KRISHNA

Shree Krishna Controls Pvt. Ltd.

AN ISO 9001 : 2015 COMPANY

7AMI PROTECTOR

3MPI PROTECTOR

COMPRESSOR

6API PROTECTOR

MOTOR

24DN PROTECTOR

5DN PROTECTOR

UNITED REGISTRAR OF SYSTEMS ISO 9001 · UKAS MANAGEMENT SYSTEMS · NABCB

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INTRODUCTION

Shree Krishna Controls Pvt. Ltd., is a part of Krishna group of companies. Krishna group is a professionally run business enterprise with over five decades of steadfast growth. The group is having three companies which are catering to different industries with wide range of applications.

Shree Krishna Controls Pvt. Ltd., established in the year 2005, began its journey under the umbrella of Krishna group of companies with the vision to provide safety & enhance life of various domestic and industrial equipment like air conditioner compressors, refrigerator compressors, water pumps, appliance motors, automotive motors and many more applications like this. With over a decade experience in Electrical device protection business already in the group, Shree Krishna Controls Pvt. Ltd., has superior technical edge to move forward.

Initially with a small manufacturing unit, the company started with a minimal production of Thermal Overload Protector. Slowly & gradually Krishna has become a well-known brand across India. Later with the introduction of latest technology & automation, the production facility & capacity has grown considerably and helped us set our foot prints globally. Moreover with the introduction of different type of Thermal Overload Protectors and Relays, the company has become major supplier to air conditioning & refrigerator compressors, small & major home appliances & automotive industries.

An overview of Shree Krishna Controls Pvt. Ltd

- Shree Krishna Controls Pvt. Ltd. (SKCPL) is a Private Limited company.
- SKCPL is certified for ISO 9001-2015 quality management system.
- SKCPL is manufacturing different type of Thermal Overload Protectors, Current start Relays, PTC Start relays & External Overload Protectors for various applications like Appliance motors, pumps, automotive motors, multi- purpose motors, Air conditioner compressor, Refrigerator Compressor motors of single phase & three phase.
- SKCPL is one among the only three manufacturers of hermetically sealed, Thermal Overload Protectors in the world.
- SKCPL products are approved under UL, CB & CSA.

THE ETERNAL GUARDIAN FOR MOTOR PROTECTION

THERMAL OVERLOAD PROTECTOR

PRODUCTION FACILITY

Shree Krishna Controls Pvt. Ltd., has developed state of the art manufacturing facility which is located at Vasai, a suburb of Mumbai, in India. This facility is sprawled over a vast area and has exhaustive range of different types of Thermal Overload Protectors and Current Relays.

Latest machines, tools, equipment and technologies are manned with the team of specialized & skilled professionals to ensure faster production smoothly and accurately. Our production facility has ISO 9001:2015 quality management system.

Our production facility has close proximity with seaport & airport.

Our production facility is
Certified for ISO 9001:2015 quality management system.

We have representative offices in China, Thailand, USA.

DEVELOPMENT FOCUS

At **"Krishna"**, innovation has got a priority and continuous development is our focus area. This is evident with our diversification from single phase to three phase protection device for air conditioning compressor motor and from small appliance motors to major appliance motors and latest development in protection device for automotive application. The company has established a well-equipped research and development department to ensure innovative and world class quality products. Our qualified and sincere team of R&D professionals having decades of experience in motor protection industry, are located in India and USA. They conduct extensive market research, surveys and studies to understand new ideas and methods for continuous improvement in quality of our products. A continuous and constant efforts are made in product and process innovation to improve the performance of **"Krishna"** brand products.

"Krishna" is committed to provide quality products to its customers and will always strive towards meeting the customers requirement by providing superior technological edge and innovative hi tech products. Our ethical business policy, just in time delivery with zero defects, competitive prices & customer centric approach has helped us in mustering clients from across the globe.

6API SERIES

SINGLE PHASE
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 6API automotive motor protector switches are developed for wide temperature and current range applications which provides consistent performance and good reliability. It works as a sensitive power cut out to protect broad range of applications. The operating principle is simple and effective. The protector works on the basis of current passing through it and heat received from ambient temperature. The electric circuit breaks open when disc temperature reaches to a specified preset temperature and it resets automatically when device cools down to specified safe temperature.

