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INTERSTATE COUNCIL FOR STANDARDIZATION, METROLOGY AND CERTIFICATION  
(ISC)

# **IEC 61010-2-201- 2017**

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## **2-201**

**(IEC 61010-2-201:2013, IDT)**

2022

IEC 61010-2-201—2017

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1 2023 .

5 IEC 61010-2-201:2013 «

2-201.

» («Safety requirements for electrical equipment for measurement, control and laboratory use — Part 2-201: Particular requirements for control equipment», IDT).

IEC/TC 65 «

(IEC).

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IEC 61010-2-201—2017

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(  
(I/O),

(PLC),  
(HMI)).

IEC 61010-1.

DD  
IEC 61010-1 IEC 61131-2:2007.

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2-201

Safety requirements for electrical equipment for measurement, control and laboratory use.  
Part 2-201. Particular requirements for control equipment

— 2023—01—01

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1.1.1 IEC 61010 (PLC); (DCS); I/O (PC (HMI); / ( I/O, I/O; ( IEC 60950 ( IEC 60950 5.4.4. IEC 61010-1:2010, IEC 62368),

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II (IEC 60664-1) 1000 ( ) (50/60 ) 1500 -  
 3 III IV, 1.  
 ISO/IEC 51 IEC 104.  
**1.1.2** :  
 ( , DCS PLC),  
 ( )  
 ( , DCS PLC)  
 IEC 60364  
**1.2.1** :  
 — « » « »  
 ) 6—13, :  
 ) ( . 7 8); 6);  
 ) ( . 9);  
 d) ( . 10);  
 ) ( . 11);  
 f) ( ), ( .  
 12); ( . 13).  
 ) 16.  
 17.  
**1.2.2** :  
 ) ;  
 ) ;  
 ) ( , IEC 61326 IEC 61131-2);  
 d) ( , IEC 61508 IEC 61131-6).  
**2**  
 1, :  
 :  
 IEC 60068-2-31:2008, Environmental testing — Part 2-31: Tests — Test Ec: Rough handling shocks,  
 primarily for equipment-type specimens ( . 2. -  
 )



**IEC 61010-2-201—2017**

IEC 60384-14:2005, Fixed capacitors for use in electronic equipment — Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains ( ) 14.

IEC 60664-1:2007, Insulation coordination for equipment within low-voltage systems — Part 1: Principles, requirements and tests ( ) 1.

IEC 60695-2-11:2000, Fire hazard testing — Part 2-11: Glowing/hot-wire based test methods — Glow-wire flammability test method for end-products ( ) 2-10.

IEC 60947-5-1:2003, Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices ( ) 5.1.

IEC 60947-7-1:2009, Low-voltage switchgear and controlgear— Part 7-1: Ancillary equipment — Terminal blocks for copper conductors ( ) 7.1.

IEC 61010-1:2010, Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements ( ) 1.

IEC 61010-2-030, Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 2-030: Particular requirements for testing and measuring circuits ( ) 2-030.

IEC 61051-2:1991, Varistors for use in electronic equipment — Part 2: Sectional specification for surge suppression varistors ( ) 2.

**3**

1

**3.101** (enclosed equipment):

1 ( )  
2 IEC 60050-441:1990, 441-12-02.

**3.102** (enclosure):

[ : IEC 60050-195:1998, 195-02-35]

1

2

**3.103** (field wiring):

**3.104** ( ) (hand-held equipment):

**IEC 61010-2-201—2017**

**3.105** (modular equipment):  
 Rack, CPU, I/O,  
 — ;  
 ) ;  
 ) ;  
 d) ( ).

**3.106** (open equipment):  
 —

**3.107** (operator):  
 1  
 2 HMI,

**3.108** (portable equipment):

**3.109** ( **PELV** ) (protective extra-low voltage circuit (PELV circuit):  
 30 r.m.s. (RMS) . . ( ), 60 d.c. ( )  
 42,4

1 PELV  
 ( )  
 2 IEC 60050-826:2004, 826-12-32, PELV.

**3.110** ( **SELV** ) (safety extra-low voltage circuit (SELV circuit)):  
 30 r.m.s. (RMS) . . ( ), 60 d.c. ( )  
 42,4

— IEC 60050-826:2004, 826-12-31, SELV.

**3.111** (service personnel):  
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IEC 61010-2-201—2017

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4.3.2 4.4.

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4.3 .2

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4.4

4.4:

4.1.

4.4.1.101

4.4.1.101.1

101.

1 « », 9 « ». 1 , 50 -  
4.4.1.101.2, 14.102.

101 —

	1,5		0,75 0,80
	1,5		1,0
	1,5		1,0
	1,5		1,0
	<sup>3</sup>	1,1 <sup>13</sup>	< 0,35
	<sup>3</sup>	1,1	1,0
<sup>3</sup> EUT — IEC 61131-2:2007.			10 % -

**IEC 61010-2-201—2017**

4.4.1.101.2

4.4.1.101.1

102. 6000  
 1 1  
 1000 « », 9 « »,  
 10—12 1 1000  
 102 —

			0,75 0,80
			1,0
			1,0
			1,0
			<0,35
			1,0
— IEC 61131-2:2007.			

