# **RM35BA10**

Harmony, Modular 3-phase and 1-phase pump control relay, 5 A, 1 CO, 208...480 V AC





#### Main

Range of Product Product or Component Type Relay Type Pump control relay Product Specific Application Relay mame RM35BA Relay monitored parameters Phase sequence on 3-phase supply Phase failure on 3-phase supply Phase failure on 3-phase supply Phase failure on 3-phase supply Phase on terminal Y2 Adjustable 160 s, +/- 10 % Ti on energisation Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching current Maximum power consumption in VA  Measurement range  110 A AC  Utilisation category  AC-12 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-13 IEC 60947-5-1		
Relay Type Pump control relays  Product Specific Application  Relay name RM35BA  Relay monitored parameters Phase sequence on 3-phase supply Phase failure on 3-phase supply Phase failure on 3-phase supply Phase failure on 3-phase supply  Time delay type Adjustable 160 s, +/- 10 % Ti on energisation Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching current  Maximum switching 10 mA 5 V DC  current  Maximum power consumption in VA  Measurement range 110 A AC  Utilisation category AC-12 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1	Range of Product	Harmony Control Relays
Product Specific Application  Relay name  RM35BA  Relay monitored parameters  Phase sequence on 3-phase supply Phase failure on 3-phase supply  Time delay type  Adjustable 160 s, +/- 10 % Ti on energisation Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching current  Maximum switching current  Maximum power consumption in VA  Measurement range  110 A AC  Utilisation category  AC-12 IEC 60947-5-1 AC-15 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1	•	Pump control relay
Relay name RM35BA  Relay monitored Overcurrent and undercurrent control Phase sequence on 3-phase supply Phase failure on 3-phase supply  Time delay type Adjustable 160 s, +/- 10 % Ti on energisation Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching 10 mA 5 V DC  Current Maximum switching current  Maximum power consumption in VA  Measurement range 110 A AC  Utilisation category AC-12 IEC 60947-5-1 AC-13 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1  DC-12 IEC 60947-5-1  DC-12 IEC 60947-5-1	Relay Type	Pump control relays
Relay monitored parameters  Overcurrent and undercurrent control Phase sequence on 3-phase supply Phase failure on 3-phase supply  Time delay type  Adjustable 160 s, +/- 10 % Ti on energisation Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching current  Maximum switching current  Maximum power consumption in VA  Measurement range  110 A AC  Utilisation category  AC-12 IEC 60947-5-1 AC-13 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1	•	For 3-phase and single-phase pump
Phase sequence on 3-phase supply Phase failure on 3-phase supply  Time delay type  Adjustable 160 s, +/- 10 % Ti on energisation Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching current  Maximum switching current  Maximum power consumption in VA  Measurement range  110 A AC  Utilisation category  AC-12 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1	Relay name	RM35BA
Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the threshold  Switching capacity in VA  Minimum switching current  Maximum switching current  Maximum power consumption in VA  Measurement range  110 A AC  Utilisation category  AC-12 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1 DC-12 IEC 60947-5-1	•	Phase sequence on 3-phase supply
VA         Minimum switching current         10 mA 5 V DC           Maximum switching current         5 A AC/DC           Maximum power consumption in VA         5 VA AC           Measurement range         110 A AC           Utilisation category         AC-12 IEC 60947-5-1	Time delay type	Fixed 0.3 s reset on terminal Y2 Adjustable 0.110 s, +/- 10 % Tt on crossing the
Current  Maximum switching current  Maximum power consumption in VA  Measurement range  110 A AC  Utilisation category  AC-12 IEC 60947-5-1 AC-13 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1	. ,	1250 VA
Current  Maximum power consumption in VA  Measurement range 110 A AC  Utilisation category AC-12 IEC 60947-5-1 AC-13 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1	•	10 mA 5 V DC
Consumption in VA  Measurement range 110 A AC  Utilisation category AC-12 IEC 60947-5-1	· ·	5 A AC/DC
Utilisation category AC-12 IEC 60947-5-1 AC-13 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1		5 VA AC
AC-13 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1	Measurement range	110 A AC
	Utilisation category	AC-13 IEC 60947-5-1 AC-14 IEC 60947-5-1 AC-15 IEC 60947-5-1 DC-12 IEC 60947-5-1