KEY FEATURES

- Inbuilt heater to provide better current sensitivity
- Available with variety of terminal configuration for easy mounting & handling.
- Miniature in Size.
- Customised coding and colour of coding tape can be provided.
- Positive Snap action disc for contact break & make.
- Auto reset type.
- Wide range of current and temperature settings for maximum design flexibility.
- Temperature settings as per customer's specifications.
- Opening (cut off) temperature is constant within ± 5° C.
- Wide selection of lead wire and insulating sleeves.
- Cadmium free contacts

USAGES

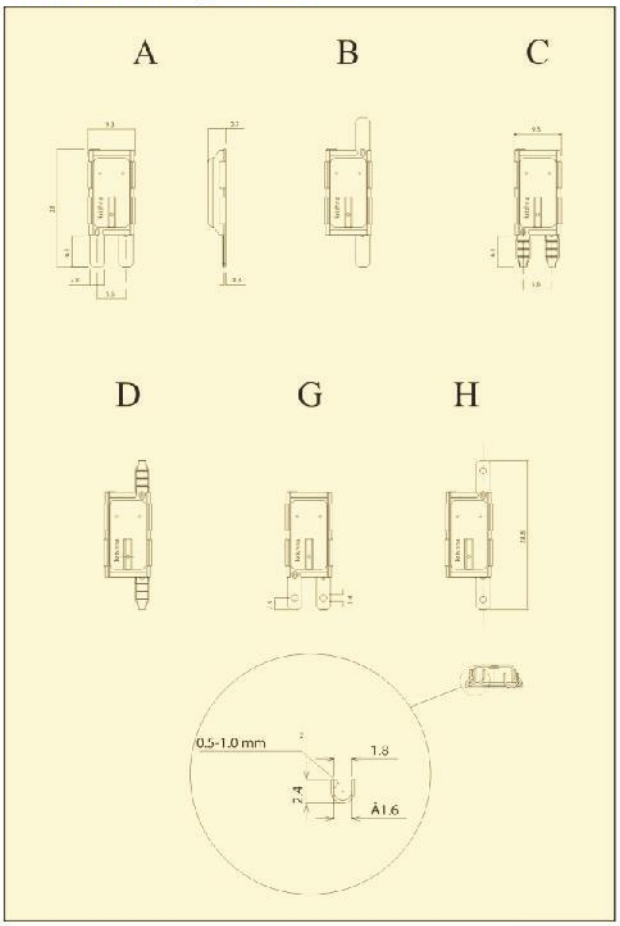
"Krishna" 6API (TOP) switches are used to provide safety to a wide range of automotive application with various temperature and current. Some typical applications are:

- Window Lift Motor
- Adjuster Motor
- And various applications
- Wiper Motor
- Door Locks

QUALITY

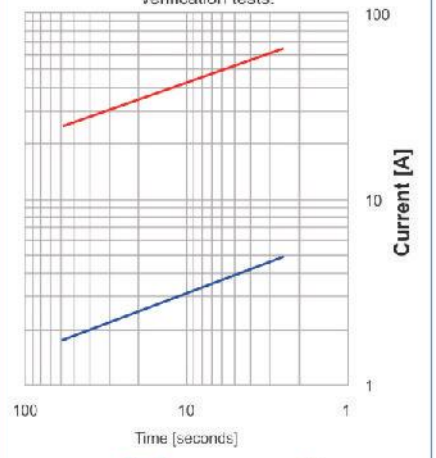
"Krishna" 6API (TOP) switches are automatically assembled, calibrated and rigorously tested in modern, custom designed computerized test equipments with the applications of Statistical Quality Control (SQC) system.

Dimensions (mm)
Terminal configurations



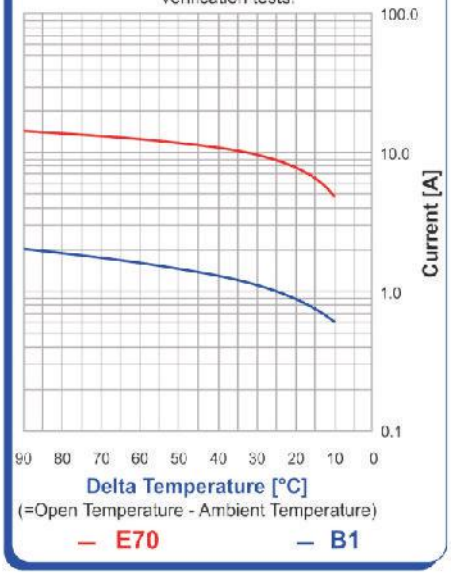
Average First Cycle Tripping Time vs. Current (ambient is 25 °C)

Approx. to be used for selecting samples for verification tests.



