Information Bulletin

Certification requirements for dc isolators for use in Solar PV installations

STANDING COMMITTEE OF OFFICIALS (SCO)
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This Information Bulletin was originally uploaded to the Electrical Regulatory Authority Councils website in November 2018. This notice applies from November 2018.

General

Changes in Risk Level

On 30 June 2018 DC isolators were re-classified, moving from "In-Scope" electrical equipment risk level 1 to risk level 3 under the Electrical Equipment Safety System (EESS) in participating jurisdictions who apply defining standard AS/NZS 4417.2.

The standards that may be considered for certification:
- The current standard is AS 60947-3:2018, which is an adoption of the IEC 60947-3 edition 3.2 with additional Australian deviations (can be applied immediately and will supersede AS/NZS IEC 60947-3:2015 12 months after publication).
- IEC 60947-3 edition 3.2 published in 2015 which includes an appendix specifically for DC Isolators for solar installations.
- Concurrently AS/NZS IEC 60947-3:2015 remains current until 29 June 2019, which is a direct text adoption of IEC 60947-3 edition 3.1. The standard IEC 60947-3 edition 3.1 was published in 2015, however, does not reference any specific criteria for dc isolators for solar PV installations and should not be used solely to ensure the product is suitable for the intended use.

The new standard AS 60947-3:2018:

The new standard includes requirements specifically for DC isolators for use with PV solar installation. The main changes, including Australian deviations, to AS 60947-3:2018 are:
- for devices for use outdoors, a rating of IP56NW (means no water in enclosure after IPX6 water jet test is applied);
- the solar effects test on switchgear in its enclosure at rated current (this is in the latest IEC 60947-3 edition 3.2 published in 2015); and
- There are also a number of classifications that must be applied, and clarity on instructions to be supplied.

Requirement

Certification requirements

The preferred options to apply for certification purposes of dc isolators for solar PV installations is, in order of preference:

1) AS 60947-3:2018 *
2) IEC 60947-3 edition 3.2 *published 2015 + if for outdoor use IP56 (and preferably IP56NW) + instructional requirements from AS 60947-3:2018. Certificate expiry shall not exceed 30 June 2019.
3) AS/NZS IEC 60947-3:2015 (*, **) + assessments to ensure suitable for use in solar PV installations + the intent of instructional requirements from AS 60947-3:2018 (if for outdoor use then part of the assessment of suitable criteria for use in solar PV installations should include at least IP56, if not

IP56NW rating) – as a transitional allowance prior to upgrading to AS 60947-3. Certificate expiry shall not exceed 30 June 2019

* : See Note 1,2 and 3
**: Apply NOTE 4

NOTE 1: Test reports for use in options 1), 2) or 3) can be from test facilities accredited to at least IEC 60947-3 edition 3.2 until test facilities are accredited to AS 60947-3:2018. Test reports for option 3) can be from test facilities accredited to AS/NZS IEC 60947-3:2015 or IEC 60947-3 Edition 3.1.

NOTE 2: The certificate of conformity should list Class Specification under which has gained certification, for option 1): "AS 60947-3:2018"; for option 2): "IEC 60947-3 Ed 3.2"; for option 3): "AS/NZS IEC 60947-3:2015". **When using options 2) or 3) the certificate expiry date should not exceed 30 June 2021.**

NOTE 3: DC-PV2 and DC21B voltage and current ratings are different. Products certified as DC21B should not be on the same certificate as products certified to DC-PV2.

NOTE 4: additional assessments/criteria/characteristic to be required under option 3 (use of AS/NZS IEC 60947-3), to meet criteria in the current AS/NZS 5033:2014, includes:

- ✓ DC21B
- ✓ semi-independent or independent manual operation
- ✓ not be polarity sensitive
- ✓ be load breaking
- ✓ be suitable for isolation
- ✓ interrupt all live conductors simultaneously
- ✓ be marked with on / off (closed / open) position
- ✓ be capable of being secured in the open position
- ✓ if supplied as a 'dc isolator' in a dedicated enclosure (i.e. the dc isolator as sold is a "switchgear inside an enclosure"), have been tested within the enclosure supplied
- ✓ if not supplied with a dedicated enclosure details of minimum dimensions of enclosure that it has been tested in ⌉ indicate if suitable for indoor use only or if suitable for outdoor use
- ✓ If outdoor use, IP55 minimum when tested in enclosure supplied (more suitable is IP56 and preferred is IP56NW) and, or information of suitable enclosures it can be installed it to obtain the IP rating (if switchgear is of a rotary actuator type, where the actuator extends out of the enclosure, it must be tested with supplied enclosure only)
- ✓ be supplied with details of the conventional enclosed thermal current rating (Ithe)
- ✓ be supplied with the d.c. voltage (rated operational voltage Ue) and operational current (Ie) ratings for each configuration of contacts the manufacturer allows
- ✓ If outdoor use, have current ratings at operating temperatures to cover off installation in situations of "ambient +40°C"
- ✓ current ratings to be at uninterrupted duty rating (this rating due to issue that switch contacts are not regularly operated to remove / clear oxidisation/dirt accumulation)

Information contained in this bulletin is supplied to give guidance on application of requirements in the following jurisdictions:

Australian Capital Territory, New Zealand, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia.

Information contained in this bulletin may not reflect provisions of legislation in the following jurisdictions (please contact the jurisdiction for further information): *New South Wales*.