
Varnostne zahteve za električno opremo za meritve, nadzor in laboratorijsko uporabo - 2-030. del: Posebne zahteve za preskusna in merilna vezja

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for equipment having testing or measuring circuits

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-030: Besondere Anforderungen für Geräte mit Prüf- oder Messstromkreis

Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire - Partie 2-030: Exigences particulières pour les appareils équipés de circuits d'essai ou de mesure

Ta slovenski standard je istoveten z: prEN IEC 61010-2-030:2022

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OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
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TITLE:

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for equipment having testing or measuring circuits

PROPOSED STABILITY DATE: 2025

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iTeh STANDARD PREVIEW (standards.iteh.ai)

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<https://standards.iteh.ai/catalog/standards/sist/6d84b220-973c-403d-9ed7-c9cf19a57727/osist-pren-iec-61010-2-030-2022>

55 INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT
FOR MEASUREMENT, CONTROL, AND LABORATORY USE –**

**Part 2-030: Particular requirements for equipment
having testing or measuring circuits**

FOREWORD

65 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising
66 all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international
67 co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and
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70 preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with
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76 interested IEC National Committees.

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85 assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any
86 services carried out by independent certification bodies.

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89 members of its technical committees and IEC National Committees for any personal injury, property damage or
90 other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and
91 expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC
92 Publications.

93 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is
94 indispensable for the correct application of this publication.

95 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent
96 rights. IEC shall not be held responsible for identifying any or all such patent rights.

97 IEC 61010-2-030 has been prepared by IEC technical committee 66: Safety of measuring,
98 control and laboratory equipment.

99 It has the status of a group safety publication in accordance with IEC Guide 104.

100 This third edition cancels and replaces the second edition published in 2017. This edition
101 constitutes a technical revision.

102 This edition includes the following significant technical changes with respect to the previous
103 edition:

1.2.1	Requirements for protection against HAZARDS which could occur from reading a voltage have been added to the scope.
Clause 2	All normative references have been dated and new normative references have been added.
4.3.2.5	Requirements for power supply have been modified.
4.3.2.6	Requirements for inputs/outputs have been modified.
4.4.2.101	Addition of a new subclause about surge protective devices.
5.1.5.101.2	Minimum RATINGS for voltage of measuring TERMINALS are required.
6.6.101.1	Insulating material of group I may be allowed for determination of CLEARANCES of measuring circuit TERMINALS.
6.6.101.2	CLEARANCES and CREEPAGE DISTANCES above 1 000 V a.c. and 1 500 V d.c. for measuring circuit TERMINALS in unmated position have been defined.
6.6.101.3	Requirements for measuring circuit TERMINALS in partially mated position have been specified.
6.6.101.4	Requirements for measuring circuit TERMINALS in mated position have been specified.
9.101	New subclause to consider the protection of measuring circuits against the spread of fire and arc flash has been added. Table 102 has been replaced by Table K.101.
9.101.2	Relocation of 101.3 of previous edition.
9.101.3	Relocation of 101.4 of previous edition, extension to MEASUREMENT CATEGORY II and reference to IEC 61000-4-5 for tests.
14.101	Relocation of 14.102. 14.101 of previous edition has been removed.
101.3	Relocation of 101.5 of previous edition, and more requirements added against HAZARD occurring from reading a voltage value.
K.2.1	Another method for determination of CLEARANCES of secondary circuits is proposed.
K.3.2	New Table K.15 and Table K.16 for CLEARANCE calculation.
Clause K.4	Redraft of the clause to propose a method for determination of U_t for circuits which reduce TRANSIENT OVERVOLTAGES.
K.101.4.1	New Table K.103 and Table K.104 replace Table K.102, Table K.103 and Table K.104.
K.101.4	The subclause has been reviewed. Table K.101 replaces Table K.106 of previous edition Table K.102 replaces Table K.101 of previous edition Table K.103 and Table K.104 replace Table K.102, Table K.103 and Table K.104 of previous edition Table K.105 of previous edition has been replaced by a calculation method New Table K.105 replaces Table K.9.
Annex AA	Figure AA.1 has been redesigned.
Annex EE	Addition of a new informative annex for determination of CLEARANCES for Table 101.

