | | | | | |
| Battery voltage range | 42--59V | | | | | |
| Max charging and discharging current | 66A | 75A | 85A | 85A | 85A | 85A |
| Continuous charging and discharging power | 3000W | 3680W | 4000W | 4000W | 4000W | 4000W |
| Type of battery | Lithium /Lead-acid | | | | | |
| Backup power(AC) | | | | | | |
| Max. AC output power | 3000W | 3680W | 4000W | 4000W | 4000W | 4000W |
| Max. output current | 17,4A | | | | | |
| Nominal AC output voltage | 230Vac | | | | | |
| Nominal AC output frequency | 50/60HZ | | | | | |
| THDv | <3% | | | | | |
| Switch time | <10ms | | | | | |
| Efficiency | | | | | | |
| MAX. efficiency | 97.20% | 97.20% | 97.30% | 97.40% | 97.50% | 97.60% |
| European efficiency | 97% | 97% | 97.10% | 97.10% | 97.20% | 97.20% |
| MPPT efficiency | ≥99.5% | | | | | |
| Protection devices | | | | | | |
| DC switch | Yes | | | | | |
| DC reverse polarity protection | Yes | | | | | |
| AC/DC surge protection | Yes | | | | | |
| Battery reverse protection | Yes | | | | | |
| AC short-circuit protection | Yes | | | | | |
| Ground fault monitoring | Yes | | | | | |
| Grid monitoring | Yes | | | | | |
| Anti-islanding protection | Yes | | | | | |
| Residual-current monitoring unit | Yes | | | | | |
| Insulation resistance monitoring | Yes | | | | | |
| General data | | | | | | |
| Dimensions (W / H / D) | 458/565/188mm | | | | | |
| Weight | 31kg | | | | | |
| Operating temperature range | -25°C ... +60°C | | | | | |
| Nighttime power consumption | < 10 W | | | | | |
| Topology | Transformerless | | | | | |
| Cooling | Natural | | | | | |
| Protection degree | IP65 | | | | | |
| Relative humidity | 0~100% | | | | | |
| Altitude | 2000m | | | | | |
| PV DC Connection | H4/MC4(Optional) | | | | | |
| Battery DC Connection | OT Terminal | | | | | |
| AC connection | Connector | | | | | |
| Display | LCD+LED | | | | | |
| Interfaces:RS485/CAN/USB | Yes | | | | | |
| Monitor : RF/WIFI/GPRS | Optional | | | | | |
| Warranty: 5 years / 10 years | Yes/Optional | | | | | |

CE, IEC62109, G98/G99, VDE0126-1-1, AS4777, CEI 0-21, VDE-AR-N4105, UTE C 15-712 EN50549, IEC 61727, IEC 62116, IEC 62040, C10/11, NRS 097-2-1

* The AC voltage range and frequency range may vary depending on specific country grid standard.
All specifications are subject to change without notice.

