

Monitoring relays Ex9JP



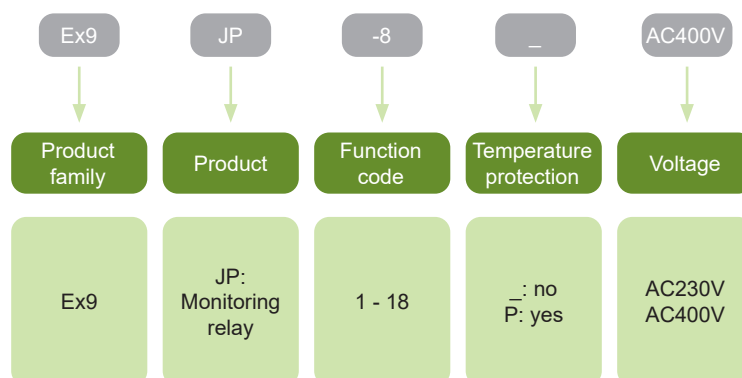
- 3-phase 3-wire or 3-phase 4-wire (with possibility of connection also as 1 or 2 phase)
- Protection against
 - overvoltage
 - undervoltage
 - unbalanced phases
 - phase sequence
 - phase failure
 - overheat
 - load side phase failure
- Delay up to 10 s
- Adjustable or fixed parameters

Monitoring relays Ex9JP are used to provide protection to circuits connected to the power grid. These relays can provide protection against overvoltage, undervoltage, unbalanced phases, phase sequence and phase failure by analyzing voltage on each phase. Temperature control by PTC thermistor in loaded device is optional.

These monitoring relays are provided in various combinations of protective functionalities with fixed or adjustable values.

Common applications are power control systems, air conditioning systems and several motor applications.

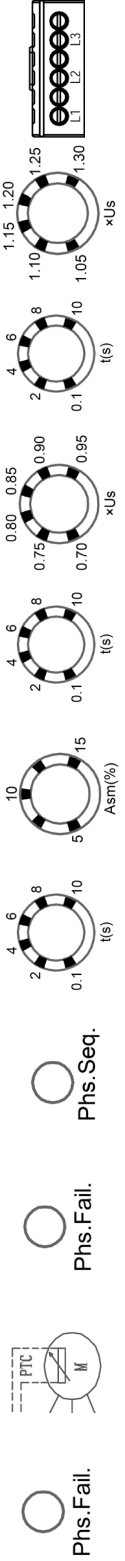
Type Key



Certification marks



Monitoring relays Ex9JP



Ex9JP function codes											
Ex9JP											
Article No.	Type										
110230	Ex9JP-1										
110231	Ex9JP-1P										
110232	Ex9JP-2										
110233	Ex9JP-3										
110234	Ex9JP-4										
110235	Ex9JP-5										
110236	Ex9JP-6										
110237	Ex9JP-6P										
110238	Ex9JP-7										
110239	Ex9JP-7P										
110240	Ex9JP-8										
		3-phase 3-wire									
Load side phase failure protection	-	-	-	-	-	-	-	-	-	-	-
Phase failure protection	■	■	■	■	■	■	■	■	■	■	■
Phase sequence protection	■	■	-	-	-	-	-	■	■	■	■
Unbalanced phases time-delay [s]	-	-	-	-	-	-	-	-	2	2	0.1 - 10
Unbalanced phases protection [%]	-	-	-	-	-	-	-	-	20 %	20 %	5 % - 15 %
Undervoltage time-delay [s]	-	-	-	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10
Undervoltage protection [V]	-	-	-	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	0.8 x U _s	0.8 x U _s
Overvoltage time-delay [s]	-	-	0.1 - 10	-	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	2	2
Overvoltage protection [V]	-	-	(1.05 - 1.3) x U _s	-	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	1.2 x U _s	1.2 x U _s
Connection											

Monitoring relays Ex9JP

Ex9JP function codes

Ex9JP-8P	Ex9JP-9	Ex9JP-10	Ex9JP-11	Ex9JP-12	Ex9JP-13	Ex9JP-13P	Ex9JP-14	Ex9JP-14P	Ex9JP-15	Ex9JP-15P	Ex9JP-16	Ex9JP-16P	Ex9JP-17P	Ex9JP-18
110241	110242	110243	110244	110245	110246	110247	110248	110249	110250	110251	110252	110253	110254	110255
3-phase 3-wire	*4-wire	4-wire*						3-phase 4-wire						3-phase 3-wire
(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	-	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	1.2 x U _s	1.2 x U _s	(1.05 - 1.3) x U _s	(1.05 - 1.3) x U _s	-	-	-	(1.05 - 1.3) x U _s
0.1 - 10	0.1 - 10	-	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	2	2	0.1 - 10	0.1 - 10	-	-	-	2
(0.7 - 0.95) x U _s	-	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	0.8 x U _s	0.8 x U _s	(0.7 - 0.95) x U _s	(0.7 - 0.95) x U _s	-	-	-	(0.7 - 0.95) x U _s
0.1 - 10	-	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	2	2	0.1 - 10	0.1 - 10	-	-	-	2
5 % - 15 %	-	-	-	-	20 %	20 %	5 % - 15 %	5 % - 15 %	5 % - 15 %	5 % - 15 %	-	-	-	20 %
0.1 - 10	-	-	-	-	2	2	0.1 - 10	0.1 - 10	0.1 - 10	0.1 - 10	-	-	-	2
■	-	-	-	■	■	■	■	■	■	■	■	■	-	■
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
■	-	-	-	-	-	■	-	■	-	■	-	■	■	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	■

