Registration Department
Bureau of Indian Standards

Our Ref: Reg/Solar PV Modules **30 Dec 2025**

Subject: Guidelines for transition to Revised IS/IEC 61730-1 : 2023 and IS/IEC 61730-2: 2023 from IS/IEC 61730-1 : 2016 and IS/IEC 61730-2: 2016

1. Ministry of New and Renewable Energy (MNRE) has notified the "Solar Systems, Devices and Components Goods Order, 2025" which is in effect from 27 July 2025 superseding the Solar Photovoltaics, Systems, Devices and Components Goods (Requirements for Compulsory Registration) Order, 2017. This revised QCO mandated IS/IEC 61730 – 1 : 2016 and IS/IEC 61730 – 2 : 2016 for the construction and testing requirements of PV module safety qualification, respectively.

2. IS/IEC 61730 – 1 : 2016 and IS/IEC 61730 – 2 : 2016 has been revised as IS/IEC 61730 – 1 : 2023 and IS/IEC 61730 – 2 : 2023. The concurrent running of the two sets of Standards is up to 15 Feb 2027. The differences between IS/IEC 61730-1: 2016 and IS/IEC 61730-1: 2023, and IS/IEC 61730-2: 2016 and IS/IEC 61730-2: 2023 are tabulated in Annex A.

3. For models tested as per IS/IEC 61730-1: 2016 and IS/IEC 61730-2: 2016, the latest 2023 standards i.e. IS/IEC 61730-1: 2023 and IS/IEC 61730-2: 2023 are to be implemented by partial testing as given in Sl Nos. 4 & 5 below.

4. Considering the sequential nature of testing,
   a. For bifacial modules all tests and sequences except seq A, Fire Test MST 23, Peel Test MST 35, Screw Connection test MST 33 shall be carried out and compliance shall be demonstrated for implementation of IS/IEC 61730-2: 2023 from IS/IEC 61730-2:2016.
   b. For monofacial modules and bifacial modules where declared aBSI = 300W/m^2, in addition to tests mentioned at 4(a) above, sequences B, B1, C and E may also be omitted. To summarize, following tests as per sequence given in IS/IEC 61730-2: 2023 are to be carried out:

Bifacial modules with declared aBSI > 300W/m^2	Sequences B, B1, C, D, E, F, G with all preceding tests, MST 02, MST 24, MST 04 (if applicable).
Monofacial modules and Bifacial modules with declared aBSI = 300W/m^2	Sequences D, F (MST 25 and MST 22 may be omitted) & G with all preceding tests, MST 02, MST 24, MST 04 (if applicable).

5. For implementation of IS/IEC 61730-1: 2023 from IS/IEC 61730-1: 2016, the relevant verification and tests to be carried out for demonstration of compliance are given in the table at Annex A referred in Sl No. 2.

6. For implementation of the revised Standards IS/IEC 61730-1: 2023 and IS/IEC 61730-2: 2023, the guidelines at Sl Nos. 7 to 11 shall be followed.

7. Existing models of Solar PV Modules as per IS 14286 (Part 1/ Sec x): 2023, IS/IEC 61730-1: 2016 and IS/IEC 61730-2: 2016

a. *i. For product family with single BOM*
For the purpose of changeover, the representative model (fully tested model) is required to be tested as per Sl Nos. 4 and 5 above
ii. For product family with existing multiple BOMs
For the purpose of changeover, the representative model (fully tested model) is required to be tested as per Sl Nos. 4 and 5 above. Existing additional BOM(s) shall be addressed by retesting as per IS/IEC TS 62915: 2023 for those tests required as per 4 above.

b. For such models, Licensees of Solar PV Modules shall implement the revised Standards by applying online through the "Standard Revision/ Amendment/ Essential Requirement" module along with test reports issued by Third Party Testing Laboratory through online portal following due procedure.

c. On successful implementation of the revised Standards, BIS shall issue a letter indicating all the model(s) for which the compliance has been successfully established.

d. It may be noted that inclusion of series model/ BOM addition as per the latest Standard will not be permitted unless revised standards have been implemented for the representative model.

In such cases, should the manufacturer wish to add series models or additional BOMs as per latest Standards along with the transition, necessary samples may be submitted for testing in parallel, through generation of separate test requests (i.e. generate the test requests for 2016 to 2023 transition for existing models and BOMs only and generate additional test request for adding series model/BOM as per latest standards) and the testing may be carried out in parallel. The test reports containing additional series model/ BOM as per latest standard shall carry reference of the transition test report(s). These reports may be submitted simultaneously to BIS through the relevant module i.e. Standard Revision module or Inclusion/CCL update module as applicable. Processing (Granting) shall be done sequentially by BIS i.e. updation of existing models to 2023 standards followed by series inclusion/ BOM addition as per 2023 standards.