SPH 4000~10000 TL3 BH-UP



GROWATT · PRODUCT

| Datasheet | SPH 4000TL3 BH-UP | SPH 5000TL3 BH-UP | SPH 6000TL3 BH-UP | SPH 7000TL3 BH-UP | SPH 8000TL3 BH-UP | SPH 10000TL3 BH-UP |
|--|---------------------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| Input data(PV) | | | | | | |
| Max. recommended PV power (for module STC) | 6000W | 7500W | 9000W | 10500W | 12000W | 15000W |
| Max. DC voltage | 1000 | | | | | |
| Start voltage | 120V | | | | | |
| MPP voltage range | 120V-1000V/600V | | | | | |
| No. of MPP trackers | 2 | | | | | |
| No. of PV strings per MPP tracker | 1 | | | | | |
| Max. input current per MPP tracker | 13,5A | | | | | |
| Max. short-circuit current per MPP tracker | 16,9A | | | | | |
| Output data(AC) | | | | | | |
| AC nominal power | 4000W | 5000W | 6000W | 7000W | 8000W | 10000W |
| Max. AC apparent power | 4000VA | 5000VA | 6000VA | 7000VA | 8000VA | 10000VA |
| Nominal AC voltage (range*) | 230V/400V (310~476V) | | | | | |
| AC grid frequency (range) | 50Hz/60Hz (45Hz-55Hz/55Hz-65Hz) | | | | | |
| Max. output current | 6,1A | 7,6A | 9,1A | 10,6A | 12,1A | 15,2A |
| Adjustable power factor | 0,8leading...0,8lagging | | | | | |
| THDi | <3% | | | | | |
| AC grid connection type | 3W+N+PE | | | | | |
| Battery data (DC) | | | | | | |
| Battery voltage range | 100~550V | | | | | |
| Max charging and discharging current | 25A | | | | | |
| Continuous charging and discharging power | 4000W | 5000W | 6000W | 7000W | 8000W | 10000W |
| Type of battery | Lithium battery | | | | | |
| Backup power(AC) | | | | | | |
| Max. AC output power | 4000W | 5000W | 6000W | 7000W | 8000W | 10000W |
| Max. AC apparent power | 4000VA | 5000VA | 6000VA | 7000VA | 8000VA | 10000VA |
| Max. output current | 6,1A | 7,6A | 9,1A | 10,6A | 12,1A | 15,2A |
| Nominal AC output voltage | 230V/400V | | | | | |
| Nominal AC output frequency | 50/60HZ | | | | | |
| THDv | <3% | | | | | |
| Switch time | <10ms | | | | | |
| Efficiency | | | | | | |
| MAX. efficiency | 97,6% | 97,8% | 98,0% | 98,2% | 98,2% | 98,2% |
| European efficiency | 97,0% | 97,2% | 97,3% | 97,4% | 97,4% | 97,5% |
| Protection devices | | | | | | |
| DC switch | Yes | | | | | |
| DC reverse polarity protection | Yes | | | | | |
| AC/DC surge protection | Type II | | | | | |
| Battery reverse protection | Yes | | | | | |
| AC short-circuit protection | Yes | | | | | |
| Ground fault monitoring | Yes | | | | | |
| Grid monitoring | Yes | | | | | |
| Anti-islanding protection | Yes | | | | | |
| Residual-current monitoring unit | Yes | | | | | |
| Insulation resistance monitoring | Yes | | | | | |
| General data | | | | | | |
| Dimensions (W / H / D) | 505/453/198mm | | | | | |
| Weight | 30kg | | | | | |
| Operating temperature range | -25 °C ... +60 °C | | | | | |
| Nighttime power consumption | <13W | | | | | |
| Topology | Transformerless | | | | | |
| Cooling | Natural | | | | | |
| Protection degree | IP65 | | | | | |
| Relative humidity | 0~100% | | | | | |
| Altitude | 3000m | | | | | |
| DC connection | H4 / MC4 (Optional) | | | | | |
| AC connection | Connector | | | | | |
| Display | LCD+LED | | | | | |
| Interfaces: RS485/CAN/USB | Yes | | | | | |
| Monitor : RF/WIFI/GPRS | Optional | | | | | |
| Warranty: 5 years / 10 years | Yes / Optional | | | | | |

CE, IEC62109, IEC 62040, VDE-AR-N 4105, VDE 0126, UTE C 15-712, C10/C11 • EN50549, CEI 0-21, CEI 0-16, IEC62116, IEC61727, AS/NZS 4777 , G98, TOR Erzeuger

* The AC Voltage Range may vary depending on specific country grid standard.

Hope 4.8L-C1 Lithium Battery

GROWATT · PRODUCT



| Datasheet | Hope 4.8L-C1 |
|---------------------------|---------------|
| Battery Data | |
| Nominal Voltage | 48V |
| Normal Capacity | 4.8kWh |
| Usable Capacity | 4.46kWh |
| Operating Voltage | 42 ~ 54V |
| Rated Charging Current | 50A |
| Rated Discharging Current | 100A |
| Max. Discharging Power | 4.5kW |
| Peak Discharging Power | 6.1kW/6s |
| Max Charging Power | 4.5KW |
| General Data | |
| Dimension (W/D/H) | 442/130/480mm |
| Weight | 40Kg |
| IP Protection | IP20 |
| Working Temperature | -10°C~+55°C |
| Storage Temperature | -20°C~+45°C |
| Features | |
| DOD | 93% |
| Parallel Connection | Max.16packs |
| Communication Port | CAN/RS485 |
| Warranty | 5 Years |
| CE , UN38.3 | |