* possibility of connection as 3, 2 or 1 phase (see wiring diagrams)

Monitoring relays Ex9JP

Monitoring relays



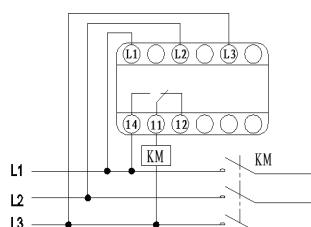
Connection	PTC protection	Article No.	Type	Packing
3-phase, 3-wire	-	110230	Ex9JP-1 AC400V	1/90
3-phase, 3-wire	yes	110231	Ex9JP-1P AC400V	1/90
3-phase, 3-wire	-	110232	Ex9JP-2 AC400V	1/90
3-phase, 3-wire	-	110233	Ex9JP-3 AC400V	1/90
3-phase, 3-wire	-	110234	Ex9JP-4 AC400V	1/90
3-phase, 3-wire	-	110235	Ex9JP-5 AC400V	1/90
3-phase, 3-wire	-	110236	Ex9JP-6 AC400V	1/90
3-phase, 3-wire	yes	110237	Ex9JP-6P AC400V	1/90
3-phase, 3-wire	-	110238	Ex9JP-7 AC400V	1/90
3-phase, 3-wire	yes	110239	Ex9JP-7P AC400V	1/90
3-phase, 3-wire	-	110240	Ex9JP-8 AC400V	1/90
3-phase, 3-wire	yes	110241	Ex9JP-8P AC400V	1/90
4-wire*	-	110242	Ex9JP-9 AC230V	1/90
4-wire*	-	110243	Ex9JP-10 AC230V	1/90
4-wire*	-	110244	Ex9JP-11 AC230V	1/90
3-phase, 4-wire	-	110245	Ex9JP-12 AC230V	1/90
3-phase, 4-wire	-	110246	Ex9JP-13 AC230V	1/90
3-phase, 4-wire	yes	110247	Ex9JP-13P AC230V	1/90
3-phase, 4-wire	-	110248	Ex9JP-14 AC230V	1/90
3-phase, 4-wire	yes	110249	Ex9JP-14P AC230V	1/90
3-phase, 4-wire	-	110250	Ex9JP-15 AC230V	1/90
3-phase, 4-wire	yes	110251	Ex9JP-15P AC230V	1/90
3-phase, 4-wire	-	110252	Ex9JP-16 AC230V	1/90
3-phase, 4-wire	yes	110253	Ex9JP-16P AC230V	1/90
3-phase, 3-wire	yes	110254	Ex9JP-17P AC400V	1/90
3-phase, 3-wire	-	110255	Ex9JP-18 AC400V	1/90

* possibility of connection as 3, 2 or 1 phase (see wiring diagrams)

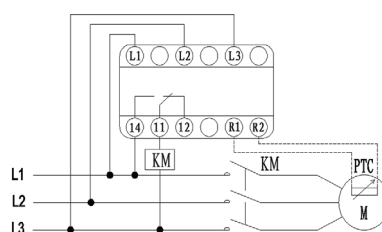
Monitoring relays Ex9JP

Monitoring relays

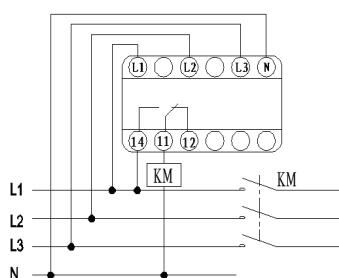
Wiring diagrams



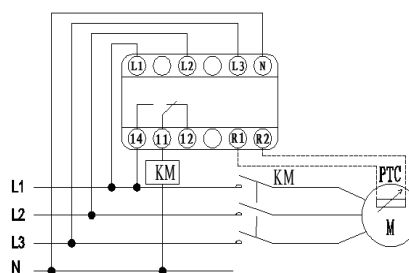
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Ex9JP-2
Ex9JP-3
Ex9JP-4
Ex9JP-5
Ex9JP-6
Ex9JP-7
Ex9JP-8