Ultimate Trip Current vs. Ambient Temperature (non-circulating air)

Approx. to be used for selecting samples for verification tests.



SPECIFICATIONS

Standard Opening Temperature Range	100 °C to 170 °C
Tolerance on Open Temperature	±5 °C
Peak Temperature (5 min.)	200 °C
Time Check T-ambient 25 °C	4 to 10 seconds depending on current level
Max. ambient temperature	T-open +20 °C
Contact rating	30A / 15 VDC / 30000 cycles
	15A / 30 VDC / 30000 cycles

3MPI SERIES

SINGLE PHASE
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 3MPI Series Single Phase Thermal Overload Protector (TOP) switches are developed for 120 and 250 VAC applications. It operates in wide temperature and current ranges. Integrated heater in combination of thermostat bimetal disc provide accurate trip times under lock rotor condition for maximum protection. It has consistent performance and good reliability. Its features are designed to support anticipated technical protection requirement of next generation AC motors.

KEY FEATURES

- Inbuilt heater to provide better current sensitivity.
- Available with variety of terminal configuration for easy mounting & handling.
- Miniature in Size.
  Customised coding and colour of coding tape can be provided.
- Positive Snap action disc for contact break & make.
- Auto reset type.
  Wide range of current temperature settings for maximum design flexibility.
- Temperature settings as per customer's specifications.
- Opening (cut off) temperature is constant within ± 5° C.
- Wide selection of lead wire and insulating sleeves.
- Cadmium free contacts

USAGES

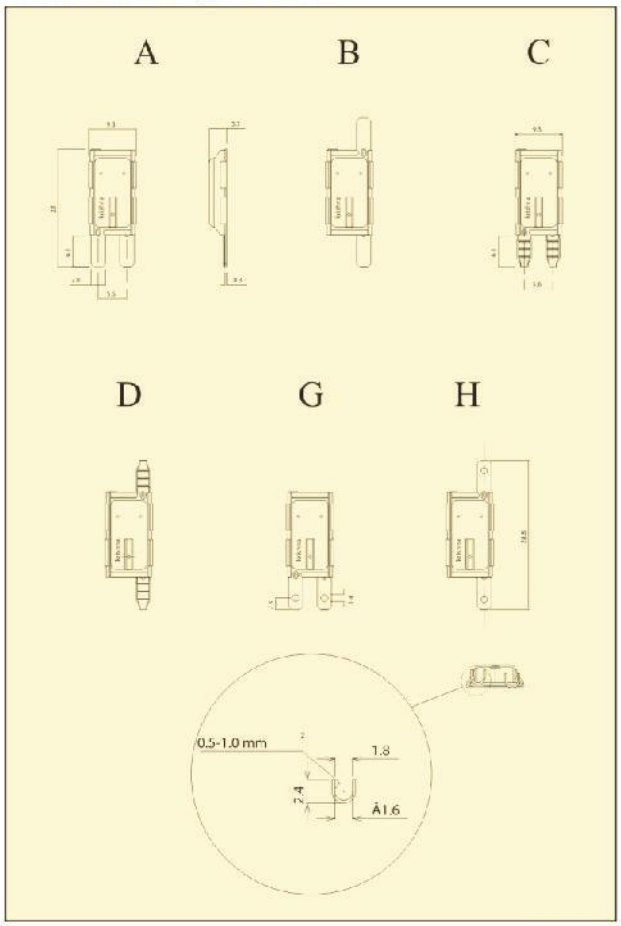
"Krishna" 3MPI (TOP) switches are used to provide safety to a wide range of Domestic and Industrial equipments. A few typical applications are:

- Dryers
- Washing Machine
- Single Phase Electric Motor
- Others as per customers design and applications
- Dish Washers
- Vacuum Cleaner
- Water Pumps
- Toroidal transformer