SPF 3500~5000ES



GROWATT · PRODUCT

| Datasheet | SPF 3500 ES | SPF 5000 ES |
|---|---|---------------|
| Battery Voltage | 48VDC | |
| Battery Type | Lithium/Lead-acid | |
| INVERTER OUTPUT | | |
| Rated Power | 3500VA/ 3500W | 5000VA/ 5000W |
| Parallel Capability | Yes, 6 units maximum | |
| AC Voltage Regulation (Battery Mode) | 230VAC ± 5% @ 50/60Hz | |
| Surge Power | 7000VA | 10000VA |
| Efficiency (Peak) | 93% | |
| Waveform | Pure sine wave | |
| Transfer Time | 10ms typical, 20ms Max | |
| SOLAR CHARGER | | |
| Maximum PV Array Power | 4500W | 6000W |
| MPPT Range @ Operating Voltage | 120VDC ~ 430VDC | |
| Number of Independent MPP Trackers/ Strings Per MPP Tracker | 1/1 | |
| Maximum PV Array Open Circuit Voltage | 450VDC | |
| Maximum Solar Charge Current | 80A | 100A |
| AC CHARGER | | |
| Charge Current | 60A | 80A |
| AC Input Voltage | 230 VAC | |
| Selectable Voltage Range | 170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances) | |
| Frequency Range | 50Hz/60Hz (Auto sensing) | |
| PHYSICAL | | |
| Protection Degree | IP20 | |
| Dimension (W/H/D) | 330/485/135mm | 330/485/135mm |
| Net Weight | 11.5kg | 12kg |
| OPERATING ENVIRONMENT | | |
| Humidity | 5% to 95% Relative Humidity(Non-condensing) | |
| Altitude | <2000m | |
| Operating Temperature | 0°C - 55°C | |
| Storage Temperature | -15°C - 60°C | |

SPF 2000~5000TL HVM



GROWATT · PRODUCT

| Datasheet | SPF 2000TL HVM-24 | SPF 3000TL HVM-24 | SPF 2000TL HVM-48 | SPF 3000TL HVM-48 | SPF 5000TL HVM/HVM-P |
|--|---|----------------------|----------------------|----------------------|--------------------------|
| Battery Voltage | 24VDC | | 48VDC | | |
| Battery Type | Lithium/Lead-acid | | | | |
| INVERTER OUTPUT | | | | | |
| Rated Power | 2000VA/ 2000W | 3000VA/ 3000W | 2000VA/ 2000W | 3000VA/ 3000W | 5000VA/ 5000W |
| Parallel Capability | No | | | | No/ Yes, 6 units maximum |
| AC Voltage Regulation (Battery Mode) | 230VAC ± 5% @ 50/60Hz | | | | |
| Surge Power | 4000VA | 6000VA | 4000VA | 6000VA | 10000VA |
| Efficiency (Peak) | 93% | | | | |
| Waveform | Pure sine wave | | | | |
| Transfer Time | 10ms typical, 20ms Max | | | | |
| SOLAR CHARGER | | | | | |
| Maximum PV Array Power | 1500W | | 1800W | | 4500W |
| MPPT Range @ Operating Voltage | 30VDC ~ 80VDC | | 60VDC ~ 115VDC | | |
| Maximum PV Array Open Circuit Voltage | 102VDC | | 145VDC | | |
| Number of Independent MPP Trackers/ Strings Per MPP Tracker | 1/1 | | | | |
| Maximum Solar Charge Current | 50A | | 30A | | 80A |
| Maximum Efficiency | 98% | | | | |
| AC CHARGER | | | | | |
| Charge Current | 30A | | 15A | | 60A |
| AC Input Voltage | 230 VAC | | | | |
| Selectable Voltage Range | 170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances) | | | | |
| Frequency Range | 50Hz/60Hz (Auto sensing) | | | | |
| PHYSICAL | | | | | |
| Protection Degree | IP20 | | | | |
| Dimension (W/H/D) | 315/400/130mm | | | | 350/455/130mm |
| Net Weight (kgs) | 8 | 8.5 | 8 | 8.5 | 11.5 |
| OPERATING ENVIRONMENT | | | | | |
| Humidity | 5% to 95% Relative Humidity(Non-condensing) | | | | |
| Altitude | <2000m | | | | |
| Operating Temperature | 0°C - 55°C | | | | |
| Storage Temperature | -15°C - 60°C | | | | |

