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Subject: Application Note-RCD Application Suggestion of Inverter

Revision History

Version 1.0 June 2021 – Initial release

Applicable products and models

Listed in the table below.

Description

According to IEC 62109-2: 2011, a residual current monitoring unit (RCMU) is required for inverters without simple separation between the grid and the photovoltaic generator. The SUN2000 series inverters have such an integrated RCMU. Due to the inverters' circuit design, they can't feed in direct residual current into the grid.

If the standard take as a basis for the building of PV system or the grid company requests external RCD (Residual Current Device), a RCD type A can be used for all SUN2000 series inverters.

Regarding the internal RCMU protection limits according to IEC 62109-2: 2011 (300 mA RMS for inverters with rated continuous output power ≤ 30 kVA, or 10 mA RMS per kVA of rated continuous output power for inverters with rated continuous output power rating > 30 kVA), the upper limits of Type A RCD rating for each model (considering 10% overload capacity of inverter) and recommended Type A RCD ratings for each model are listed below.

Inverter Model	Type A RCD Limit in IEC 62109	Recommended Type A RCD Rating
SUN2000L-2-5KTL	300mA	100mA
SUN2000-2-5KTL-L0	300mA	100mA
SUN2000-2-6KTL-L1	300mA	100mA
SUN2000-3-10KTL-M0	300mA	100mA
SUN2000-3-10KTL-M1	300mA	100mA
SUN2000-12-20KTL-M0	300mA	300mA
SUN2000-12-20KTL-M2	300mA	300mA
SUN2000-33KTL-A	300mA	300mA
SUN2000-36KTL	300mA	300mA
SUN2000-29.9-30KTL-M3	300mA	300mA
SUN2000-36-40KTL-M3	440mA	300mA
SUN2000-50KTL-M3	550mA	500mA
SUN2000-50KTL-M0	550mA	500mA
SUN2000-60KTL-M0	500mA	500mA
SUN2000-70kTL-C1	770mA	750mA
SUN2000-75kTL-C1	825mA	750mA
SUN2000-100KTL-M1	1100mA	900mA
SUN2000-100KTL-M2	1100mA	900mA
SUN2000-110KTL-M0	1210mA	1100mA
SUN2000-115KTL-M2	1210mA	1100mA
SUN2000-100KTL-INM0	1100mA	1000mA
SUN2000-125KTL-M0	1375mA	1200mA