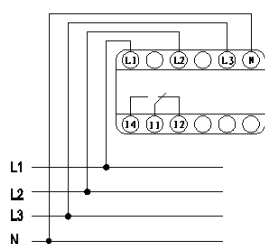
Ex9JP-1P
Ex9JP-6P
Ex9JP-7P
Ex9JP-8P
Ex9JP-17P



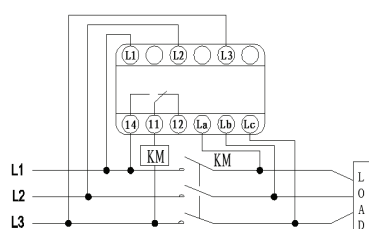
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Ex9JP-13
Ex9JP-14
Ex9JP-15
Ex9JP-16



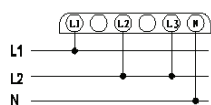
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Ex9JP-14P
Ex9JP-15P
Ex9JP-16P



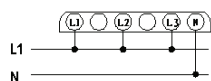
Ex9JP-9
Ex9JP-10
Ex9JP-11



Ex9JP-18



Two phase



One phase

Technical Data Ex9JP

Monitoring control relays

General functionalities

Indication lights help users to know the status of power grid
Low operating noise level
Temperature protection via PTC thermistor for usage on motor protective applications

Electrical parameters

Tested according to	IEC / EN 60947-5-1
Rated operational voltage U_e	230/400 V AC
Rated operational frequency	50/60 Hz
Power consumption	< 3 W
Rated insulation voltage U_i	415 V
Rated impulse withstand voltage U_{imp}	4 kV
Contacts	1CO
Contact conventional heating current I_{th}	3 A
Rated contact current 240V AC	3 A, $\cos\phi = 1$ 0.75 A, $\cos\phi = 0.4$
Usage category	AC-15
Electrical service life	100 000 operating cycles
PTC fault detection resistance value	$\geq 1.5 \text{ k}\Omega$
PTC fault reset resistance value	$\leq 500 \Omega$
Electrostatic discharge immunity	8 kV $\pm 10\%$ (air discharge)
Radiated electromagnetic field immunity	Test electric field strength: 10 V/m $\pm 10\%$
Fast transient immunity	For power line: 2 kV $\pm 10\%$
Surge (impact) immunity	Open circuit test voltage: 1 kV $\pm 10\%$ (wire to wire)

Mechanical parameters

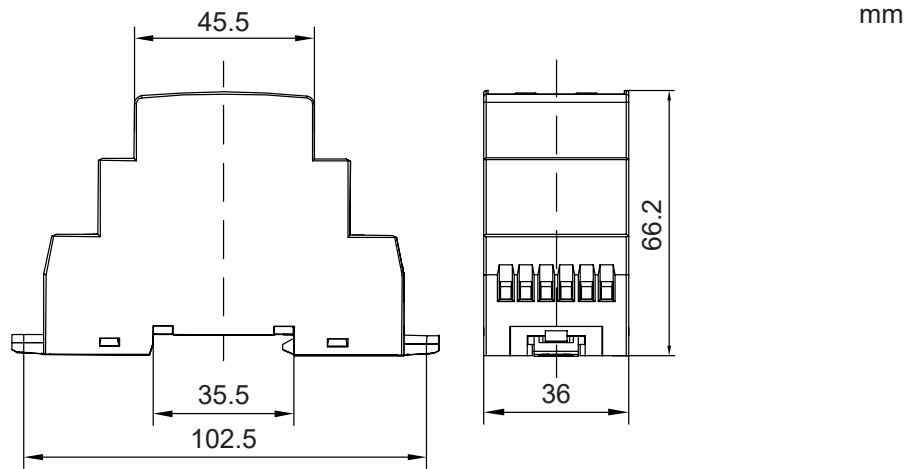
Device width	36 mm (2MU)
Device height	91 mm
Device depth	66.2 mm
Mounting	easy fastening onto 35 mm device rail (DIN)
Degree of protection	IP20
Terminals	M2.5 screws
Terminal capacity	0.5 — 1 mm ²
Fastening torque of terminals	0.5 Nm
Mechanical service life	1 000 000 operating cycles
Pollution degree	3
Installation class	II
Weight	0.181 kg
Operating ambient temperature	-5 — +40° C
Storage ambient temperature	-25 — +55° C

NOTE: Detailed function information of each type of Ex9JP can be found on selection pages 2 and 3