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**5.4.3**

h)

d) 1)

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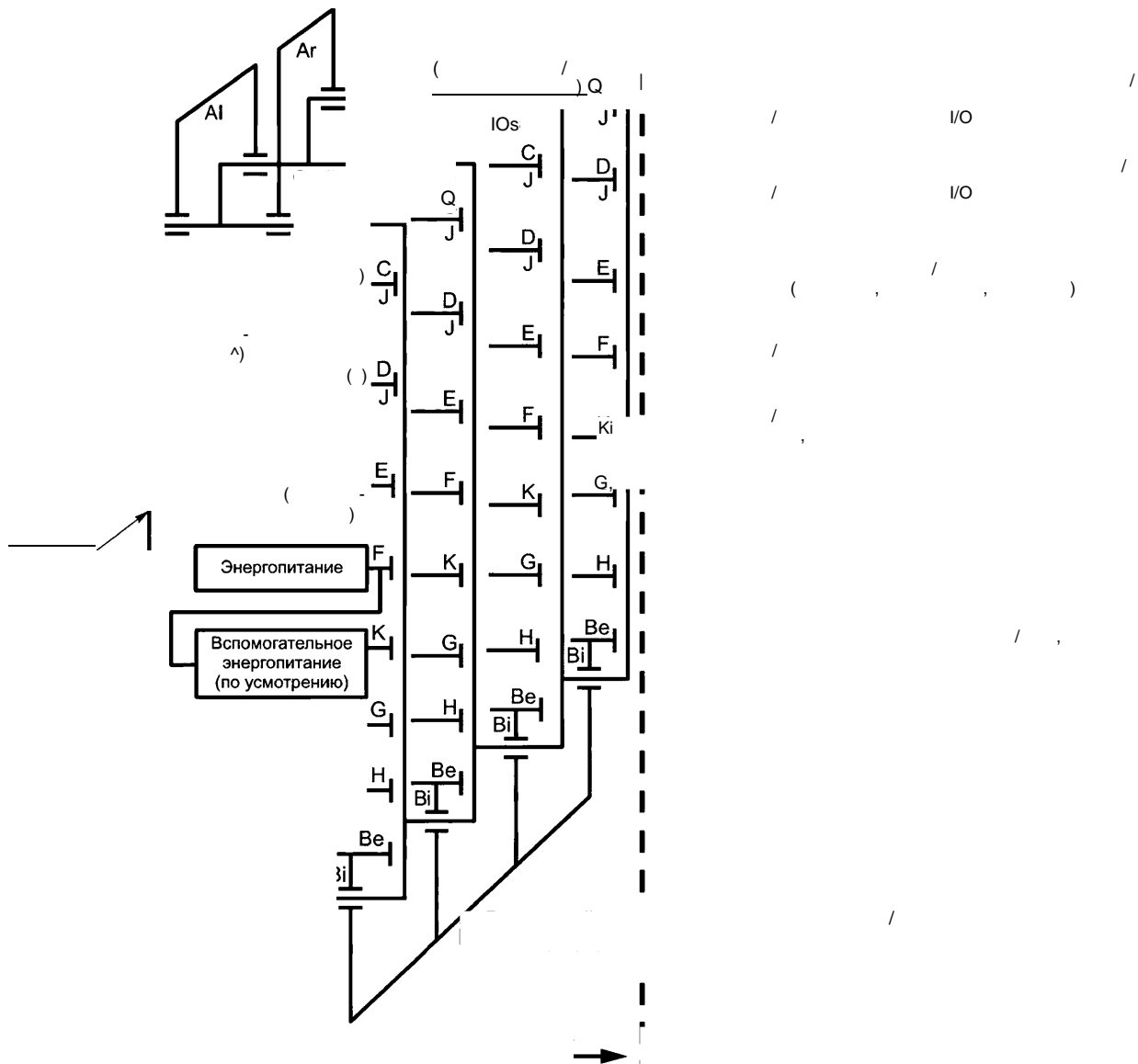
**6 .1.2**

IEC 61010-2-201—2017

b) ( , ), -  
 ( .5.2). -  
 , 10 ) ), -  
 , ) 6.3.1, -  
**6.3** , , ) 6.3.1, .  
**6.2.1** 1 .  
**6.2.2** 1 .  
**6.2.3** 1 .  
**6.2.4** 1 .  
 : 1 .  
**6.2.101** ( / / ) -  
 , 103. , -  
 6.2, Ar, Be . -  
 103 —

Al /		
/ I/O, -		
Be ; 3 , PADT, / , -		
Bi /		13
/		
D /		
; , /		
F /		
G		
J / I/O		
/		
Ar, Be , Bi .		

IEC 61010-2-201—2017



- AI — / ;
- Be — / 10, ; ; PADT,
- Bi — / ; ;
- D — / ;
- F — / ; F ;
- G — ; ;
- J — / I/O;
- 101 — /

6.2.

**6.2.102**

6.2.102.1

5.4.3

( 5.2),

6.2.102.2 SELV  
SELV

6.2.2.

6.5.2.3

6.5.2.5

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) 25

6.5.2.6

6.5.2.101

6.5.2.101.1

6.5.2.101.2

— . IEC 61140:2001, 7.

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 6.5.2.101.3 II 6.5.2.102 6.5.2.103.  
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 1  
 2 /  
 3 I.  
 6.5.2.101.4 III  
 SELV. (SELV),  
 ).  
 SELV/PELV  
 SELV/PELV,  
 SELV/PELV IEC 60364-4-41.  
 6.5.2.102 I (  
 )  
 ,  
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 I,  
 ( . 6.5.2.2).  
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II

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6.5.2.4 6.5.2.5.

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6.5.2.103

6.5.2.4 6.5.2.5,

6.6.1

2 :

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6.10.

6.6.2

IEC 60947-7-1

IEC.

6d

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6.7.101.

