Surge Protection

Application Note

Lightning and Surge Protection for the TLx Device Series



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1 Purpose and Scope

This document shows the integrated and necessary action to prevent damage from KACO new energy inverters against lightning and surge protection.

2 Damage prevention measures

| Inverter | integrated measure | | Action required by installer | |
|-------------------|---|--|---|---|
| type designation | AC Side | DC Side | AC Side | DC Side |
| blueplanet 2.0TL1 | Type III Surge | Type III Surge | Type I & II Surge | Type I & II Surge |
| blueplanet 2.6TL1 | Protection | Protection | Protection | Protection |
| blueplanet 3.0TL1 | | | | |
| blueplanet 3.5TL1 | The device conforms | The device conforms | Where required, | Where required, |
| blueplanet 3.7TL1 | to type III surge | to type III surge | these must be | these must be |
| blueplanet 4.0TL1 | protection meaning that no further type | protection meaning that no further type | additionally built into the electrical | additionally built into the electrical |
| blueplanet 4.6TL1 | Ill integration is | Ill integration is | installation by the | installation by the |
| - | required in the | required in the | installer. | installer. |
| | installation. | installation | | |

| Inverter | integrated measure | | e Action required by installer | |
|-------------------|---|---|--|--|
| type designation | AC Side | DC Side | AC Side | DC Side |
| blueplanet 5.0TL3 | Type III Surge | Type III Surge | Type I & II Surge | Type I & II Surge |
| blueplanet 6.5TL3 | Protection | Protection | Protection | Protection |
| blueplanet 7.5TL3 | | | | |
| blueplanet 9.0TL3 | The device conforms | The device conforms | Where required, | Where required, |
| - | to type III surge protection meaning that no further type | to type III surge protection meaning that no further type | these must be additionally built into the electrical | these must be additionally built into the electrical |
| | III integration is required in the | III integration is required in the | installation by the installer. | installation by the installer. |
| | installation. | installation. | | |

| Inverter | integrated measure | | integrated measure Action required by installer | |
|------------------|--|--|--|--|
| type designation | AC Side | DC Side | AC Side | DC Side |
| Powador 10.0TL3 | Type III Surge | Type III Surge | Type I & II Surge | Type I & II Surge |
| Powador 12.0TL3 | Protection | Protection | Protection | Protection |
| Powador 14.0TL3 | | | | |
| Powador 20.0TL3 | The device conforms to type III surge protection meaning that no further type III integration is required in the installation. | The device conforms to type III surge protection meaning that no further type III integration is required in the installation. | Where required, these must be additionally built into the electrical installation by the installer. | Where required, these must be additionally built into the electrical installation by the installer. |

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| Inverter | integrated measure | | Action required by installer | |
|-----------------------|--|--|--|--|
| type designation | AC Side | DC Side | AC Side | DC Side |
| Version M: | Type III Surge | Type III Surge | Type I & II Surge | Type I & II Surge |
| Powador 30.0 TL3 | Protection | Protection | Protection | Protection |
| Powador 33.0 TL3 | | | | |
| Powador 36.0 TL3 | The device conforms | The device conforms | Where required, | Where required, |
| Powador 39.0 TL3 | to type III surge | to type III surge | these must be | these must be |
| Powador 40.0 TL3 | protection meaning | protection meaning | additionally built | additionally built |
| Powador 48.0 TL3 Park | that no further type III integration is | that no further type III integration is | into the electrical installation by the | into the electrical installation by the |
| Powador 60.0 TL3 | required in the | required in the | installer. | installer. |
| Powador 72.0 TL3 Park | installation. | installation. | mistaner. | instanci. |
| Version XL und XL-F : | Type III Surge | Type II & III Surge | Type I & II Surge | Type I Surge |
| Powador 30.0 TL3 | Protection | Protection | Protection | Protection |
| Powador 33.0 TL3 | | | | |
| Powador 36.0 TL3 | The device conforms | The device conforms | Where required, | Where required, |
| Powador 39.0 TL3 | to type III surge | to type II & III surge | these must be | these must be |
| Powador 40.0 TL3 | protection meaning | protection meaning | additionally built | additionally built |
| Powador 48.0 TL3 Park | that no further type | that no further type | into the electrical | into the electrical |
| Powador 60.0 TL3 | III integration is required in the | II & III integration is required in the | installation by the installer. | installation by the installer |
| Powador 72.0 TL3 Park | installation. | installation. | instanci. | instanci |
| Version XL – SPD 1+2 | Type III Surge | Type I, II & III | Type I & II Surge | - |
| und Version XL – F - | Protection | Protection | Protection | |
| SPD 1+2 | | | | |
| Powador 30.0 TL3 | The device conforms | The device conforms | Where required, | |
| Powador 33.0 TL3 | to type III surge | to type I, II & III surge | these must be | |
| Powador 36.0 TL3 | protection meaning | protection meaning | additionally built | |
| Powador 39.0 TL3 | that no further type | that no further type | into the electrical | |
| Powador 40.0 TL3 | III integration is | I, II & III integration is | installation by the | |
| Powador 48.0 TL3 Park | required in the installation. | required in the installation. | installer. | |
| Powador 60.0 TL3 | installation. | instanation. | | |
| Powador 72.0 TL3 Park | | | | |

3 Realization

| Surge protection | Implemented in the inverter TLx series | |
|------------------|---|--|
| Typ III | Achieved by means of a combination of a gas spark gap varistor, provided on the PCB itself. | |
| Тур II | Achieved by means of additional protection of the same class which is built into the device itself (One single surge protection per MPP tracker is provided) | |
| Тур I | Achieved by means of an additional type I & Il combi surge arrest unit of the same class which is built into the device itself. (One single surge protection per MPP tracker is provided) | |