Growatt ShineWiFi-X



GROWATT · PRODUCT

| Datasheet | ShineWiFi-X |
|-----------------------------|--|
| Wireless Parameters | |
| Wireless standard | 802.11 b/g/n |
| Frequency range | 2.4GHz~2.5GHz (2412MHz~2484MHz) |
| Transmit power | 802.11b: 16±2 dBm (@11Mbps) 802.11g: 14±2 dBm (@54Mbps) 802.11n: 13±2 dBm (@HT20, MCS7) |
| Receiver sensitivity | CCK, 1 Mbps : -90dBm CCK, 11 Mbps: -85dBm 6 Mbps (1/2 BPSK): -88dBm 54 Mbps (3/4 64-QAM): -70dBm HT20, MCS7 (65 Mbps, 72.2 Mbps): -67dBm |
| Hardware Parameters | |
| Data interface | USB |
| Operating voltage | 5V(±5%) |
| Rated power | 1.2W |
| Display | LED |
| Application Parameters | |
| Supported servers | ShineServer |
| Inverter communication | USB (Modbus RTU protocol) |
| Server communication | TCP (Modbus TCP protocol) |
| Max. communication range | 50m |
| Configuration type | APP configuration |
| Data transmission interval | 5 Minutes |
| Default server URL | server.growatt.com |
| General Data | |
| Dimensions(L/W/H) | 135/79/29 mm |
| Weight | 60g |
| Operating temperature range | -20 °C ~ +65 °C |
| Warranty | 1 year |
| CE | |



UKRAINE 5MW SOLAR PLANT

- 5MW
- Ukraine
- MAX 50KTL3 LV

NANYANG 100MW HILL PLANT

100MW ◀

Henan, China ◀

Growatt 40000TL3-S ◀



VIETNAM 3MW SOLAR PLANT

► 3MW

► Vietnam

► MAX 80KTL3 LV



THAILAND 600KW SOLAR PLANT

► 600KW

► Thailand

► MAX 60KTL3 LV



THAILAND 134MW SOLAR PLANT

► 134MW

► Phitsanulok, Thailand

► Growatt 16700TL3-HE-TH



NETHERLANDS 500KW SOLAR SYSTEM

- ▶ 500KW
- ▶ Netherlands
- ▶ MAX 60KTL3 LV
MAX 70KTL3 LV



NETHERLANDS 200KW SOLAR PLANT

- ▶ 200KW
- ▶ Netherlands
- ▶ MAX 60KTL3 LV



NETHERLANDS 500KW SOLAR SYSTEM



500KW ◀

Netherlands ◀

MAX 60KTL3 LV ◀



DENMARK HOME STORAGE SYSTEM



► 3.6kW

► Denmark



► SPH6000+GBLI6531 Battery

HUNGARY HOME SOLAR SYSTEM

► 5kW

► Hungary

► MIN 5000TL-XE

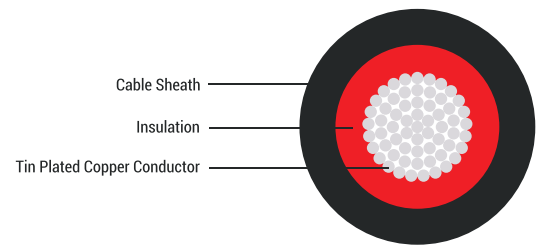


► 3.6kW

► Italy

► MIN 3600TL-XE





Application

Solar cables are intended for use in photovoltaic power supply systems and similar applications as free hanging, movable, fixed installation and buried in ground in constructional covered systems. The cables can be used indoor, outdoor, in hazard explosion areas, in industry and agriculture. They are suitable for applications in equipment with protective insulation (protecting Class 2).

Standard

Adapted to PV systems, 2 Pfg 1169 / 08.2007 and EN 50618:2015.

Thermal parameters

Max. Permissible Ambient Temperature : +90°C (stationary and in motion)

Max. Permissible Operating Temperature of The Conductor :

+120°C, Interpretation according to IEC 60216 : permanent temperature.

120°C for 20,000 h (= 2.3 years), at max. 90°C permanent temperature (= 30 years).

Short - Circuit Temperature : +200°C (at the conductor max. 5 sec.)