6.6.3

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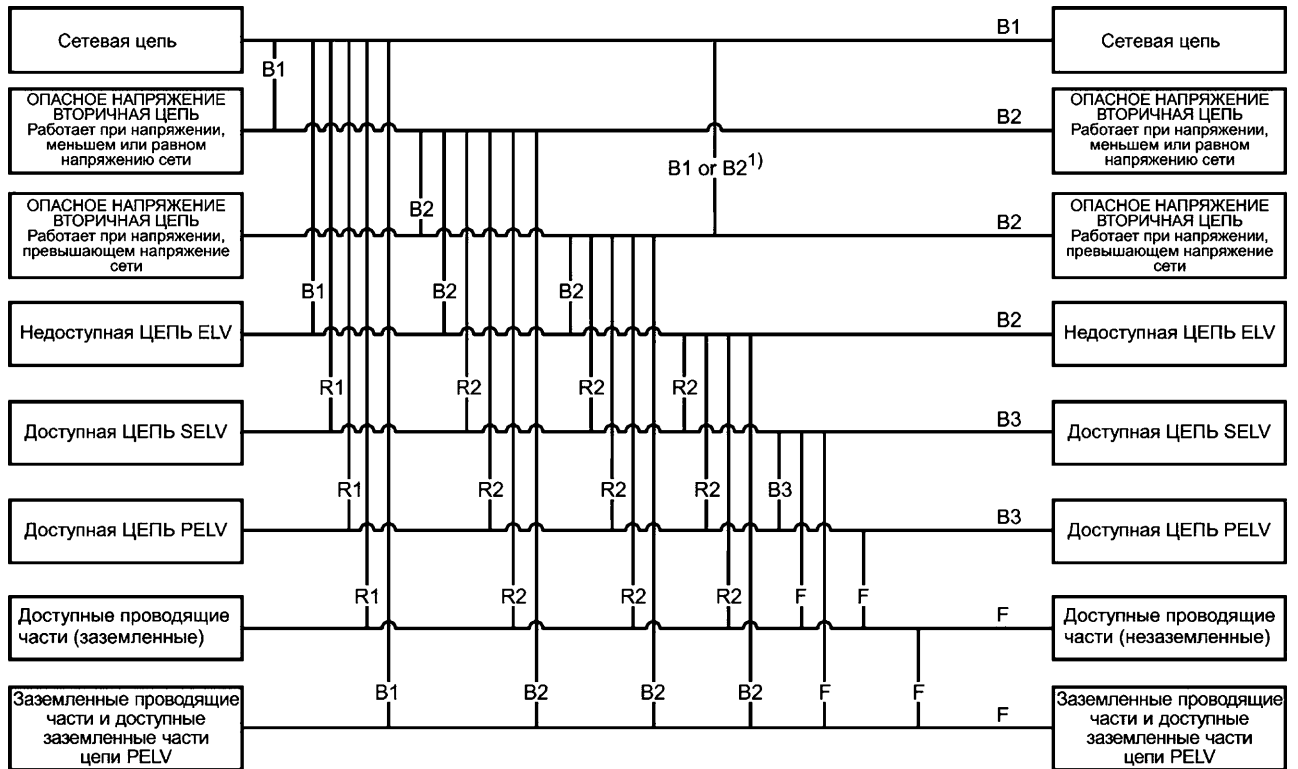
103).

103,

6.6.4

6.7.1.1

102.



1 —		6.4.	,	
2 —	6.7.2.			
—	6.7.3.			
—	6.7.3.			4
R1 —	/	6.5.	,	
R2 —	/	6.5.	,	
F —		6.5.2.4	6.5.2.5.	

1 2,

102 —

SELV/PELV

**IEC 61010-2-201—2017**

6.7.1.5

102  
IEC 61010-1:2010, .3,  
1)  
2)  
3)  
4)  
5) 30  
IEC 61010-2-030.  
IEC 61010-1:2010, . . .

6.7.1.101

6.7.1.102

6.7.2

6.7.2.1

4 —

II 300

( )	3			3								
	1	2	3	1		2			3			
				PWB MG I, II, HI,	MG I, II, III,	PWB MG I, II,	MG I,	MG II,	MG III,	MG I,	MG II,	MG III,
<50	0,04	0,2	0,8	0,04	0,18	0,04	0,6	0,85	1,2	1,5	1,7	1,9
< 100	0,1	0,2	0,8	0,1	0,25	0,16	0,71	1,0	1,4	1,8	2,0	2,2
< 150	0,5	0,5	0,8	0,5	0,5	0,5	0,8	1,1	1,6	2,0	2,2	2,5
<300	1,5	1,5	1,5	1,5	1,5	1,5	1,5	2,1	3	3,8	4,2	4,7

1.

V2 •

IEC 61010-2-201—2017

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- 1 IEC 60664-1, IEC 60664-5.
- 2 MG I = I, CTI > 600.
- 3 MG II = II, 600 > CTI > 400.
- 4 MG = , 400 > CTI > 175.
- 5 MG IIIb = IIIb, 175 > CTI > 100.
- 6 MG III = MG IIIa MG IIIb.
- 7 PWB = .
- 8 , .
- 9 0,04 — .

6.7.2 .2.1

300 , -

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II 300 B<sup>d</sup>

( ) ,	2000 ,		2000 ,			
	1,2/50 ,	1	1	1,2/50 ,	1	1
		<50	500		1250	1750
< 100	800	1300	1800	1500	2600	3600
< 150	1500	1350	1900	2500	2700	3800
<300	2500	1500	2100	4000	3000	4200

: V2 •

60 .

60 .

/ SELV/PELV.

— IEC 60664-1 IEC 60364.

6.8.3.1

6.8.3.2

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1 5 .

6.7.3

II 300 .

300 .