QUALITY

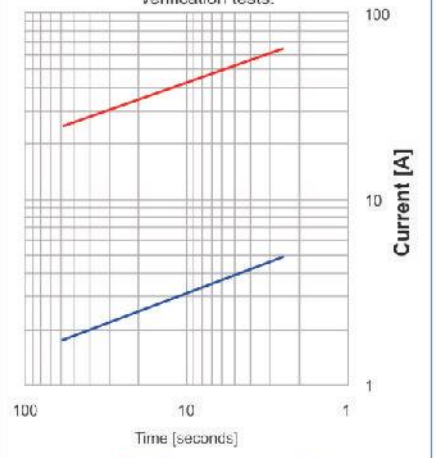
"Krishna" 3MPI (TOP) switches are automatically assembled, calibrated and rigorously tested in modern, custom designed computerized test equipments with the applications of Statistical Quality Control (SQC) system.

Dimensions (mm)
Terminal configurations



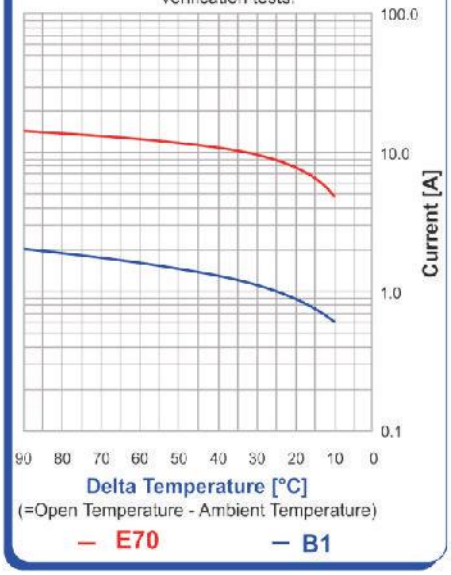
Average First Cycle Tripping Time vs. Current (ambient is 25 °C)

Approx. to be used for selecting samples for verification tests.



Ultimate Trip Current vs. Ambient Temperature (non-circulating air)

Approx. to be used for selecting samples for verification tests.



SPECIFICATIONS	
Standard Opening Temperature Range	80 °C to 170 °C
Tolerance on Open Temperature	±5 °C
Peak Temperature (5 min.)	200 °C
Time Check T-ambient 25 °C	4 to 10 seconds
Max. ambient temperature	T-open +20 °C
Contact rating	27.5A @ cos 1/250 VAC/500 cycles
	18A @ cos 0.6/250 VAC/1000 cycles
	18A @ cos 0.6/120 VAC/15000 cycles

3MPI SERIES (SELF HOLD)

SINGLE PHASE, SELF HOLD
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 3MPI Series Self Hold Single Phase Thermal Overload Protector (TOP) switches are developed for 120 and 250 VAC applications. Due to growing demand for non self re-setting over load protector for motor protection against current fluctuation and overheating. We have developed self hold motor protector by using PTC pill it operates in wide temperature and current ranges than offered by other available protection devices. The main function of PTC pill is to hold the heat until power supply is on, to prevent our protector to re-start automatically. The operating principal of this self hold type protector is excellent. The protector will operate by the current and heat received from the surrounding area. Electrical circuit will break when protector reaches at its pre-set open temperature or by the excess current supply than the specified limit. PTC will not allow the protector to auto reset as it will hold the heat until power supply is continued. When power supply will be switched off, the PTC pill release the heat and protector will re-set automatically at preset desired temperature.

KEY FEATURES

- Provide significant level of safety for appliances which has rotating part connected to it.
- Available with variety of terminal configuration for easy mounting & handling.
- Customised coding and colour of coding tape can be provided.
- Positive Snap action disc for contact break & make.
- Wide range of current temperature settings for maximum design flexibility.
- Temperature settings as per customer's specifications.
- Opening (cut off) temperature is constant within ± 5 °C.
- Wide selection of lead wire and insulating sleeves.
- Cadmium free contacts

USAGES

"Krishna" 3MPI self hold (TOP) switches are used to provide safety to a wide range of Domestic and Industrial electric motors. A short typical applications are:

- Dryers
- Washing Machine
- Single Phase Electric Motor
- Pumps
- Others as per customers design and applications
- Dish Washers
- Vacuum Cleaner
- Trimmers
- Lawn Mowers