8. Existing models of Solar PV Modules as per IS 14286 (Part 1): 2010 or IS 16077: 2013, IS/IEC 61730-1: 2004 and IS/IEC 61730-2: 2004

a. For Licences with validity upto 15 Feb 2027, it is desirable that the latest standards be implemented directly by carrying out complete testing as per IS 14286 (Part 1/ Sec x): 2023, IS/IEC 61730-1: 2023 and IS/IEC 61730-2: 2023. Please also refer to our guidelines Ref: Reg/Solar PV Modules dated 27 March 2025.
b. However, Licensee may also apply with reports as per IS/IEC 61730-1: 2016 and IS/IEC 61730-2: 2016 and subsequently implement the 2023 Standards in accordance with Sl No. 7 above before the concurrent running period ends. On successful implementation of the revised Standards, BIS shall issue a letter indicating all the model(s) for which the compliance has been successfully established.

9. <u>New models of Solar PV Modules</u>

a. It is desirable that the new models comply with the latest standards i.e. IS 14286 (Part 1/ Sec x): 2023, IS/IEC 61730-1: 2023 and IS/IEC 61730-2: 2023.

b. However, Manufacturer may also apply with reports as per IS/IEC 61730-1: 2016 and IS/IEC 61730-2: 2016 and subsequently implement the 2023 Standards in accordance with Sl No. 7 above before the concurrent running period ends. On successful implementation of the revised Standards, BIS shall issue a letter indicating all the model(s) for which the compliance has been successfully established.

10. All existing Licencees shall take timely actions for implementation of the latest standards as per the above guidelines. Beyond 15 Feb 2027 no new Licence/ request for change in scope of Licence or Standard Revision for Solar PV Modules shall be granted without compliance to IS/IEC 61730-1: 2023 and IS/IEC 61730-2: 2023.

11. After the stipulated timeline, non-compliant models i.e. models as per IS/IEC 61730 – 1 : 2016 and IS/IEC 61730 – 2 : 2016 shall be deleted from the scope of License. If the Licensee fails to take necessary action within the stipulated timeline, it shall be dealt with as per the prevailing guidelines..

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Annex A

Significant technical changes in IS/IEC 61730: Part 1: 2023 with respect to the previous (2016) edition		
Sl No	Changes	Testing required
1	Revision of Cl **2** and Cl **3**	No
2	Addition of requirements for qualification of junction box (compliance to IS 16911/ IEC 62790 with additional requirements in Cl 6.5.2.2.3), connectors (compliance to IS 16781/ IEC 62852 with additional requirements in Cl 6.5.2.2) , Polymeric frontsheets/backsheets (compliance to IEC 62788-2-1 with additional requirements)	Yes. Pre-certified material to be used and should be verified by TPTL and reported through TR.
3	Significant changes to the definition and testing of Relied Upon Insulation materials (RUI).These requirements are described for frontsheets and backsheets (IEC 62788-2-1) and includes: 1) Clarifications on the concept and measurement of DTI, and related materials test requirements; and 2) Frontsheet/ backsheet weathering requirements.	Pls see Sl Nos 9 & 2
4	Removal of all reference to "open rack". PV modules as per this Standard are suitable for long-term operation in open-air climates with 98th percentile module operating temperatures of 70 °C or less. Guidelines for modules to be used at higher operating temperatures are described in IEC TS 63126.	No
5	Modules meeting Class 0 for use in restricted access areas are not required to pass the breakage test in IS/IEC 61730-2, (MST 32);	No
6	Marking and documentation subclauses have been revised and aligned with the IS 14286 series; Particularly, marking requirements for bifacial and flexible modules have been added. Marking of design load rating, module operating temperature and connector details added in Cl 6.2.2.1	Revised marking requirements to be incorporated in marking label, to be verified by TPTL and reported in TR
7	Electronic copies are now allowed instead of paper copies of required safety documentation	No
8	New requirements for bifacial modules: a. Addition of new term, aBSI; b. relevant tests in IS/IEC 61730-2 have been changed to account for higher current of bifacial modules; c. For bifacial modules, marking that indicates which side is designed as the front side, or if d. both are designed for prolonged exposure to direct sunlight (> 300 W/m2); e. Relevant parameters for installing bifacial modules clarified; f. Overprotection rating; and g. Documentation has been modified.	Yes. Relevant tests are covered in IS/IEC 61730-2: 2023 and are to be carried out