6.7.3.2

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IEC 61010-2-201—2017

6—

II 300

	II					
	<100 ( ) <sup>13</sup>		<150 ( ) <sup>13</sup>		<100 ( ) <sup>13</sup>	
	,500		,800		,1500	
		( . . . ),		( . . . ),		( . . . ),
10	0,04	440	0,10	500	0,47	770
12,5	0,04	440	0,10	500	0,47	770
16	0,04	440	0,10	500	0,50	840
33	0,05	455	0,11	510	0,52	850
50	0,05	455	0,12	520	0,53	860
100	0,07	476	0,13	540	0,61	900
150	0,10	507	0,16	580	0,69	940
300	0,24	641	0,39	770	0,94	1 040
600	0,79	980	1,01	1 070	1,61	1 450
1 000	1,66	1 500	1,92	1 630	2,52	1 970
1 250	2,23	1 700	2,50	1 960	3,16	2 280
1 600	3,08	2 200	3,39	2 390	4,11	2 730
2 000	4,17	2 750	4,49	2 890	5,30	3 230
2 500	5,64	3 300	6,02	3 520	6,91	3 850
3 200	7,98	4 000	8,37	4 390	9,16	4 660
4 000	10,6	4 900	10,9	5 320	11,6	5610
5 000	13,7	6 000	14,0	6 590	14,9	6 960
6 300	17,8	8 000	18,2	8 270	19,1	8 620
8 000	23,5	10 000	23,9	10 400	24,7	10 700
10 000	30,3	12 500	30,7	12 900	31,6	13 300
12 500	39,1	15 800	39,6	16 100	40,5	16 400
16 000	52,0	20 000	52,5	20 400	53,5	20 700
20 000	67,4	25 000	67,9	25 300	68,9	25 600
25 000	87,4	31 300	87,9	31 600	89,0	32 000
32 000	117	40 400	117	40 400	118	40 700
40 000	151	50 300	151	50 300	153	50 800
50 000	196	62 800	196	62 800	198	63 400
63 000	258	79 400	258	79 400	260	80 000

^2

3)

6.7.3.3

a.c.r.m.s V .

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d.c. . . /2 • Va. .r.m.s.

6.7.101

1000

II

104.

104.

IEC 61010-2-201—2017

104 —

II 1000

( )					
		3'	,		3,
<50	3,2	1,6	12	3,2	3,2
< 150	3,2	1,6	12	6,4	3,2
<300	6,4	1,6	12	9,5	3,2
<600	9,5	4,8	12	12,7	9,5
< 1 000	14	—	14	21,6	—
151 — 300 5 301 — 600 , 15 < 150 , 10 — 600 , 30 < 150 , 20 151 — 300 10 301 /2 •					
— UL508 UL1059.					

2000 ,

3 IEC 61010-1:2010.

6.8.3

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IEC 60664-1:2007, 6.1.3.6.

6.10

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6.6.

6.11

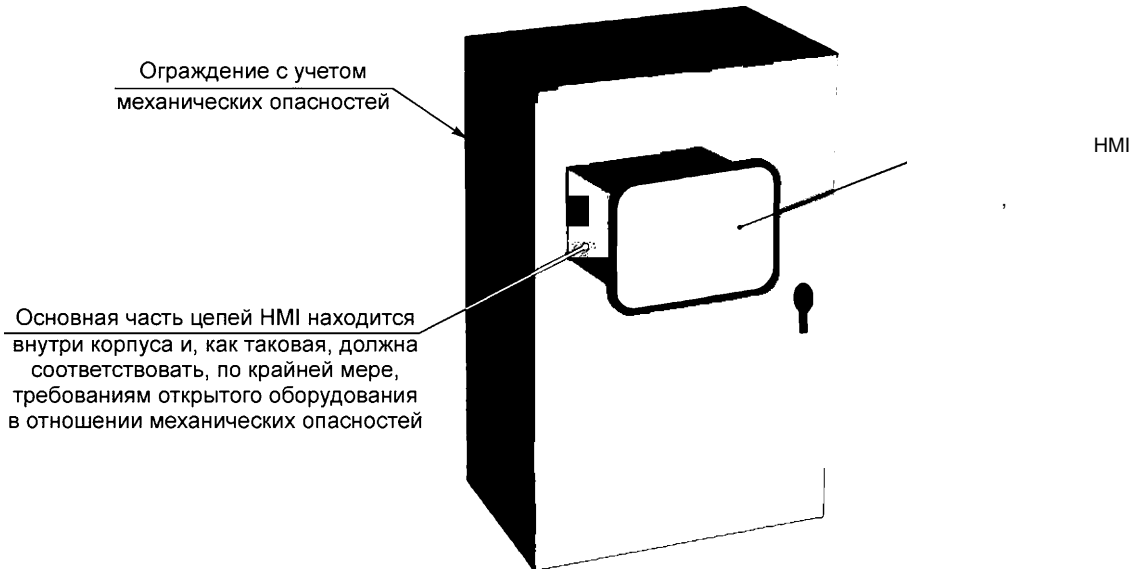
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7 .1.101



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DIN ( . IEC 60715),

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8.1.101

IEC 61010-2-201—2017

8.1.102

8.2.2

8.3

105 —

			IES 60068-2-31:2008 Test Es	
		1000 ; 2 100 ; 2	5,2	b
	30° 100 ( - ); 2	30° 00 ( - ); 2	5.1.3.1	,b
	30° 100 ( - ); 2	30° 100 ( - ); 2	5.1.3.2	,b