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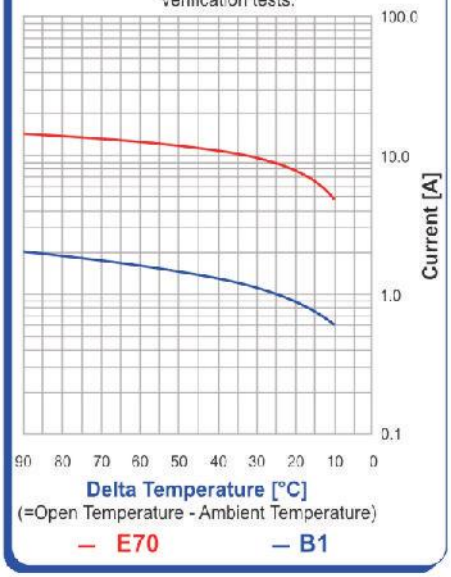
QUALITY

"Krishna" 3MPI Self Hold (TOP) switches are automatically assembled, calibrated and rigorously tested in modern, custom designed computerized test equipments with the applications of Statistical Quality Control (SQC) system.

SPECIFICATIONS	
Standard Opening Temperature Range	80 °C to 170 °C
Tolerance on Open Temperature	±8 °C
Ambient Temperature to guarantee stable self hold function	0 °C
Peak Temperature (5 min.)	200 °C
Time Check T-ambient 25 °C	4 to 10 seconds
Contact rating	18A @ cos 0.6/250 VAC/300 cycles

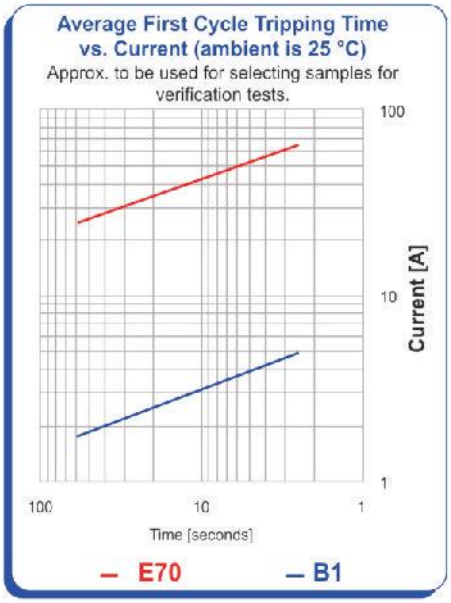
Ultimate Trip Current vs. Ambient Temperature (non-circulating air)

Approx. to be used for selecting samples for verification tests.



Average First Cycle Tripping Time vs. Current (ambient is 25 °C)

Approx. to be used for selecting samples for verification tests.



7AMI SERIES

SINGLE PHASE
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 7AMI single phase Thermal Overload Protector (TOP) switches provides complete protection to electrical equipments against over heating due to over current, fluctuating voltage, overload conditions and mechanical malfunctions. They are made to protect equipments and appliances from fire & damage. They also provide safety to the user. They are Electro Mechanical type, Miniature design, Accurate, Reliable & Cost effective.

KEY FEATURES

- Miniature in Size.
- Individually temperature calibrated and tested.
- Positive Snap action disk for contact break & make.
  Auto reset type.
- Wide range of current temperature settings for maximum design flexibility.
- Sealed enclosures suitable for impregnation process
  (Oil & Water resistance).
- Temperature settings as per customer's specifications.
- Opening (cut off) temperature is constant within ± 5° C.
- Wide selection of leads and insulating sleeves.
- Cadmium free contacts

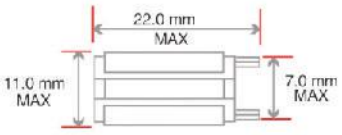
USAGES

"Krishna 7AMI (TOP) switches are used to provide safety to a wide range of Domestic and Industrial equipments. A short of typical appliances are:

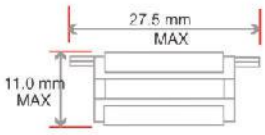
- Single Phase Electric Motor
- Wiper Motor
- Water Pumps
- Electrical Ballast for fluorescent Lights
- Mixer Grinder
- Dish Washers
- Battery Packs
- Vacuum Cleaner
- Dish Washers
- Others as per customers design and applications

QUALITY

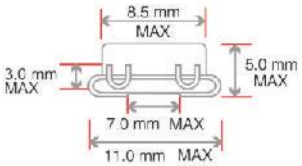
"Krishna" 7AMI (TOP) switches are automatically assembled, calibrated and rigorously tested in modern, custom designed computerized test equipments with the applications of Statistical Quality Control (SQC) system.