104

105 The text of this International Standard is based on the following documents:

FDIS	Report on voting
66/xxx/FDIS	66/xxx/RVD

106

107 Full information on the voting for its approval can be found in the report on voting indicated in
108 the above table.

109 The language used for the development of this International Standard is English.

110 This document was drafted in accordance with the ISO/IEC Directives, Part 2, and developed
111 in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement,

112 available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC
113 are described in greater detail at www.iec.ch/publications.

114 A list of all parts of the IEC 61010 series, under the general title *Safety requirements for*
115 *electrical equipment for measurement, control, and laboratory use*, can be found on the IEC
116 website.

117 This Part 2-030 is to be used in conjunction with IEC 61010-1:2010 and
118 IEC 61010-1:2010/AMD1:2016. It was established on the basis of the third edition (2010) of
119 IEC 61010-1, including its amendment 1 (2016) and its corrigendum 1 (2019), hereinafter
120 referred to as Part 1.

121 This Part 2-030 supplements or modifies the corresponding clauses in IEC 61010-1 so as to
122 convert that publication into the IEC standard: *Particular requirements for equipment having*
123 *testing or measuring circuits*.

124 Where a particular subclause of Part 1 is not mentioned in this Part 2-030, that subclause
125 applies as far as is reasonable. Where this part states “addition”, “modification”, “replacement”,
126 or “deletion” the relevant requirement, test specification or note in Part 1 should be adapted
127 accordingly.

128 In this standard:

129 a) the following print types are used:

130 – requirements: in roman type;

131 – NOTES: in small roman type;

132 – *conformity and tests: in italic type;*

133 – terms used throughout this standard which have been defined in Clause 3: SMALL ROMAN
134 CAPITALS;

135 b) subclauses, figures, tables and notes which are additional to those in Part 1 are numbered
136 starting from 101. Additional annexes are lettered starting from AA and additional list items
137 are lettered from aa).

138 The committee has decided that the contents of this document will remain unchanged until the
139 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
140 specific document. At this date, the document will be

- 141 • reconfirmed,
- 142 • withdrawn,
- 143 • replaced by a revised edition, or
- 144 • amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

145

146

INTRODUCTION

147 IEC 61010-1 specifies the safety requirements that are generally applicable to all equipment
148 within its scope. For certain types of equipment, the requirements of IEC 61010-1 and its
149 amendment will be supplemented or modified by the special requirements of one, or more than
150 one, particular Part 2 which are read in conjunction with the Part 1 requirements.

151 1) Part 2-030 specifies the safety requirements for equipment with testing or measuring
152 circuits which are connected for test or measurement purposes to devices or circuits outside
153 the measurement equipment itself.

154 2) Part 2-032 specifies the safety requirements for hand-held and hand-manipulated current
155 sensors for measuring, detecting, injecting current, or indicating current waveforms on
156 circuits without physically opening the current path of the circuit being measured.

157 Most of the requirements of Part 2-030 have been included into Part 2-032. Equipment
158 within the scopes of both Part 2-030 and Part 2-032 are considered to be covered by the
159 requirements of Part 2-032.

160 However, for current sensor in combined equipment with protective bonding and automatic
161 disconnection of the supply, Part 2-030 and Part 2-032 are read in conjunction

162 3) Part 2-033 specifies the safety requirements for hand-held multimeters and other meters for
163 domestic and professional use, capable of measuring mains voltage, intended to measure
164 voltage and other electrical quantities such as resistance or current.

165 All relevant requirements of Part 2-030 have been included into Part 2-033.

166 4) Part 2-034 specifies the safety requirements for measurement equipment for insulation
167 resistance and test equipment for electric strength which are connected to units, lines or
168 circuits for test or measurement purposes.

169 All relevant requirements of Part 2-030 have been included into Part 2-034. However, for
170 equipment within the scope of Part 2-032 and Part 2-034, these standards are read in
171 conjunction.