2 °C

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8.3.1

8.3.2

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9.2

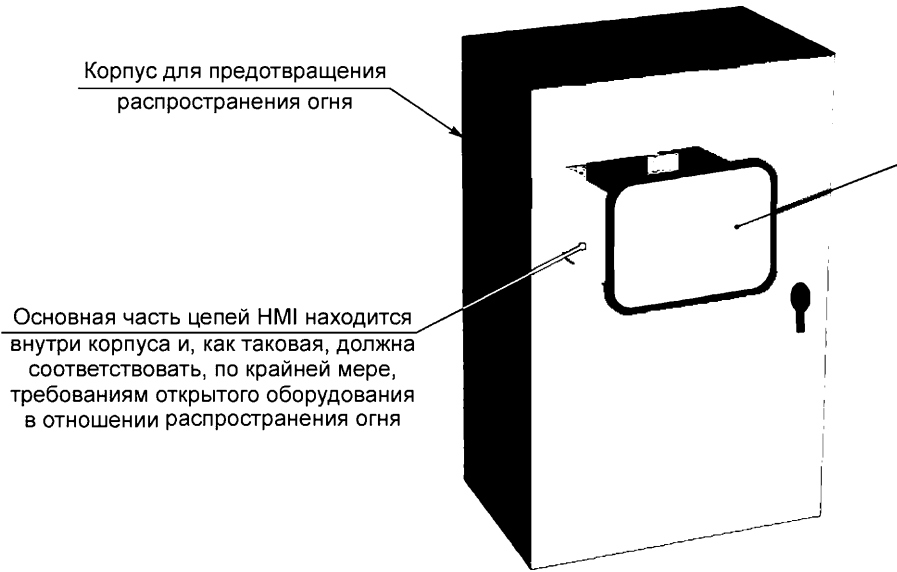
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HMI

104 —

HMI,

( . IEC 61010-1:2010,

12),

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750 °C 30

30

IEC 60695-2-11.

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10.1

19:

19 —

	, °C	, °C
1 ( )		
)	65	70
) ( , )	80	85
)	85	85

IEC 61010-2-201—2017

	°C	°C
d)	80	85
) (< 2 <sup>2</sup> ), , , -	100	100
2 ( )		
)	55	55
)	70	70
)	65	70
d)	70	85
1		
2	IEC	117:2010.

10.3

I/O's  
 f) 2000  
 IEC 60721-2-3.  
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10.4.1

I/O  
 50  
 50

10.4.2

10.4.3

) 150 %

d)

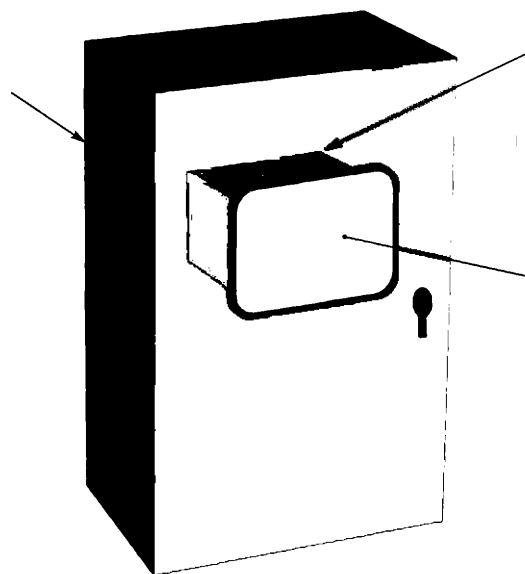
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150 %.

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10.4.1.



HMI

HMI

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IEC 61010-2-201—2017

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IEC 60529 -

IEC 60529.

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**13.2.1**

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: IEC 62133 ( ), UL 1642 ( ), UL 2054 ( ).

**14**

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**14.101**

**14.101.1**

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IEC 60384-14,

Y1, Y2 Y4 IEC 60384-14

IEC 60384-14,

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**IEC 61010-2-201—2017**

**14.101.2**

(VDR, MOV),  
 —  
 IEC 61643-21 ( IEC 61643-21 ( );  
 - IEC 61643-311 ( );  
 - IEC 61643-321 ( );  
 - IEC 61643-331 ( ).  
 IEC 61051-2. VDR (MOV).  
 — VDR  
 / VDRs ( ).

**14.102**

IEC 60947-5-1,  
 4.4.1.101.1 4.4.1.101.2  
 6.7.2.2.1,

**15**

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**16**

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 3.107 3.111.

**17**

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 ( 3.107 3.111).  
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F.2

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F.3.1

) 6.3.1 IEC 61010-1:2010,

F.4

) 6.3.1 IEC 61010-1:2010,

F.101

F.3 F.4.

