# **Monitoring Technique**

# VARIMETER Thermistor Motor Protection Relay IL 9163, SL 9163





#### **Function Diagram**



#### **Circuit Diagram** A1 P1 P2 A1 P1 P2 A2 A2 X1 Х2 I A2 <u>A1</u> I A1 A2 P2 P1 I P2 P1 Х2 X1 12 12 14 11 14 22 22 24 21 24 22 12 12 21 14 11 24 21 14 11 24 M7559 b M7558 c IL 9163.12, IL 9163.12/100,

SL 9163.12

SL 9163.12/100

- According to IEC/EN 60 255-1 •
- Monitoring of: •
  - overtemperature
  - broken wire detection in sensor circuit
- 1 input for 1 to 6 PTC-resistors
- With manual reset variant /100
- Optionally with button for reset and test function
- Remote reset on A1/A2 (NC contact) or
- X1/X2 (NO contact)
- Closed circuit operation ٠ •
  - LED indicator for
  - auxiliary supply
  - state of contact
- 2 changover contacts
- Devices available in 2 enclosure versions:
- IL 9163: depth 58 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43 880
- SL 9163: depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- · Width 35 mm

### **Approvals and Markings**



#### Applications

To protect against thermal overload of motors caused by high switching frequency, heavy duty starting, phase failure on one phase, bad cooling, high ambient temperature.

#### Function

If one of the sensors in the Measuring Circuit reaches the response temperature (or broken wire is detected), the device indicates failure. This failure is stored in the device /100 even if the temperature goes back to normal. The unit can be resetted by pressing the Test/Reset button, by bridging X1/X2 for a short moment or by disconnecting the auxiliary supply for a short time.

Test/Reset button:

Besides the reset function this button provides in normal operation a test facility. The unit indicates fault as long as the button is activated.

#### Indicators

green LED: red LED:	on, when auxiliary supply connected on, when overtemperature or broken wire is detected

## Notes

The unit with AC/DC 24 V has no galvanic separation between auxiliary supply (A1/A2) and measuring input (P1, P2), and therefore it should only be used for battery powerd systems or with safety transformers according to IEC/EN 60 742.