Damp - Heat Test : According to EN 60068 - 2 - 78. 1,000h at 90°C and 85% humidity.

Min. Permissible Ambient Temperature : -40°C (stationary and in motion)

Resistance to Cold :

Bending test at low temperature according to DIN EN 60811 - 1 - 4, Impact test similar to DIN EN 50305.

Minimum Bending Radius : Fixed Installation approx. 4 x cable Ø

Electrical Parameters

Voltage Rating : AC 0.6 / 1.0 kV

Max. PV - System Voltage : DC up to 2.0 kV possible

Max. Permissible Operating Voltage in AC Systems : 0.7 / 1.2 kV

Max. Permissible Operating Voltage in DC Systems : 0.9 / 1.8 kV

Test Voltage : AC 6 kV / DC 10 kV (15 min.)

Mechanical Parameters

Tensile Load : 15 N / mm² in operation. 50 N/mm² during installation

Shrinkage Test : According to EN 60811 - 1 - 3

Shore-Hardness : 85 shore A according to DIN EN 53505

Pressure Test at High Temperature : According to EN 60811 - 3 - 1

Dynamic Penetration Test : According to requirements for cables for PV systems, DKE / VDE 411.2.3

Chemical Parameters

Mineral Oil Resistance : 24h, 100°C according to DIN VDE 0473 - 811 - 2 - 1, DIN EN 60811-2-1

Acid and Alkaline Resistance : According to EN 60811-2-1

7 days, 23°C (N-Oxalic Acid, N-Sodium Hydroxide)

Ammonia Resistance : 30 days in saturated ammonia atmosphere (internal testing)

Weather Resistance : Ozone resistance according to DIN EN 50396 test Type B, HD 22.2 test Type B UV - resistance according to UL 1581 (Xenon - Test), ISO 4892 - 2 (Method A) and HD 506/A1-2.4.20

Absorption of water (gravimetric) according to DIN VDE 0473-811-1-3, DIN EN 60811 - 1 - 3.

Behavior in Case of Fire :

Flame propagation.

Single cable according to DIN VDE 0482 Part 332 - 1 - 2, DIN EN 60332 - 1 - 2.

Multiple cable according to DIN VDE 0482 Part 266 - 2 - 5, DIN EN 50305 - 9.

Low smoke emission according to DIN VDE 0482 Part 268 - 2.
DIN EN 50268-2 (light transmittance > 70%).
Corrosivity according to DIN EN 50267 - 2 - 2.
Toxicity according to DIN EN 50305, ITC - index < 3.

Cable Construction

Conductor : Fine Wire Tinned Copper Conductor according to BS EN 60228:2005 cl. 5.
Insulation : UV resistant, cross linkable, halogen free, flame retardant compound for core insulation.
Core Identification : Red, black or natural
Sheath : UV resistant, cross linkable, halogen free, flame retardant compound for Sheath over insulation.
Cable Colour : Black

Please complete the part numbers for these cables by adding the suffix (in place of 'xx') for the insulation colour required as per the list:
02 - black, 03 - red, 13 - natural.