#### Complementary

Reset time	2000 ms	
Maximum switching voltage	250 V AC/DC	
[Un] rated nominal voltage	208480 V AC 3 phase 230 V AC single phase	
[Un] rated nominal voltage	208480 V AC 3 phase 230 V AC 1 phase	
Supply voltage limits	183528 V AC	
Operating voltage tolerance	- 15 % + 10 % Un	
Resistance across terminals	0.01 Ohm E1-L2 terminals	
Width	1.38 in (35 mm)	
Output contacts	1 C/O	
Nominal output current	5 A	
Maximum measuring cycle	140 ms as true rms value	
Delay at power up	0.5 s	
Hysteresis	5 % threshold	
Measurement accuracy	+/- 10 % of the full scale value	
Repeat accuracy	+/- 1 % input and measurement circuit +/- 1 % time delay	
Measurement error	1 % by volt over the whole range +/- 0.05 %/°C	
Response time	< 300 ms (in the event of a fault)	

Overload input current	11 A permanent at 25 °C E1-L2 terminals 50 A non repetitive < 1 s at 25 °C E1-L2 terminals
Marking	CE : EMC 89/336/EEC CE : 73/23/EEC
Overvoltage category	III IEC 60664-1
Insulation resistance	<ul> <li>&gt; 500 MOhm 500 V DC between supply and relay output 60255-5</li> <li>&gt; 500 MOhm 500 V DC between measurement and relay output 60664-1</li> <li>&gt; 1 MOhm 500 V DC between supply and measurement 60255-5</li> <li>&gt; 500 MOhm 500 V DC between supply and relay output 60664-1</li> <li>&gt; 500 MOhm 500 V DC between measurement and relay output 60255-5</li> <li>&gt; 1 MOhm 500 V DC between supply and measurement 60664-1</li> </ul>
[Ui] rated insulation voltage	400 V IEC 60664-1
Supply frequency	50/60 Hz +/- 10 %
Operating position	Any position
Connections - terminals	Screw terminals, 1 x 0.51 x 4 mm² AWG 20AWG 11) solid without cable end Screw terminals, 2 x 0.52 x 2.5 mm² AWG 20AWG 14) solid without cable end Screw terminals, 1 x 0.21 x 2.5 mm² AWG 24AWG 12) flexible with cable end Screw terminals, 2 x 0.22 x 1.5 mm² AWG 24AWG 16) flexible with cable end
Tightening torque	5.318.85 lbf.in (0.61 N.m) IEC 60947-1
Housing material	Self-extinguishing plastic
Status LED	1 LED Green power ON 1 LED Yellow fault 1 LED Yellow relay ON
Mounting support	35 mm symmetrical DIN rail conforming to EN/IEC 60715
Electrical durability	100000 cycles
Mechanical durability	30000000 cycles
Operating rate	<= 360 operations/hour full load

## Environment

Immunity to microbreaks	500 ms
Electromagnetic compatibility	Emission standard for industrial environments EN/IEC 61000-6-4 Emission standard for residential, commercial and light-industrial environments EN/IEC 61000-6-3 Immunity for industrial environments NF EN/IEC 61000-6-2
Standards	EN/IEC 60255-6
Product Certifications	C-tick CSA GOST UL GL
Ambient Air Temperature for Storage	-40158 °F (-4070 °C)
Ambient air temperature for operation	-4122 °F (-2050 °C)
Relative humidity	95 % 131 °F (55 °C) IEC 60068-2-30
Vibration resistance	0.35 mm 557.6 Hz)IEC 60068-2-6/IEC 60255-21-1 1 gn 57.6150 Hz)IEC 60068-2-6/IEC 60255-21-1
Shock resistance	15 gn 11 ms IEC 60255-21-1
IP degree of protection	IP20 IEC 60529 terminals) IP30 IEC 60529 casing)
Pollution degree	3 IEC 60664-1
Dielectric strength	2 kV AC 50 Hz shock wave 4 kV)