Technical Data			Technical Data		
Measuring Circuit			Housing:	Thermoplastic with V0 behaviour	
Temperature sensors:	PTC-Resistor accor	ding to	Vibration resistance:	according to UL subject 94 Amplitude 0.35 mm,	
No. of sensors:	1 6 in series	DIN 44081/082	Climate resistance:	frequency 10 55 Hz,IEC/EN 60 068-2-6 20 / 060 / 04 IEC/EN 60 068-1	
Response value:	3.2 3.8 kΩ		Terminal designation:	EN 50 005	
Release value:	1.5 1.8 kΩ		Wire connection:	2 x 2.5 mm <sup>2</sup> solid or	
circuit:	< 5 mW (at B = 1.5	kO)		2 x 1.5 mm <sup>2</sup> stranded terruled DIN 46 228-1/-2/-3/-4	
Broken wire detection:	> 3.1 kΩ	(32)	Wire fixing:	Flat terminals with self-lifting	
Measuring voltage:	$\leq$ 2 V (at R = 1.5 k $\Omega$	)	-	clamping piece IEC/EN 60 999-1	
Measuring current:	$\leq$ 1 mA (at R = 1.5 k	(Ω)	Fixing torque:		
Current when short circuit	DC approx. 9 v		Weight	DIN Tall IEC/EN 60 7 15	
on input:	DC approx. 1.1 mA		IL 9163:	150 g	
A 111 OF 11			SL 9163:	200 g	
Auxiliary Circuit			Dimensions		
Auxiliary voltage U <sub>H</sub> :	AC/DC 24 V		Milable on the South Annual Annual		
Voltage range:	AC 110, 230, 400 V	50 / 60 HZ		35 x 90 x 58 mm	
at 10 % residual ripple:	DC 0.9 1.25 U		SL 9163:	35 x 90 x 98 mm	
at 48 % residual ripple:	DC 0.9 1.1 U <sub>H</sub>				
Nominal consumption:	AC: 1.5 VA		Standard Type		
Nominal frequency:	50 / 60 Hz		IL 9163.12 AC 230 V 50 / 60	Hz	
Frequency range:	45 65 Hz		Article number:	0049222	
Max. bridging time on	ann 10 ma		<ul> <li>Auxiliary voltage O<sub>H</sub>:</li> <li>Automatic reset</li> </ul>	AC 230 V	
Operate delay:	< 40  ms		• Width:	35 mm	
Release delay:	< 100 ms				
Control input (X1/X2)			SL 9163.12 AC 230 V 50 / 60 Article number:	Hz 0054752	
			<ul> <li>Auxiliary voltage U<sub>H</sub>:</li> </ul>	AC 230 V	
Function:	Remote reset with N (voltage free)	IO contact	<ul><li>Automatic reset</li><li>Width:</li></ul>	35 mm	
Remark:	This input is not gal	vanic separated from			
	the second second second DM				
	measuring input P1	/P2	Variant		
Output	measuring input P1	/P2	Variant IL 9163.12/100:	2 changeover contacts with manual reset	
Output	measuring input P1	/P2	Variant IL 9163.12/100: Ordering example for variant	2 changeover contacts with manual reset	
Output Contacts IL/SL 9163.12:	measuring input P1,	/P2	Variant IL 9163.12/100: Ordering example for variant	2 changeover contacts with manual reset	
Output Contacts IL/SL 9163.12: Thermal current I <sub>m</sub> :	2 changeover conta	/P2 cts	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230	2 changeover contacts with manual reset : $\underline{V} = \frac{50 / 60 \text{ Hz}}{2}$	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15	measuring input P1, 2 changeover conta 5 A	/P2 	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 /           AC 230	2 changeover contacts with manual reset	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact:	2 changeover conta 5 A 3 A / AC 230 V	/P2 cts IEC/EN 60 947-5-1	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230	2 changeover contacts with manual reset <u>V 50 / 60 Hz</u> Nominal frequency Auxiliary voltage	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact: NC contact:	2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 /	2 changeover contacts with manual reset <u>V 50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required	
Output Contacts IL/SL 9163.12: Thermal current I <sub>m</sub> : Switching capacity to AC 15 NO contact: NC contact: Electrical life	2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230	2 changeover contacts with manual reset V <u>50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required Ture	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact: NC contact: Electrical life to AC 15 at 1 A, AC 230 V: to AC 15 at 5 A, AC 230 V:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\ge 5 \times 10^5$ switching of $\ge 1.5 \times 10^5$ switching	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230	2 changeover contacts with manual reset 	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact: NC contact: Electrical life to AC 15 at 1 A, AC 230 V: to AC 15 at 5 A, AC 230 V: Short-circuit strength	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230	2 changeover contacts with manual reset	
Output         Contacts         IL/SL 9163.12:         Thermal current Im:         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching 4 AgL	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1	Variant IL 9163.12/100: Ordering example for variant IL 9163 .12 / AC 230 IL 9163 .12 / AC 230 Application Example	2 changeover contacts with manual reset	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact: NC contact: Electrical life to AC 15 at 1 A, AC 230 V: to AC 15 at 5 A, AC 230 V: Short-circuit strength max. fuse rating: Mechanical life:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of	/P2 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 IL 9163 _12 / AC 230 Application Example I	2 changeover contacts with manual reset 	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact: NC contact: Electrical life to AC 15 at 1 A, AC 230 V: to AC 15 at 5 A, AC 230 V: Short-circuit strength max. fuse rating: Mechanical life: General Data	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of	/P2 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230           IL 9163         .12 / AC 230           Application Example            I	2 changeover contacts with manual reset	
