

## HSG3 - Hybrid Spark Gap



### Main Switchboard (MSB) Surge Protection

Use Hybrid Spark Gap high energy surge diverters for point of entry protection at main switchboards where grid instability is an issue.

### Hybrid Protection

The Hybrid Spark Gap design combines a spark gap and MOV in series to improve the overvoltage tolerance of the surge protector. This combination allows the HSG to be exposed to continuous over voltage of up to 480V while still providing a low voltage protection level.

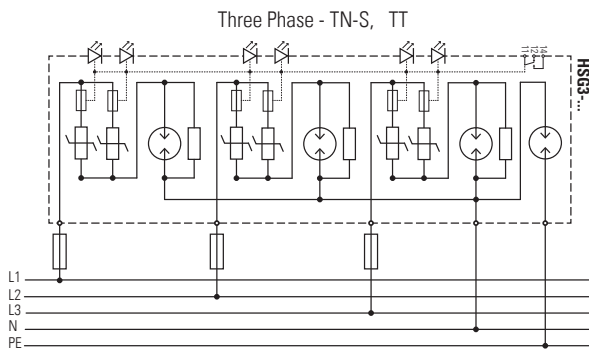
### LED Status Active Display

The LED display indicates segment status and indicates normal operation when all LEDs are brightly lit. A dim LED phase segment indicates the failure of an external backup fuse and this will activate the external alarm. An extinguished LED indicates a component failure or thermal overload, also activating the external alarm.

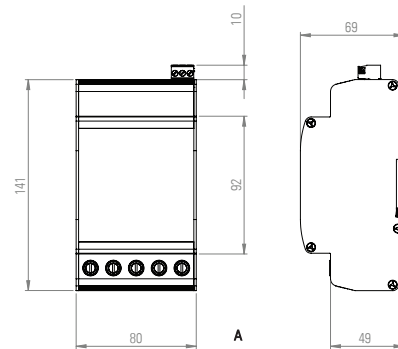
### Safe Metal Enclosure

Novaris power protection products are housed in safe, all metal enclosures. In the event of a prolonged overvoltage they will not catch fire or explode.

### Diagram / Installation



### Dimensions



### Ordering Information

Lightning Protection Level (LPL)	IV: Low exposure		II, III: Medium exposure		I: High exposure	
	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
<b>Network Type</b>						
Main Switchboard TN-C-S (MEN)	-	-	-	HSG3-100-480	HSG1-250-480	HSG3-250-480
Main Switchboard TN-S and TT	-	-	-	HSG3-100-480-N	HSG1-250-480-N	HSG3-250-480-N
<b>Options</b>						
Polycarbonate enclosure	-	-	-	-P	-P	-P
Metal enclosure (IP 65)	-	-	-	-M	-M	-M
L-PE Protection (non MEN)	-	-	-	-U	-U	-U

## Product Specifications

Model		HSG3-100-480	HSG3-100-480-N
<b>Electrical Specifications</b>			
Connection type		Shunt	Shunt
Modes of protection		L-N	L-N, N-PE
Phases		3	3
Nominal voltage	$U_o$	230 VAC	230 VAC
Short circuit withstand level	$I_{SCCR}$	25 kA	25 kA
Maximum backup fuse (gL/gG)		63 A	63 A
<b>L-N</b>			
Maximum continuous voltage	$U_c$	480 VAC	480 VAC
Maximum discharge current (8/20 $\mu$ s)	$I_{max}$	100 kA	100 kA
Lightning impulse current (10/350 $\mu$ s)	$I_{imp}$	12.5 kA	12.5 kA
Nominal discharge current (8/20 $\mu$ s)	$I_n$	40 kA	40 kA
Voltage protection level @ 3 kA 8/20 $\mu$ s	$U_p$	< 1000 V	< 1000 V
Voltage protection level @ $I_n$	$U_p$	< 1400 V	< 1400 V
Response time	$t_A$	< 25 ns	< 25 ns
Temporary overvoltage (TOV)	$U_T$	440 V / 120 min (Withstand)	440 V / 120 min (Withstand)
<b>N-PE</b>			
Maximum continuous voltage	$U_c$	-	255 VAC
Maximum discharge current (8/20 $\mu$ s)	$I_{max}$	-	150 kA
Lightning impulse current (10/350 $\mu$ s)	$I_{imp}$	-	30 kA
Nominal discharge current (8/20 $\mu$ s)	$I_n$	-	100 kA
Voltage protection level @ 1 kV/ $\mu$ s	$U_p$	-	< 1200 V
Voltage protection level @ $I_n$	$U_p$	-	< 1800 V
Response time	$t_A$	-	< 100 ns
Temporary overvoltage (TOV)	$U_T$	-	1200 V / 0.2 s
Follow current interrupt rating	$I_{fi}$	-	100 A
Earth leakage current		-	< 10 $\mu$ A
<b>Indication</b>			
Display		LED status per MOV, phase fuse monitoring by LED dimming	
External alarm		Active alarm standard	
Display / Alarm function		Power fail safe, thermal overload, SPDT voltage free contact	
Alarm isolation		4 kV	
<b>Mechanical Specifications</b>			
Operating temperature		-40 to +70 °C	-40 to +70 °C
Humidity Range		5 to 95 % non-condensing	5 to 95 % non-condensing
Terminal capacity – power		2.5 – 16 mm <sup>2</sup>	2.5 – 16 mm <sup>2</sup>
Terminal capacity – alarms		0.5 – 2.5 mm <sup>2</sup>	0.5 – 2.5 mm <sup>2</sup>
Terminal screw torque – power		2.0 Nm	2.0 Nm
Terminal screw torque – alarm		0.5 Nm	0.5 Nm
Environmental / Location		IP 20 / Indoors	IP 20 / Indoors
Dimensional Drawing		see Dimensions	see Dimensions
Device width		80 mm	80 mm
Mounting		TS35 DIN rail / Panel mount (optional)	TS35 DIN rail / Panel mount (optional)
Enclosure / Colour		Metal / Black	Metal / Black
<b>Standards</b>			
IEC 61643-11:2011		SPD connected to low-voltage power systems - Type 1+2	
AS/NZS 1768:2007		A.C. power system SPD - Cat C, B	
UL 1449 3 <sup>rd</sup> edition		Low voltage SPD - Type 2	
IEEE 62.41.2:2002		Low voltage SPD - Cat B	
<b>Shipping</b>			
Weight		800 g	800 g
Customs Tariff		85354010	85354010