## Ordering and shipping details

Category	22380 - RELAYS-MEASUREMENT (RM17-RM35)
Discount Schedule	CP2
GTIN	3389119405195
Nbr. of units in pkg.	1
Package weight(Lbs)	4.34 oz (123 g)
Returnability	No
Country of origin	ID

## **Packing Units**

<b>5</b>	
Unit Type of Package 1	PCE
Package 1 Height	3.15 in (8 cm)
Package 1 width	1.81 in (4.6 cm)
Package 1 Length	3.82 in (9.7 cm)
Unit Type of Package 2	S03
Number of Units in Package 2	48
Package 2 Weight	14.39 lb(US) (6.526 kg)
Package 2 Height	11.81 in (30 cm)
Package 2 width	11.81 in (30 cm)
Package 2 Length	15.75 in (40 cm)

## Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)
Mercury free	Yes
RoHS exemption information	€Yes
China RoHS Regulation	☐ China RoHS Declaration
Environmental Disclosure	Product Environmental Profile
Circularity Profile	<sup>™</sup> End Of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

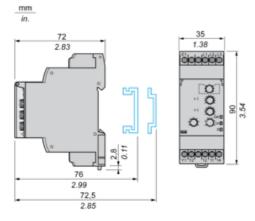
#### Contractual warranty

Contractual warranty		
Warranty	18 months	

# **RM35BA10**

## 3-Phase and Single-Phase Pump Control Relays

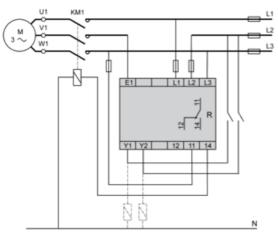
## **Dimensions and Mounting**



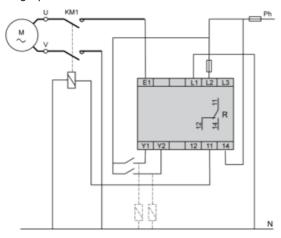
## 3-Phase and Single-Phase Pump Control Relays

## Wiring Diagrams

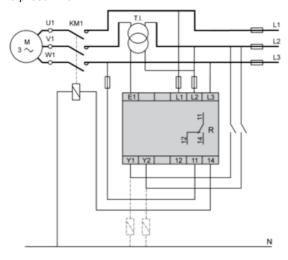
#### 3-phase < 10 A



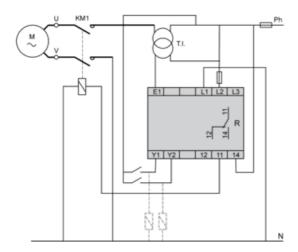
## Single-phase ~ 230 V < 10 A



#### 3-phase > 10 A



Single-phase ~ 230 V > 10 A



**Technical Description** 

#### **Function Diagrams**

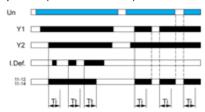
#### Single Control Mode

This mode is designed to control a pump via an external signal. The relay output is closed when the signal is present at Y1 (contact closed). Y2 can be used to reset the relay after a current fault.



#### **Double Control Mode**

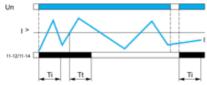
This mode is designed to control a pump via two external control signals (Y1 and Y2). The output relay closes when both input signals are present (Y1 and Y2 closed).



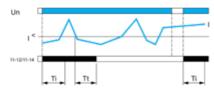
#### **Current Control**

If the control relay is configured for a single-phase supply, it monitors the current consumed by the pump. If the control relay is configured for a 3-phase supply, it monitors the current, phase sequence and phase failure.

#### Overcurrent detection



#### **Undercurrent Detection**



#### Legend

Ti Time delay to inhibit fault monitoring on starting of pump

Tt Time delay in the event of a fault

Un 3-phase or single-phase power supply

I Monitored current

I < Undercurrent threshold

I > Overcurrent threshold

I. Def Presence of a current fault

11-12, 11-14 Output relay connections

Relay status: black color = energized.