9	Changes related to the intended use temperature range: a. Cl **5** and Cl **6.2** have been modified to include temperature ratings, with > 70 °C 98th percentile module operating temperature as the default maximum. Guidance for factors which could impact the module operating temperature for a system design/location are provided, and responsibility for proper installation is placed upon the installer; b. Changes to insulation coordination sections (Cl **6.6**, Annex B and Annex C); c. Subclauses on insulation coordination Cl (**6.6.3**) and distance through solid insulation (Cl **6.6.4**) have been updated to clearly state the insulation coordination requirements, and are d. aligned with Annex B; e. Annex B has been revised to show the basis for the dimensioning related to insulation coordination and is aligned with Cl **6.6.3** and Cl **6.6.4**; f. Annex C has been created to show specific use cases and describe how changes to materials or use of additional testing can modify the required dimensioning. Diagrams have been updated; g. A new term, distance through functional insulation (DTFI), has been defined to describe the spacing between fully encapsulated live parts of different potential (the larger of creepage and clearance for the relevant voltage); h. Testing requirements to verify a clearance value less than the listed value (but not below the creepage distance) are defined; i. Requirements for junction boxes, cables and connectors, and polymeric Frontsheets/ backsheets have been removed (these are now covered in their respective standards); j. In Table 2, functional insulation is required for insulation between live parts of different potential inside a PV module for all module types; k. In Table 3 and Table 4: i. lines related to pollution degree 3 have been removed, since this is not applicable to module laminates passing the requirements of IS/IEC 61730-2; ii. the minimum values for DTI have been increased to include the minimum 0.030 mm thickness (pinhole considerations); iii. lines related to reinforced insulation have been combined; iv. lines related to basic insulation have been combined, and functional insulation included on those lines; and lines for DTFI have been added. v. Insulation coordination requirements for Class III modules have been removed fromTable 4, and functional insulation requirements are included in text (no DTI thickness requirement).	For changes pertaining to Insulation Coordination, relevant tests are covered in IS/IEC 61730-2: 2023 and are to be carried out. For changes pertaining to Tables 2, 3 & 4, DTI, DTFI Creepage and Clearance, verification and tests as per Cl 6.6.2.3, Cl 6.6.3 and Cl 6.6.4 to be carried out.

Significant technical changes in IS/IEC 61730: Part 2: 2023 with respect to the previous (2016) edition		
Sl No	Changes	Testing required
1	MST 06: Sharp edge test revised	Yes, due to change in test procedure. Sequence affected: Final test sequence after B, B1, C, D, E, F
2	MST 14: Impulse voltage test contains technical corrections to Fig. 6	No, as only technical corrections in rise and fall time have been made
3	MST 21: Temperature test has been removed from this standard because modules tested individually in unrestricted mounting systems in open-air climates below 40 °C operate at or below a 98th-percentile operating temperature of 70 °C. As a result, the existing IS/IEC 61730-1 requirement for a minimum RTI/RTE/TI of 90 °C is adequate. To address modules operating at higher temperatures, IS 17959 includes an informative annex to describe tests and analysis techniques suitable for estimating the 98th-percentile operating temperature. This covers system effects such as mounting methods that restrict airflow and result in a 98th-percentile module operating temperature in excess of 70 °C.	No
4	MST 24: Ignitability test revised	Yes, reference to latest ISO 11925-2:2020 for testing
5	MST 26: Reverse current overload test revised	Yes, as pass criteria added + changes in procedure. Sequence affected: F
6	MST 32: Module breakage test is no longer required for Class 0 modules	No
7	MST 54: Instead of sequential test with one module now one module for Sequence B shall be irradiated from the front side and another module from the backside during the 60 kWh/m2 cycle	No
8	MST 57: Evaluation of insulation coordination added	Yes. Sequence affected: G
9	All MQT references updated to revised IS 14286 : 2023 series	No
10	For Bifacial modules: Requirements updated for MST 02 Performance at STC, MST 07 Bypass diode functionality test, MST 22 Hot-spot endurance test, MST 25 Bypass diode thermal test and MST 51 Thermal cycling (TC200)	Yes, change in test parameters. Sequence affected: Final test sequence after B, B1, C, D, E, F; Performance at STC
11	Term “Very large module” defined and Annex C (normative) “Usage of representative samples for very large modules” added	No
12	MST 37: Materials creep test revised	No. Less or as stringent conditions
13	MST 56: Dry heat conditioning test revised	No, less stringent test conditions
14	MST 53: Damp heat test (1 000 h) revised	Yes, change in test procedure. Sequence affected: D
15	Robustness of terminations test added in Sequence D for junction boxes qualified with a cemented joint.	Yes. Sequence affected: D