F.1 IEC 61010-1:2010

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1,2/50

IEC 61180,

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/ SELV/PELV

) 6.3.1 IEC 61010-1:2010),

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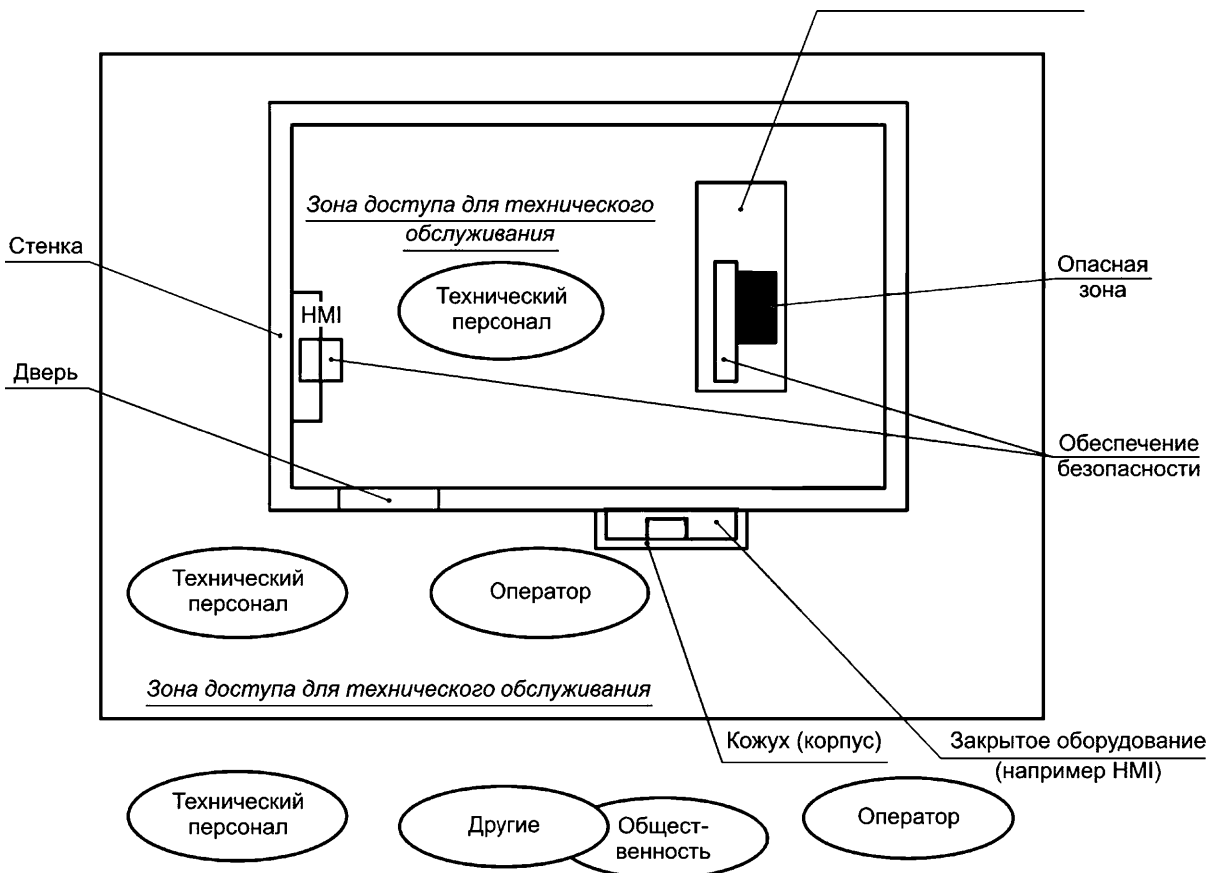
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.1.1

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IEC 61010-2-201—2017

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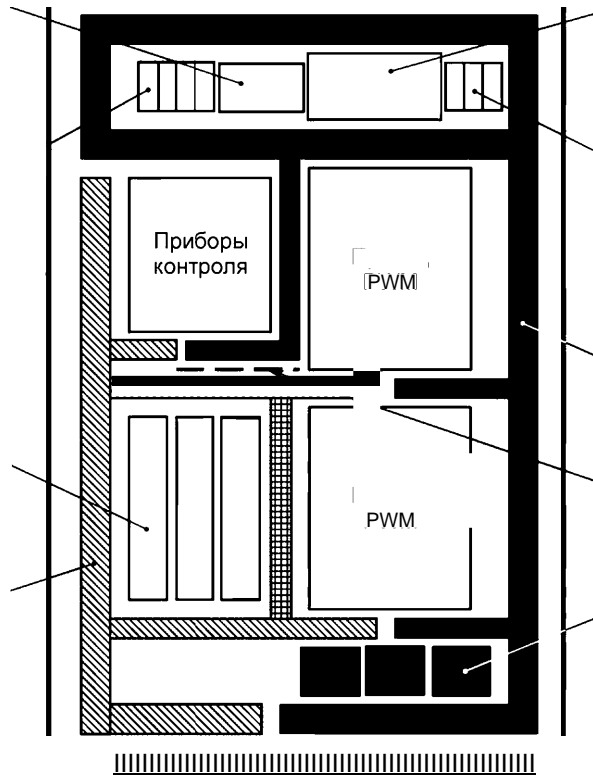


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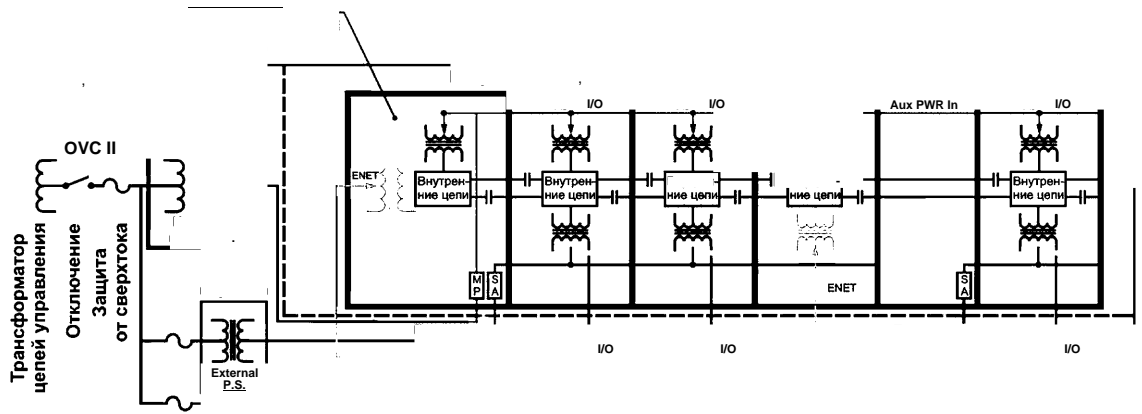
IEC 61010-2-201—2017

PWM,

( IEC 61800).