Output Contacts IL/SL 9163.12: Thermal current I <sub>th</sub> : Switching capacity to AC 15 NO contact: NC contact: Electrical life to AC 15 at 1 A, AC 230 V: to AC 15 at 5 A, AC 230 V: Short-circuit strength max. fuse rating: Mechanical life: General Data	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles cycles IEC/EN 60 947-5-1 cycles	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230           IL 9163         .12 / AC 230           Application Example            IL 9163         .12 / AC 230	2 changeover contacts with manual reset V 50 / 60 Hz Nominal frequency Auxiliary voltage Variant, if required Contacts Type	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\ge 5 \times 10^5$ switching of $\ge 1.5 \times 10^5$ switching of 4 AgL $\ge 1 \times 10^8$ switching of Continuous operation $= 20 + 60^{\circ}C$	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230           IL 9163         .12 / AC 230           Application Example            L	2 changeover contacts with manual reset	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $\sim 20 \dots + 60^{\circ}$ C	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles	Variant           IL 9163.12/100:           Ordering example for variant           IL 9163         .12 / AC 230           Application Example           L           N	2 changeover contacts with manual reset V <u>50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required Contacts Type	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 5 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         Operating mode:         Temperature range:         Clearance and creepage         distances	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^\circ$ C	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles on	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 Application Example L N	2 changeover contacts with manual reset V <u>50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required Contacts Type	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>th</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vo         noll/time degree:	measuring input P1/ 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}C$	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 Application Example	2 changeover contacts with manual reset V <u>50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required Contacts Type Al A2 0 11 0 12 IL9163 SI9163 0 14 SI9163 0 14	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>th</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage voltage voltage voltage voltage         pollution degree:         EMC	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}C$ Itage / 4 kV / 2	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 Application Example	2 changeover contacts with manual reset	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vor         pollution degree:         EMC         Electrostatic discharge:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}$ C Itage / 4 kV / 2 8 kV (air)	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles Discrete for the second	Variant IL 9163.12/100: Ordering example for variant IL 9163 .12 / AC 230 Application Example	2 changeover contacts with manual reset	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vo         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Eost transitor:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $\sim 20 \dots + 60^{\circ}$ C Itage / 4 kV / 2 8 kV (air) 10 V / m	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles Discrete for the second	Variant IL 9163.12/100: Ordering example for variant IL 9163 .12 / AC 230 Application Example	2 changeover contacts with manual reset $ \frac{V  50 / 60 \text{ Hz}}{\text{Nominal frequency}} \\ \text{Auxiliary voltage} \\ \text{Variant, if required} \\ \text{Contacts} \\ \text{Type} \\ \hline \\ 11 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12$	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vor         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Fast transients:         Surge voltages	measuring input P1/ 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}$ C Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles cycles IEC/EN 60 947-5-1 cycles IEC/EN 61 000-4-2 IEC/EN 61 000-4-3 IEC/EN 61 000-4-4	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 Application Example	2 changeover contacts with manual reset V <u>50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required Contacts Type Variant, if required L9163 014 SL9163 014 SL9163 021 022 024 Nominal frequency Auxiliary voltage Variant, if required Contacts Type	
