



JABATAN KERJA RAYA MALAYSIA  
CAWANGAN KEJURUTERAAN ELEKTRIK  
UNIT PENSIJILAN BAHAN & STANDARD

TECHNICAL INFORMATION

SURGE PROTECTIVE DEVICE

A. COMPANY INFORMATION						
COMPANY NAME :						
ADDRESS :				TELEPHONE NO :		
				FAX NO :		
				COMPANY EMAIL :		
ISO CERTIFIED COMPANY			REGISTRATION NO:		SCOPE:	
1. ISO 9001	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....	.....
2. ISO 14001	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....	.....
3. ISO 50001	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....	.....
4. ISO .....	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....	.....

B. PRODUCT INFORMATION	
BRAND NAME :	
MODEL : 1. .... 4. .... 2. .... 5. .... 3. .... 6. ....	
STANDARD NO.: (MS IEC/IEC/etc.)	
CERTIFICATE OF APPROVAL : (SURUHANJAYA TENAGA, if any)	DATE OF ISSUE:
	VALID UNTIL:
PRODUCT CERTIFICATION : LICENSE (SIRIM/OTHER)	DATE OF ISSUE:
	VALID UNTIL:
TEST REPORT NO.:	TESTING LABORATORY:
	DATE OF ISSUE:
COUNTRY OF MANUFACTURER:	
NAME OF MANUFACTURER:	
FACTORY ADDRESS :	

**C. PRODUCT SPECIFICATION/STANDARD**

**1.0 SURGE PROTECTIVE DEVICE**

*For  
JKR Use*

1.1 Surge Protective Device (SPD) shall be tested and manufactured to comply:

- i) Testing (MS IEC 61643-11 or IEC 61643-11 or BS EN 61643-11)  Yes  No .....
- ii) Selection and Application Principles (MS IEC 61643-12)  Yes  No .....
- iii) General Principle (MS IEC 62305-1)  Yes  No .....
- iv) Physical Damage to Structures & Life Hazard (MS IEC 62305-3)  Yes  No .....
- v) Selection & Erection of SPDs (MS IEC 60364-5-53 or IEC 60364-5-53)  Yes  No .....
- vi) Metal Oxide Varistors (MS IEC 61643-331)  Yes  No .....
- vii) Gas Discharge Tube (MS IEC 61643-311)  Yes  No .....
- viii) Spark Gap (.....)  
*(please specify)*

1.2 Number of ports:

- i) One port  Yes  No .....
- ii) Two port  Yes  No .....

1.3 The SPDs modes of protection shall be each phase-to-neutral (L-N), each phase-to-earth (L-E) and neutral-to-earth (N-E). (L-N, L-E, N-E)

Yes  No .....

Others :

- i) L – N  Yes  No .....
- ii) L – E  Yes  No .....
- iii) N – E  Yes  No .....
- iv) L – L  Yes  No .....
- v) L – N, N – E  Yes  No .....
- vi) L – N, L – E, N – E, L – L  Yes  No .....

1.4 SPD design topology:

- i) Voltage switching  Yes  No .....
- ii) Voltage limiting  Yes  No .....
- iii) Combination  Yes  No .....

1.5 The maximum continuous operating voltage ( $U_c$ ) of SPDs shall be:

- i) Minimum 275V for SPDs connected between L – N and L – E.  Yes  No .....
- ii) Minimum 240V for SPDs connected between N – E  Yes  No .....

**C. PRODUCT SPECIFICATION/STANDARD**

- 1.6 The continuous operating current ( $I_c$ ) for each mode of protection shall not exceed 3mA.  Yes  No .....
- 1.7 In the case where the MOVs are used, the SPDs shall be provided with integral thermal protection.  Yes  No .....
- 1.8 The SPDs shall be equipped with visual indicator showing the protection status of the SPDs.  Yes  No .....
- 1.9 Provided with auxiliary contact for connection to remote monitoring of SPDs protection status.  Yes  No .....

**2.0 SURGE PROTECTIVE DEVICE LOCATION CATEGORIES**

- 2.1 The SPDs to be installed with respect to the location category shall be as in Table 1.