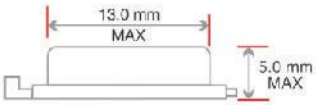


Type A



Type B





THE ETERNAL GUARDIAN FOR MOTOR PROTECTION

Following table can be used for configuration of part number specified on "Krishna" 7AMI TOP Switches

CODING SYSTEM

7AMI	023	A
BASIC CODE	STANDARD OPENING TEMPERATURE °C	TYPE OF TERMINAL ORIENTATION

OPENING TEMP °C	TYPE OF BIMETAL DISC	
	LOW RESISTANCE	HIGH RESISTANCE
75	011	101
80	012	102
85	013	103
90	014	104
95	015	105
100	016	106
105	017	107
110	018	108
115	019	109
120	020	200
125	021	201
130	022	202
135	023	203
140	024	204
145	025	205
150	026	206
155	027	207
160	028	208
165	029	209
170	030	210

TYPE OF TERMINAL ORIENTATION
A - Same End
B - Opposite End

Make sure your maximum contact needs, do not exceed these voltage / current combinations.

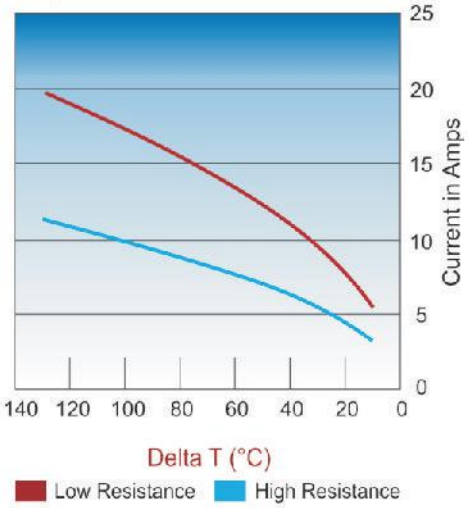
Maximum Contact Ratings (10,000 cycles)

Operating Voltage	Operating Current
600 VAC	4 Amps
230 VAC	8 Amps
115 VAC	16 Amps
16 VDC	20 Amps

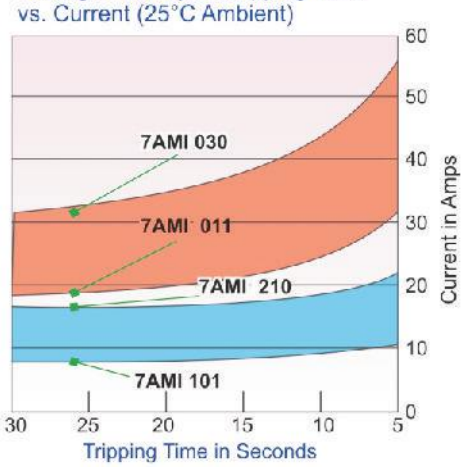
The **"Krishna"** 011 to 030 ratings are low resistance bimental and 101 to 210 ratings are high resistance bimental. Others special bimentals are available on request.

Ultimate Trip Current vs. Delta Temperature

To be used only for selection of samples and verification of tests.



Average First Cycle Tripping Time vs. Current (25°C Ambient)



Agency	File Number	Standard Number	
UL	E247727	2111	
CB	SE-74901	IEC60730-1:1999 +A1 IEC60730-2-3:1990 & A1 +A2	IEC60730-2-2:2001 IEC60730-2-9:2000 +A1 +A2
CSA	70112986	CSA C22.2 No.77.14	

7AMI SERIES (SELF HOLD)

SINGLE PHASE, SELF HOLD
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 7AMI Series Self Hold, single phase Thermal Overload Protector (TOP) has protection of **"Krishna"** 7AMI Thermal Overload Protector with additional features of self hold. It offers dual protection of manual and auto reset protector. The 7AMI self hold protector after its activation maintains the open status, the PTC holds the heat and do not let protector auto reset without switching off power.