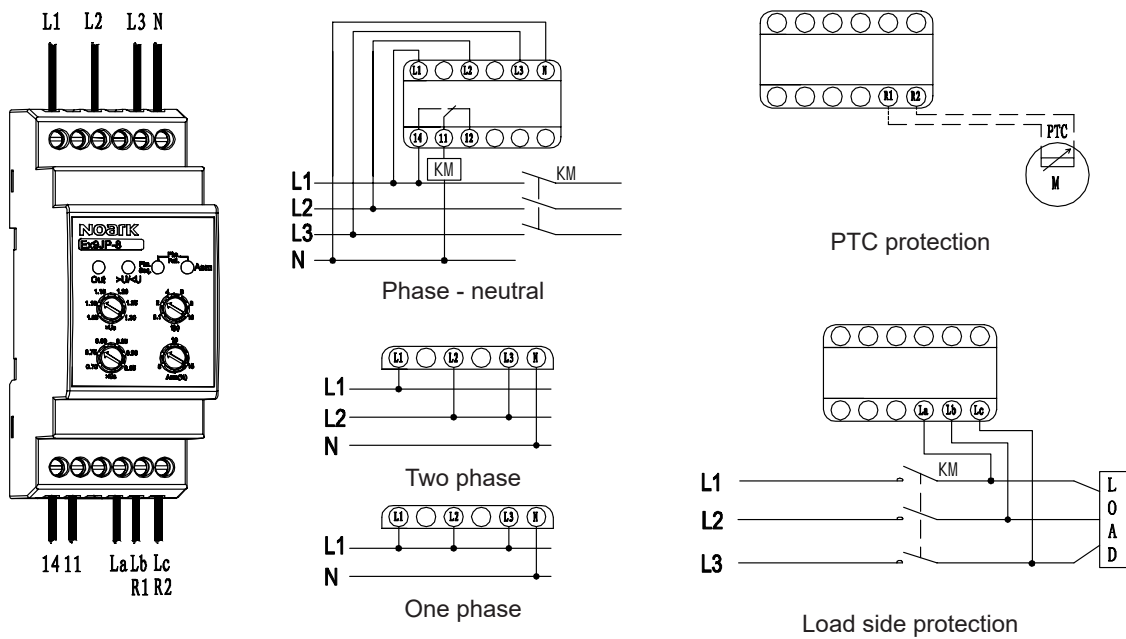
Technical Data Ex9JP

Monitoring control relays

Dimensions



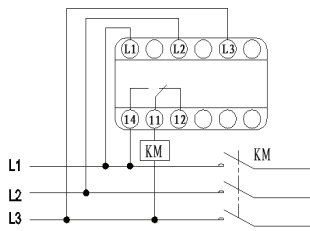
Connections



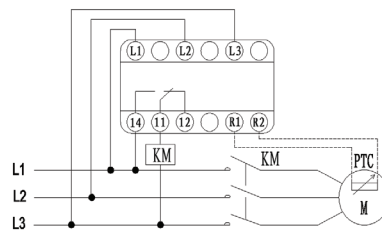
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Monitoring control relays

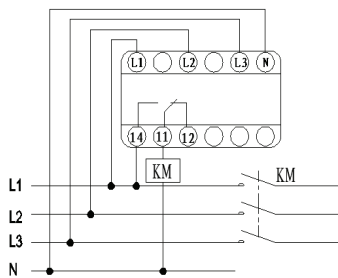
Wiring diagrams



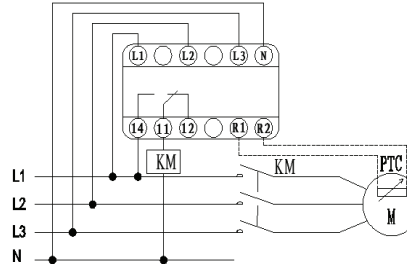
Ex9JP-1
Ex9JP-2
Ex9JP-3
Ex9JP-4
Ex9JP-5
Ex9JP-6
Ex9JP-7
Ex9JP-8



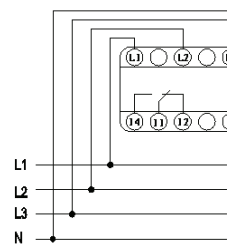
Ex9JP-1P
Ex9JP-6P
Ex9JP-7P
Ex9JP-8P
Ex9JP-17P



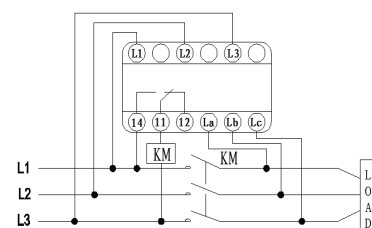
Ex9JP-12
Ex9JP-13
Ex9JP-14
Ex9JP-15
Ex9JP-16



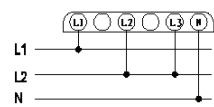
Ex9JP-13P
Ex9JP-14P
Ex9JP-15P
Ex9JP-16P



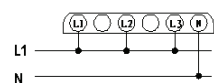
Ex9JP-9
Ex9JP-10
Ex9JP-11



Ex9JP-18



Two phase



One phase