Cable Design Parameters

| Part Number | Nominal Cross-Sectional (Sq. mm) | Insulation Thickness (mm) | | Outer sheath Thickness (mm) | | Approx. Cable Diameter (mm) as per TUV 2 Pfg | Approx. Cable Diameter (mm) as per EN 50618 | Current carrying capacity according to method of installation | | | Max. Conductor Resistance at 20°C, (Ω/Km) |
|--------------|----------------------------------|---------------------------|--------------------|-----------------------------|--------------------|--|---|---|-------------------------------|--|---|
| | | TUV 2 Pfg (Minimum) | EN 50618 (Nominal) | TUV 2 Pfg (Minimum) | EN 50618 (Nominal) | | | Single cable free in air (A) | Single cable on a surface (A) | Two loaded cables touching, on a surface (A) | |
| 12010101xx01 | 1.5 | 0.5 | 0.70 | 0.5 | 0.80 | 4.06 | 4.66 | 30 | 29 | 24 | 13.7 |
| 12010102xx01 | 2.5 | 0.5 | 0.70 | 0.5 | 0.80 | 4.49 | 5.09 | 41 | 39 | 33 | 8.21 |
| 12010103xx01 | 4.0 | 0.5 | 0.70 | 0.5 | 0.80 | 4.99 | 5.59 | 55 | 52 | 44 | 5.09 |
| 12010104xx01 | 6.0 | 0.5 | 0.70 | 0.5 | 0.80 | 5.53 | 6.13 | 70 | 67 | 57 | 3.39 |
| 12010105xx01 | 10.0 | 0.5 | 0.70 | 0.5 | 0.80 | 6.47 | 7.07 | 98 | 93 | 79 | 1.95 |
| 12010106xx01 | 16.0 | 0.5 | 0.70 | 0.5 | 0.90 | 7.52 | 8.32 | 132 | 125 | 107 | 1.24 |
| 12010107xx01 | 25.0 | 0.5 | 0.90 | 0.5 | 1.00 | 8.74 | 10.14 | 176 | 167 | 142 | 0.795 |
| 12010108xx01 | 35.0 | 0.5 | 0.90 | 0.5 | 1.10 | 9.89 | 11.49 | 218 | 207 | 176 | 0.565 |
| 12010109xx01 | 50.0 | - | 1.00 | - | 1.20 | - | 13.33 | 276 | 262 | 221 | 0.393 |
| 12010110xx01 | 70.0 | - | 1.10 | - | 1.20 | - | 15.19 | 347 | 330 | 278 | 0.277 |
| 12010111xx01 | 95.0 | - | 1.10 | - | 1.30 | - | 16.94 | 416 | 395 | 333 | 0.210 |
| 12010112xx01 | 120.0 | - | 1.20 | - | 1.30 | - | 18.71 | 488 | 464 | 390 | 0.164 |
| 12010113xx01 | 150.0 | - | 1.40 | - | 1.40 | - | 20.86 | 566 | 538 | 453 | 0.132 |
| 12010114xx01 | 185.0 | - | 1.60 | - | 1.60 | - | 23.24 | 644 | 612 | 515 | 0.108 |
| 12010115xx01 | 240.0 | - | 1.70 | - | 1.70 | - | 26.14 | 755 | 736 | 620 | 0.0817 |

'elmex' PV Solar Panel Connectors



'elmex' PV Solar Panel connectors **EMPVPCM4N** and **EMPVPCF4N** are applicable for panel mounting connection. They are constructed using flame retardant engineering thermoplastic suitable for exposure to UV rays and for application in PV power generation system. 'elmex' panel connectors are designed for use in connection for photovoltaic devices like DC Distribution Box, Inverter, String Combiner Box, etc. These connectors are provided with hexagonal nut for fixing and tightening it on mounting surface. A silicon rubber o-rings provided between panel connector surface and the wall of the photovoltaic enclosure ensuring protection against ingress of water & dust. 'elmex' panel connectors have mating compatibility not only with 'elmex' straight connectors but also with straight connectors of leading international makes having similar construction.

with NEC Interlock*



EMPVPCM4N

with NEC Interlock*



EMPVPCF4N

Features

- ❖ TUV Certified
- ❖ Snap Fit Locking Arrangement
- ❖ IP 68 Protection when mated
- ❖ Low Contact Resistance
- ❖ Provides UV Protection (Tested for 500 hrs as per ISO 4892-2)
- ❖ Tested as per International Standards / IEC 62852

| Description | Specifications |
|----------------------------|--|
| Rated Voltage | 1500V DC |
| Rated Current | 25A (2.5 mm ²), 45A (4 mm ²), 54A (6 mm ²) |
| RMS Test Voltage | 8 kV (1500V) |
| Impulse with stand Voltage | 16 kV |
| Degree of Protection | IP 68 |
| Contact Material | Copper with Tin Plating |
| Ambient Temperature | -40° C to +85° C |
| Max. Operating Temp. | +110° C |
| Pollution Degree | 3 |
| Contact Resistance | ≤ 0.25 mΩ |
| Insertion Force | ≤ 50 N |
| Withdrawal Force | ≥ 50 N |
| Locking System | Snap In |



R60126561

Note: Our Connectors are suitable for PV Solar Cables of 2.5 / 4.0 / 6.0 mm² diameter (As per EN 50618).

*Connectors when mated, need a tool to open in accordance with NEC 2014.

Manufactured in Vadodara, Gujarat, India

REGIONAL OFFICE



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