172 IEC 61010-031 specifies the safety requirements for hand-held and hand-manipulated probe
173 assemblies and their related accessories intended to be used in particular with equipment in
174 the scope of Part 2-030, Part 2-032, Part 2-033 and Part 2-034. These probe assemblies are
175 for non-contact or direct electrical connection between a part and electrical test and
176 measurement equipment. They may be fixed to the equipment or be detachable accessories for
177 the equipment.

178

179 **SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT**
180 **FOR MEASUREMENT, CONTROL, AND LABORATORY USE –**

181
182 **Part 2-030: Particular requirements for equipment**
183 **having testing or measuring circuits**
184
185
186

187 **1 Scope and object**

188 IEC 61010-1:2010, Clause 1 and IEC 61010-1:2010/AMD1:2016, Clause 1 apply except as
189 follows:

190 **1.1.1 Equipment included in scope**

191 *Replace the existing text with the following:*

192 This group safety publication is primarily intended to be used as a product safety standard for
193 the products mentioned in the scope, but shall also be used by technical committees in the
194 preparation of their publications for products similar to those mentioned in the scope of this
195 document, in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

196 This part of IEC 61010 specifies safety requirements for equipment having testing or measuring
197 circuits which are connected for test or measurement purposes to devices or circuits outside
198 the measurement equipment itself.

199 These include measuring circuits which are part of electrical test and measurement equipment,
200 laboratory equipment, or process control equipment. The existence of these circuits in
201 equipment requires additional protective means between the circuit and an OPERATOR.

202 NOTE These testing and measuring circuits can, for example:

- 203 – measure voltages in circuits of other equipment,
- 204 – measure temperature of a separate device via a thermocouple,
- 205 – measure force on a separate device via a strain gauge,
- 206 – inject a voltage onto a circuit to analyse a new design.

207 **1.2.1 Aspects included in scope**

208 *Replace item c) of the second paragraph with the following new item:*

- 209 c) spread of fire or arc flash from the equipment (see Clause 9);

210 *Replace the third paragraph with the following two new paragraphs:*

211 Requirements for protection against HAZARDS arising from NORMAL USE, REASONABLY
212 FORESEEABLE MISUSE and ergonomic factors are specified in Clause 16 and Clause 101.

213 Annex BB provides guidance to equipment manufacturer on HAZARDS that should be considered
214 for equipment intended for performing tests and measurements on hazardous conductors,
215 including MAINS conductors and telecommunication network conductors.

216 **2 Normative references**

217 IEC 61010-1:2010, Clause 2 and IEC 61010-1:2010/AMD1:2016, Clause 2 apply except as
218 follows:

219 *Replace the following existing normative references:*

220 IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety –*
 221 *Protection against voltage disturbances and electromagnetic disturbances*
 222 IEC 60364-4-44:2007/AMD1:2015

223 IEC 61010-031, *Safety requirements for electrical equipment for measurement, control and*
 224 *laboratory use – Part 031: Safety requirements for hand-held probe assemblies for electrical*
 225 *measurement and test*

226 IEC 61180 (all parts), *High-voltage test techniques for low-voltage equipment*

227 IEC 61180-1, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test*
 228 *and procedure requirements*

229 IEC 61180-2, *High-voltage test techniques for low-voltage equipment – Part 2: Test equipment*

230 *with the following new normative references:*

231 IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety –*
 232 *Protection against voltage disturbances and electromagnetic disturbances*
 233 IEC 60364-4-44:2007/AMD1:2015
 234 IEC 60364-4-44:2007/AMD2:2018

235 IEC 61010-031:—1, *Safety requirements for electrical equipment for measurement, control, and*
 236 *laboratory use – Part 031: Safety requirements for hand-held and hand-manipulated probe*
 237 *assemblies for electrical test and measurement*

238 IEC 61180:2016, *High-voltage test techniques for low-voltage equipment – Definitions, test and*
 239 *procedure requirements, test equipment*

240 NOTE IEC 61180:2016 replaces everywhere IEC 61180, IEC 61180-1 and IEC 61180-2 are referenced in Part 1.

241 *Add the following new normative references:*

242 IEC 61000-4-5:2014:2017, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and*
 243 *measurement techniques - Surge immunity test*
 244 IEC 61000-4-5:2014/AMD1:2017