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III  
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SA —

External P.S. —

OVC —

Aux PWR In —

.2 —

I/O,

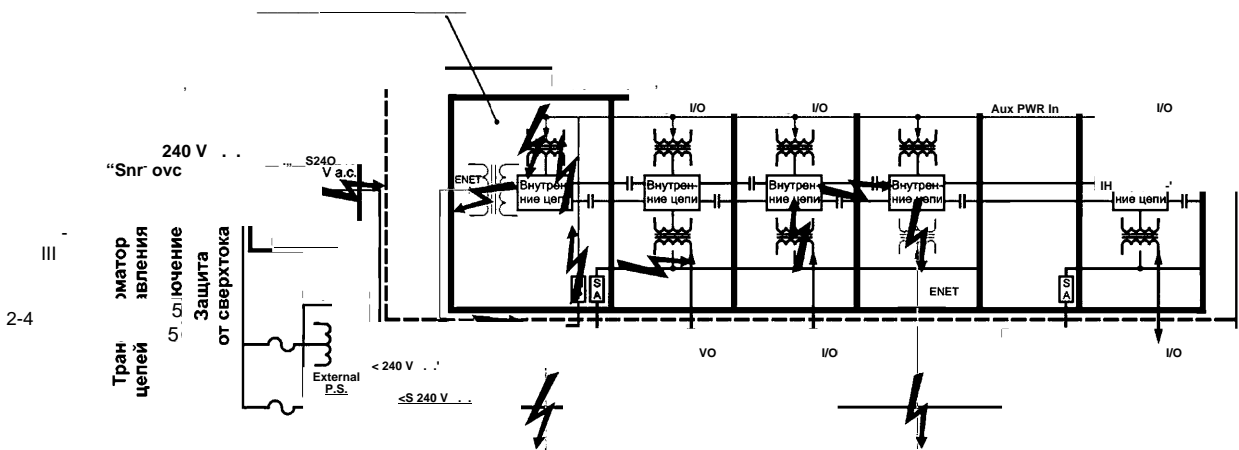
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PWM.	Ar, Be	D	101	103.	I/O,
I/O	F	J	101	103.	101 103.

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I/O



III  
2-4  
Трансформатор  
авт. включения  
цепей  
отключения  
Защита  
от сверхтока



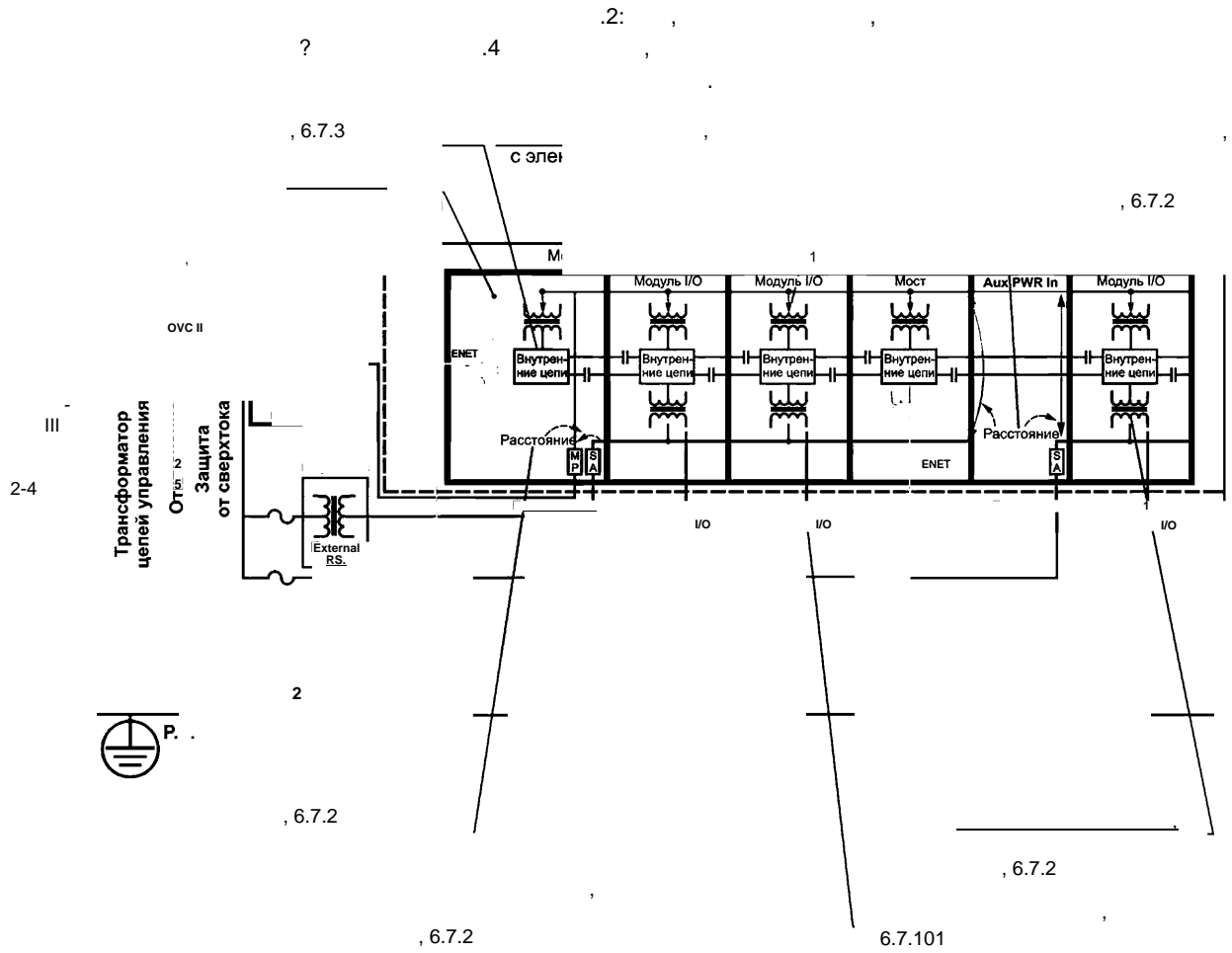
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- SA —
- External P.S. —
- V . . . —
- OVC —
- Aux PWR In —

