Surge Protection

Application Note

Lightning and Surge Protection
for the TLx Device Series

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 blueplanet 2.6TL1 blueplanet 3.0TL1 blueplanet 3.5TL1 blueplanet 3.7TL1 blueplanet 4.0TL1 blueplanet 4.6TL1 -	**Type III Surge Protection** The device conforms to type III surge protection meaning that no further type III integration is required in the installation.	**Type III Surge Protection** The device conforms to type III surge protection meaning that no further type III integration is required in the installation	**Type I & II Surge Protection** Where required, these must be additionally built into the electrical installation by the installer.	**Type I & II Surge Protection** Where required, these must be additionally built into the electrical installation by the installer.

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

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

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

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.	
Typ 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)	
Typ I	Achieved by means of an additional type I & II combi surge arrest unit of the same class which is built into the device itself. (One single surge protection per MPP tracker is provided)	

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