245 IEC 61010-2-032:—2, *Safety requirements for electrical equipment for measurement, control,*
 246 *and laboratory use – Part 2-032: Particular requirements for hand-held and hand-manipulated*
 247 *current sensors for electrical test and measurement*

248 **3 Terms and definitions**

249 IEC 61010-1:2010, Clause 3 and IEC 61010-1:2010/AMD1:2016, Clause 3 apply except as
 250 follows:

251 **3.5 Safety terms**

252 *Replace the definition of 3.5.4 with the following new definition:*

¹ Third edition under preparation. Stage at the time of publication: IEC FDIS 61010-031:2022.

² Fifth edition under preparation. Stage at the time of publication: IEC CDV 61010-2-032:2022.

253 **3.5.4**
254 **MAINS**
255 electricity supply system

256 *Add the following new term and definition:*

257 **3.5.101**
258 **MEASUREMENT CATEGORY**
259 classification of testing and measuring circuits according to the type of MAINS to which they are
260 intended to be connected

261 Note 1 to entry: MEASUREMENT CATEGORIES take into account OVERVOLTAGE CATEGORIES, short-circuit current levels,
262 the location where the test or measurement is to be made and some forms of energy limitation or transient protection
263 included in the building installation (see Annex AA for more information).

264 **4 Tests**

265 IEC 61010-1:2010, Clause 4 and IEC 61010-1:2010/AMD1:2016, Clause 4 apply except as
266 follows:

267 **4.3.2.5 MAINS supply**

268 *Replace the existing title and text of 4.3.2.5 with the following title and text:*

269 **4.3.2.5 Power supply**

270 The following requirements apply:

- 271 a) the MAINS supply voltage shall be between 90 % and 110 % of any RATED supply voltage for
272 which the equipment can be set or, if the equipment is RATED for a greater fluctuation, at
273 any supply voltage within the fluctuation range;
- 274 b) the MAINS frequency shall be any RATED frequency;
- 275 c) equipment for both a.c. and d.c. shall be connected to an a.c. or d.c. supply;
- 276 d) equipment powered by single-phase a.c. MAINS supply shall be connected both with normal
277 and reverse polarity;
- 278 e) if the means of connection permit reversal, battery-operated and d.c. equipment shall be
279 connected with both reverse and normal polarity.

280 **4.3.2.6 Input and output voltages**

281 *Replace the existing title and text of 4.3.2.6 with the following title and text:*

282 **4.3.2.6 Input and output voltages or currents**

283 Input and output voltages or currents, including floating voltages but excluding the MAINS supply
284 voltage, shall be set to any voltage or current within their RATED range, in normal and reverse
285 polarity if possible.

286 *Add the following new subclause:*

287 **4.4.2.101 Surge protective devices**

288 Surge protective devices used in MAINS CIRCUITS or the circuits measuring MAINS shall be short-
289 circuited and open-circuited.

290 **5 Marking and documentation**

291 IEC 61010-1:2010, Clause 5 and IEC 61010-1:2010/AMD1:2016, Clause 5 apply except as
292 follows:

293 **5.1.5 TERMINALS, connections and operating devices**

294 *Add the following new subclause:*

295 **5.1.5.101 Measuring circuit TERMINALS**

296 **5.1.5.101.1 General**

297 Some measuring circuit TERMINALS for the equipment within the scope of this document also
298 serve as output TERMINALS.

299 Except as permitted in 5.1.5.101.4:

300 a) the value of the nominal a.c. r.m.s. line-to-neutral or d.c. voltage of MAINS being measured
301 shall be marked for measuring circuit TERMINALS RATED for MEASUREMENT CATEGORIES, or
302 the value of the RATED voltage to earth for other measuring circuit TERMINALS, and

303 NOTE CLEARANCES and solid insulation for MEASUREMENT CATEGORIES are specified for a nominal a.c. r.m.s.
304 line-to-neutral or d.c. voltage of MAINS being measured. Neutral is considered to be earthed (see Annex I).