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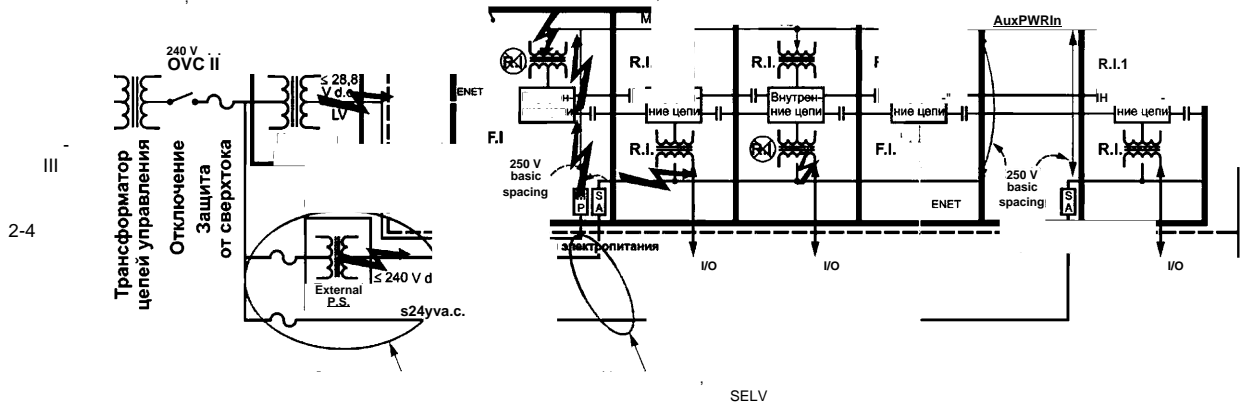


- SA —
- External P.S. —
- OVC —
- Aux PWR In —

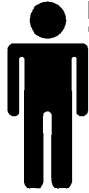
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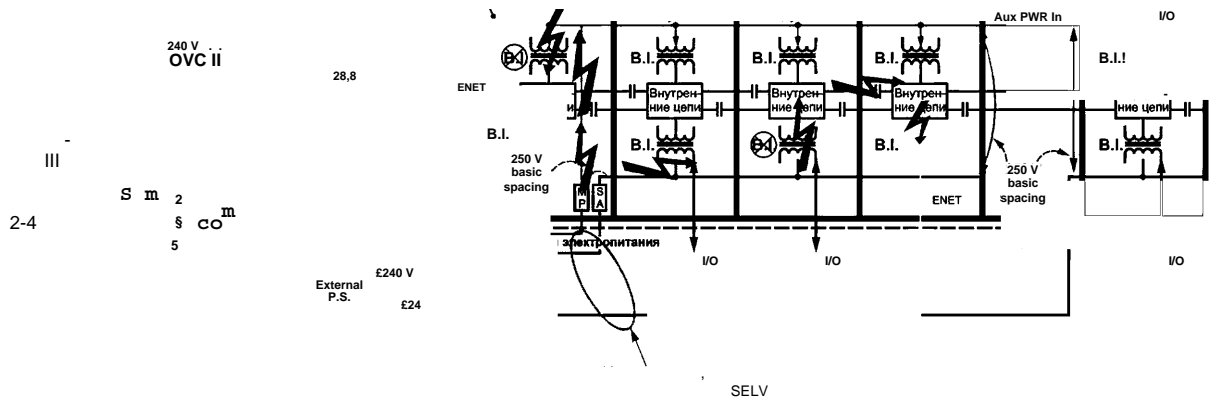
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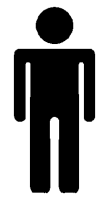


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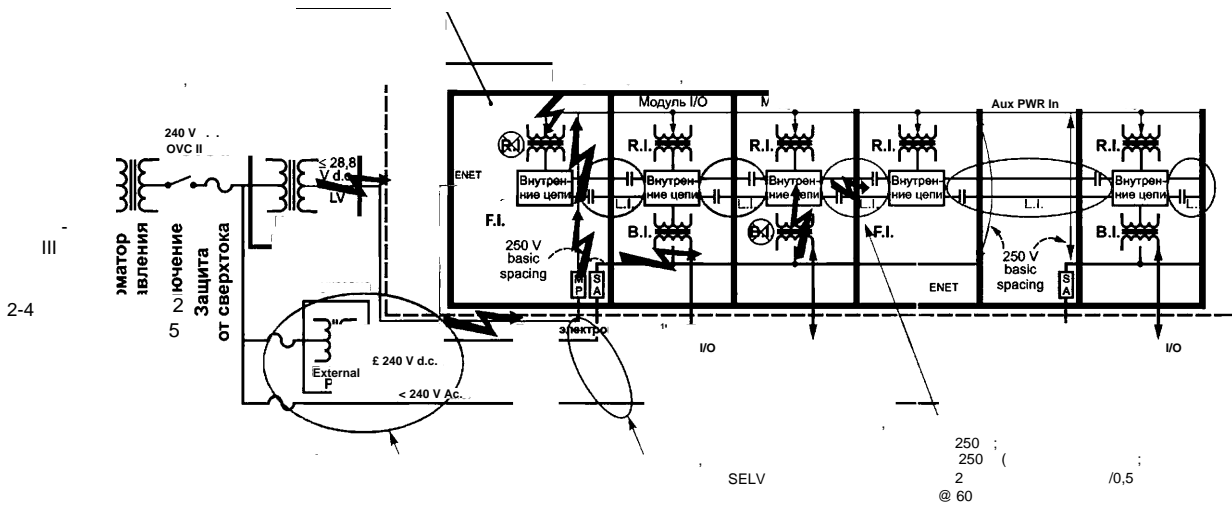


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**IEC 61010-2-201—2017**

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**IEC 61010-2-201 IEC 61010-1:2010 IEC 61131-2:2007**

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IEC 61010-1, IEC 61010-2-201	IEC 61131-2, IEC 61010-2-201	IEC 61131-2, IEC 61010-2-201
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1.3	1.2	
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