Output         Contacts         IL/SL 9163.12:         Thermal current In:         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Fast transients:         Surge voltages         between	measuring input P1/ 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}C$ Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 IEC/EN 61 000-4-3 IEC/EN 61 000-4-3 IEC/EN 61 000-4-4	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 Application Example	2 changeover contacts with manual reset V <u>50 / 60 Hz</u> Nominal frequency Auxiliary voltage Variant, if required Contacts Type Variant, if required Contacts Type L9163 L916 L9163 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916 L916	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>th</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage voltage voltage voltage         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Fast transients:         Surge voltages         between         wires for power supply:	measuring input P1/ 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}C$ Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV 2 kV	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles DN IEC/EN 60 947-5-1 cycles DN IEC/EN 61 000-4-2 IEC/EN 61 000-4-3 IEC/EN 61 000-4-5	Variant IL 9163.12/100: Ordering example for variant IL 9163 _12 / AC 230 Application Example L N TEST/RES	2 changeover contacts with manual reset V 50 / 60 Hz Nominal frequency Auxiliary voltage Variant, if required Contacts Type 11 011 012 L9163 014 SL9163 021 022 024 M6655_c	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vor         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Fast transients:         Surge voltages         between         wires for power supply:         between wire and ground:         HE-wire quided	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $\sim 20 \dots + 60^{\circ}C$ Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV 2 kV 4 kV 10 V	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles Discrete for the second	Variant IL 9163.12/100: Ordering example for variant IL 9163 .12 / AC 230 Application Example L N TEST/RES	2 changeover contacts with manual reset	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vor         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Fast transients:         Surge voltages         between         wires for power supply:         between wire and ground:         HF-wire guided         Interference suppressions:	measuring input P1, 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $\sim 20 \dots + 60^{\circ}$ C Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV 2 kV 4 kV 10 V Limit value class B	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles Discrete for the second s	Variant IL 9163.12/100: Ordering example for variant IL 9163 .12 / AC 230 Application Example L N TEST/RES	2 changeover contacts with manual reset $ \frac{V  50 / 60 \text{ Hz}}{\text{Nominal frequency}} \\ \text{Auxiliary voltage} \\ \text{Variant, if required} \\ \text{Contacts} \\ \text{Type} \\ \hline                                   $	
Output         Contacts         IL/SL 9163.12:         Thermal current I <sub>m</sub> :         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         Ceneral Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage vor         pollution degree:         EMC         Electrostatic discharge:         HF irradiation:         Fast transients:         Surge voltages         between         wires for power supply:         between wire and ground:         HF-wire guided         Interference suppressions:         Degree of protection	measuring input P1/ 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $\sim 20 \dots + 60^{\circ}$ C Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV 2 kV 4 kV 10 V Limit value class B	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles g cycles IEC/EN 60 947-5-1 cycles DN IEC/EN 60 947-5-1 cycles DN IEC/EN 61 000-4-2 IEC/EN 61 000-4-3 IEC/EN 61 000-4-5 IEC/EN 61 000-4-5 IEC/EN 61 000-4-5 IEC/EN 16 000-4-6 EN 55 011	Variant IL 9163.12/100: Ordering example for variant IL 9163 .12 / AC 230 Application Example L N TEST/RES	2 changeover contacts with manual reset $ \frac{V  50 / 60 \text{ Hz}}{\text{Nominal frequency}} \\ \text{Auxiliary voltage} \\ \text{Variant, if required} \\ \text{Contacts} \\ \text{Type} \\ \hline \\ 11 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12$	
Output         Contacts         IL/SL 9163.12:         Thermal current In:         Switching capacity         to AC 15         NO contact:         NC contact:         Electrical life         to AC 15 at 1 A, AC 230 V:         to AC 15 at 5 A, AC 230 V:         Short-circuit strength         max. fuse rating:         Mechanical life:         General Data         Operating mode:         Temperature range:         Clearance and creepage         distances         rated rated impulse voltage volta	measuring input P1/ 2 changeover conta 5 A 3 A / AC 230 V 1 A / AC 230 V $\geq 5 \times 10^5$ switching of $\geq 1.5 \times 10^5$ switching of 4 AgL $\geq 1 \times 10^8$ switching of Continuous operation $-20 \dots + 60^{\circ}C$ Itage / 4 kV / 2 8 kV (air) 10 V / m 4 kV 2 kV 4 kV 10 V Limit value class B IP 40 IP 40	/P2 cts IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 60 947-5-1 cycles IEC/EN 61 000-4-2 IEC/EN 61 000-4-2 IEC/EN 61 000-4-3 IEC/EN 61 000-4-3 IEC/EN 61 000-4-5 IEC/EN 61 000-4-5 IEC/EN 61 000-4-5 IEC/EN 60 529 IEC/EN 60 529	Variant         IL 9163.12/100:         Ordering example for variant         IL 9163 .12 / AC 230         Application Example         L         N         Image: state	2 changeover contacts with manual reset $ \frac{V  50 / 60 \text{ Hz}}{\text{Nominal frequency}} \\ \text{Auxiliary voltage} \\ \text{Variant, if required} \\ \text{Contacts} \\ \text{Type} \\ \hline \\ 11 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12$	

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