305 b) the value of the RATED voltage or the RATED current, as applicable, of each pair or set of
306 measuring circuit TERMINALS that are intended to be used together shall be marked, and

307 c) the pertinent MEASUREMENT CATEGORY for each individual, pair, or set of measuring circuit
308 TERMINALS, or symbol 14 of Table 1 shall be marked as specified in 5.1.5.101.2 and
309 5.1.5.101.3, if applicable.

310 Measuring circuit TERMINALS are usually arranged in pairs or sets. Each pair or set of TERMINALS
311 may have a RATED voltage or a RATED current, or both, within that set, and each individual
312 TERMINAL may have a RATED voltage to earth. For some equipment, the RATED voltage between
313 TERMINALS may be different from the RATED voltage to earth. Markings shall be clear to avoid
314 misunderstanding.

315 Symbol 14 of Table 1 shall be marked if current measuring TERMINALS are not intended for
316 connection to current transformers without internal protection (see 101.2).

317 Markings shall be placed adjacent to the TERMINALS. However, if there is insufficient space (as
318 in multi-input equipment), the marking may be on the RATING plate or scale plate, or the
319 TERMINAL may be marked with symbol 14 of Table 1.

320 For any set of measuring circuit TERMINALS, symbol 14 of Table 1 does not need to be marked
321 more than once, if it is close to the TERMINALS.

322 *Conformity is checked by inspection and, if applicable, as specified in 5.1.5.101.2 and*
323 *5.1.5.101.3, taking the exceptions in 5.1.5.101.4 into account.*

324 **5.1.5.101.2 Measuring circuit TERMINALS RATED for MEASUREMENT CATEGORIES**

325 The relevant MEASUREMENT CATEGORY shall be marked for TERMINALS of measuring circuits
326 RATED for MEASUREMENT CATEGORIES. The MEASUREMENT CATEGORY markings shall be "CAT II",
327 "CAT III" or "CAT IV" as applicable.

328 The RATED voltage of the TERMINALS of a measuring circuit intended for MAINS voltage
329 measurements shall be equal to or higher than their RATED a.c. r.m.s. line-to-neutral or d.c.
330 voltage.

331 Marking those TERMINALS with more than one type of MEASUREMENT CATEGORY and its RATED
332 voltage is permissible.

333 *Conformity is checked by inspection.*

334 **5.1.5.101.3 Measuring circuit TERMINALS RATED for connection to voltages above the**
335 **levels of 6.3.1**

336 Symbol 14 of Table 1 shall be marked for measuring circuit TERMINALS RATED for connection to
337 voltages above the levels of 6.3.1, but that are not RATED for MEASUREMENT CATEGORIES (see
338 also 5.4.1 bb)).

339 *Conformity is checked by inspection.*

340 **5.1.5.101.4 Measuring circuit TERMINALS which are permanently connected, dedicated or**
341 **for non-HAZARDOUS LIVE voltages**

342 Measuring circuit TERMINALS do not need to be marked if:

- 343 a) they are intended to be permanently connected and not ACCESSIBLE (see 5.4.3 aa) and bb)),
344 or
345 b) they are dedicated only for connection to specific TERMINALS of other equipment, or
346 c) it is obvious from other indications that the RATED voltage does not exceed the levels of
347 6.3.1.

348 NOTE Examples of acceptable indications that the RATED voltage of the inputs are intended to not exceed the
349 levels of 6.3.1 include:

- 350 – the full scale deflection marking of a single-range indicating voltmeter or ammeter or maximum marking of
351 a multi-range multimeter;
352 – the maximum range marking of a voltage selector switch;
353 – a marked voltage or power RATING expressed in dB, mW or W, where the equivalent value, as explained in
354 the documentation, does not exceed 30 V a.c.

355 *Conformity is checked by inspection.*

356 **5.4.1 GENERAL**

357 *Add the following two new items to the list and a new paragraph at the end of the list:*

- 358 aa) information about each relevant MEASUREMENT CATEGORY if the measuring circuit is RATED
359 for MEASUREMENT CATEGORIES (see 5.1.5.101.2);
360 bb) for measuring circuits that are not RATED for MEASUREMENT CATEGORIES, but that could be
361 misused by connection to such circuits, a warning not to use the equipment for
362 measurements on MAINS, and a detailed RATING including TRANSIENT OVERVOLTAGES (see
363 AA.2.4 for more information).