**C. PRODUCT SPECIFICATION/STANDARD**

Location Category	1.2/50 $\mu$ s ( $U_{oc}$ ) Voltage Generator	8/20 $\mu$ s ( $I_{sc}$ ) Current Generator	Voltage Protection Level ( $U_p$ )	Maximum Discharge Current, $I_{max}$ (8/20 $\mu$ s) per mode
Main Switchboard (MSB)	$\geq 20$ kV	$\geq 10$ kA	$\leq 1800$ V	$\geq 65$ kA
Sub-Switchboard (SSB) receiving energy from MSB located in the same building	$\geq 10$ kV	$\geq 5$ kA	$\leq 1500$ V	$\geq 40$ kA
SSB receiving energy from MSB located in other building	$\geq 20$ kV	$\geq 10$ kA	$\leq 1800$ V	$\geq 65$ kA
Distribution Board (DB) receiving energy from SSB located in the same building <i>(for cases where the SSB located in the same building with MSB)</i>	$\geq 6$ kV	$\geq 3$ kA	$\leq 1200$ V	$\geq 20$ kA
Distribution Board (DB) receiving energy from SSB located in the same building <i>(for cases where the SSB located in other building with MSB)</i>	$\geq 10$ kV	$\geq 5$ kA	$\leq 1500$ V	$\geq 40$ kA
DB receiving energy from the licensee or MSB/SSB located in other building	$\geq 20$ kV	$\geq 10$ kA	$\leq 1500$ V	$\geq 40$ kA
Socket Outlet or Terminal Equipment	$\geq 2$ kV	$\geq 1$ kA	$\leq 500$ V	$\geq 10$ kA

**Table 1 : SPDs Location Categories**

**D. DETAIL OF SURGE PROTECTIVE DEVICE (Please attach technical specification and catalogue)**

Description		Model	Model	Model	Model	Model
Mode of Protection						
SPD Type : (Monoblock/Modular)						
SPD Design Topology : (MOVs/GDT/Spark Gap)						
U <sub>c</sub> (V)						
I <sub>c</sub> (A)						
SPD Disconnecter	Disconnecter : (Internal/External/Both)					
	Protection Functions : (Thermal/Overcurrent)					
Visual Indicator : (Yes/No)						
Auxiliary Contact : (Yes/No)						
Test Class : (I/II/III)						
I <sub>imp</sub> (kA)						
I <sub>n</sub> (kA)						
I <sub>max</sub> (kA)						
U <sub>oc</sub> (kV)						
U <sub>p</sub> (V)						

**NOTE** U<sub>c</sub> – Maximum continuous operating voltage for each mode of protection.

I<sub>c</sub> – Continuous operating current for each mode of protection

I<sub>imp</sub> – Impulse current for each mode of protection

I<sub>n</sub> – Nominal discharge current for each mode of protection

I<sub>max</sub> – Maximum discharge current for each mode of protection

U<sub>oc</sub> – Open-circuit voltage for each mode of protection

U<sub>p</sub> – Voltage protection level for each mode of protection at I<sub>imp</sub> or I<sub>n</sub> or U<sub>oc</sub>.

**D. DETAIL OF SURGE PROTECTIVE DEVICE (Please attach technical specification and catalogue)****2) MANUAL/DOCUMENTS (Please specify and attach relevant drawing/diagram)**

- |    |                                      |                          |     |                          |    |       |
|----|--------------------------------------|--------------------------|-----|--------------------------|----|-------|
| 1. | Technical Specifications & Catalogue | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 2. | Method of Installation               | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 3. | Method of Maintenance                | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |

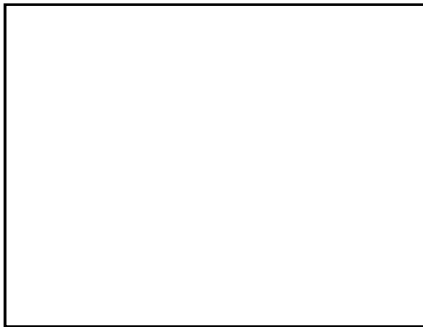
**3) Photo of product sample to be attached (Hardcopy)**

- |   |   |                          |     |                          |    |       |
|---|---|--------------------------|-----|--------------------------|----|-------|
| 1.  | Top view (with ruler for measurement)   | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 2.  | Side view (with ruler for measurement)  | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 3.  | Front view (with ruler for measurement) | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 4.  | Component (GDTs/MOVs & Connection )     | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 5.  | Auxiliary contact (if any)              | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| 6.  | Product Marking                         | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |
| Note : Please submit the <u>softcopy</u> to <u>adminEMAL@jkr.gov.my</u> |   | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | ..... |

**E. PENGESAHAN**

Adalah saya ..... dengan ini mengesahkan segala keterangan yang diberikan/dikemukakan bagi produk di atas adalah benar. Jika saya didapati membuat pengakuan **PALSU**, maka tindakan seterusnya boleh diambil oleh pihak JKR ke atas diri dan syarikat diwakili oleh saya.

Cop Syarikat :



Tandatangan :

Nama : .....

Jawatan : .....

Tarikh : .....

**F. ULASAN (Untuk Kegunaan Pejabat)**

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