364 Some equipment may have multiple MEASUREMENT CATEGORY RATINGS for the same measuring
365 circuit. For such equipment, the documentation shall clearly identify the MEASUREMENT
366 CATEGORIES where the equipment is intended to be used and where it shall not be used.

367 **5.4.3 Equipment installation**

368 *Add the following two new items to the list:*

- 369 aa) for measuring circuit TERMINALS intended for permanent connection and that are RATED
370 for MEASUREMENT CATEGORIES, information regarding the MEASUREMENT CATEGORY, RATED
371 voltages or RATED currents as applicable (see 5.1.5.101.2);

- 372 bb) for measuring circuit TERMINALS intended for permanent connection and that are not RATED
373 for MEASUREMENT CATEGORIES, information regarding the RATED voltages, RATED currents,
374 and RATED TRANSIENT OVERVOLTAGES as applicable (see 5.1.5.101.4).

375 **6 Protection against electric shock**

376 IEC 61010-1:2010, Clause 6 and IEC 61010-1:2010/AMD1:2016, Clause 6 apply except as
377 follows:

378 **6.1.2 Exceptions**

379 *Add the following new item to the list:*

- 380 aa) locking or screw-held type measuring TERMINALS, including TERMINALS which do not
381 require the use of a TOOL.

382 **6.5.2.1 General**

383 *Replace the conformity statement with the following:*

384 *Conformity is checked as specified in 6.5.2.2 to 6.5.2.6 and 6.5.2.101.*

385 **6.5.2.3 Protective conductor TERMINAL**

386 *Replace h) 2) with the following:*

- 387 h) 2) the PROTECTIVE BONDING shall not be interrupted by any switching or interrupting device.
388 Devices used for indirect bonding in testing and measuring circuits (see 6.5.2.101) are
389 permitted to be part of the PROTECTIVE BONDING.

390 *Add the following new subclause and figure:* <https://standards.iteh.ai/catalog/standards/sist/6d84b220-973c-403d-9ed7->

391 **6.5.2.101 Indirect bonding for testing and measuring circuits**

392 Indirect bonding establishes a connection between the PROTECTIVE CONDUCTOR TERMINAL and
393 ACCESSIBLE conductive parts if these become HAZARDOUS LIVE as a result of a fault.

394 Devices to establish indirect bonding are the following:

- 395 a) Voltage limiting devices which become conductive when the voltage across them exceeds
396 the relevant levels of 6.3.2 a), with overcurrent protection to prevent breakdown of the
397 device. The duration of current flow versus the body current shall not exceed the levels of
398 Figure 101.

399 *Conformity is checked by connecting the ACCESSIBLE conductive parts to the minimum and
400 the maximum HAZARDOUS LIVE voltage according to the equipment RATINGS while the
401 equipment is operated in NORMAL USE. The current between the ACCESSIBLE conductive parts
402 and the PROTECTIVE CONDUCTOR TERMINAL is measured with the circuit of Figure A.1.*

- 403 b) Voltage-sensitive tripping devices which interrupt all poles of the MAINS supply or the
404 HAZARDOUS LIVE voltage source, and connect the ACCESSIBLE conductive parts to the
405 PROTECTIVE CONDUCTOR TERMINAL whenever the voltage across them reaches the relevant
406 levels of 6.3.2 a). The tripping duration versus the current shall not exceed the levels of
407 Figure 101.

408 *Conformity is checked by applying successively the relevant voltage level of 6.3.2 a) and
409 the maximum RATED voltage between the ACCESSIBLE conductive parts and the PROTECTIVE
410 CONDUCTOR TERMINAL. The current between the ACCESSIBLE conductive parts and the
411 PROTECTIVE CONDUCTOR TERMINAL is measured with the circuit of Figure A.1.*

412 Voltage limiting devices or voltage-sensitive tripping devices as defined in a) and b), shall have
413 at least the voltage and current RATINGS of the measuring TERMINALS.