KEY FEATURES

- Snap action / accurate & reliable.
- Long lasting life of 10000 cycle.
- 120V AC / 230V AC
- Miniature design
- Better safety for appliances motor and user
- Easy to install during motor manufacturing process
- PTC pill to hold the heat
- Excellent thermal and current sensitivity in overload condition

USAGES

"Krishna" 7AMI Series Self Hold Thermal Overload Protector (TOP) switches are used to provide safety to a wide range of Domestic and Industrial equipments. A few typical appliances are:

- Mixer Grinders
- Wet Grinders
- Dish Washers
- Vacuum Cleaner
- Pump & Many More....

QUALITY

"Krishna" 7AMI self hold (TOP) switches are automatically assembled, calibrated and rigorously tested on modern, custom designed computerized test equipments with the applications of Statistical Quality Control (SQC) system.

TECHNICAL SPECIFICATIONS:

PARTICULARS	TECHNICAL DETAILS
Operating temperature range	70° C to 170° C in 5° C increments.
Open temperature tolerance	±5° C
Close temperature tolerance	±15° C
Ambient temperature to guarantee Self Hold function	0° C
Contact rating motor protector	Depends on application and its test results.

5DN SERIES

SINGLE PHASE, HERMETICALLY SEALED
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

INTRODUCTION

"Krishna" 5DN series hermetically sealed single phase on-winding overload protector is engineered with world's finest technology and developed with integrity and an unmatched commitment to quality. These are manufactured as per international quality standards at our most modern manufacturing facility at Vasai, INDIA.

SALIENT FEATURES

- Hermetically sealed single phase on-winding protector.
- Snap acting and auto-reset type.
- Two Contact ratings to provide highest reliability.
- Extra option of start winding protection.
- Suitable for high pressure requirements of rotary compressors.
- Wide application range from 1 HP to 5 HP.
- Compact and reliable design suitable for installation directly on motor winding.
- Rugged construction resistant to mechanical damages.

APPLICATIONS

"Krishna" 5DN Series Motor Protectors are snap acting and auto reset type which are wired in series with and mounted on motor windings. These protectors sense winding temperatures and respond to changes in line current to protect against various overload conditions like:

- Running overload
- High/Low voltage locked rotor
- Loss of refrigerant charge
- Short circuit of capacitor
- High discharge temperature

USAGES

"Krishna" 5DN Series Hermetically Sealed Single Phase on-winding protectors are mainly used in:

- Window and split air conditioning systems
- Rotary air conditioning compressors
- Heat pump compressors
- Commercial motor that function in corrosive environments

PRODUCT CERTIFICATION

Agency	File Number	Standard Number
UL	E247727	2111
CB	HU000769	IEC60730-2-2:2001 +A1 IEC60730-1:2010

PROTECTOR RATINGS

Series	Product Family	Start Winding	Line Voltage	Lock Rotor Current	HP Range
200	03 XX 13 XX	Yes No	230V	*100 Amp	*1- 3½
500	06 XX 16 XX	Yes No	230V	*140 Amp	*3½ - 5

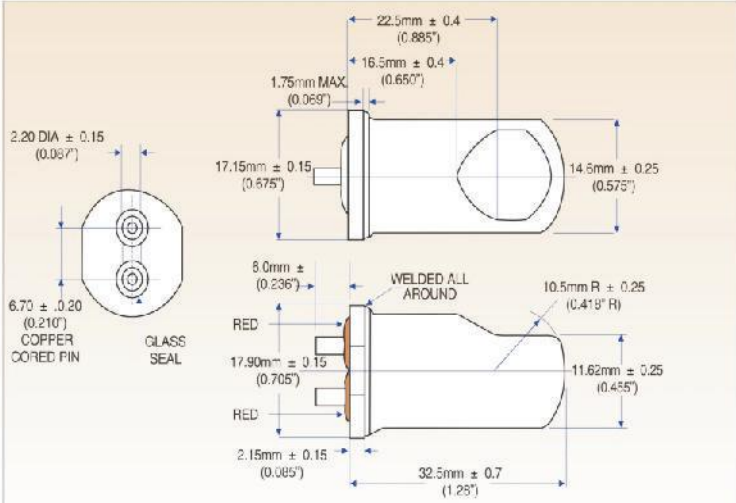
* To be used as a guide for selection only

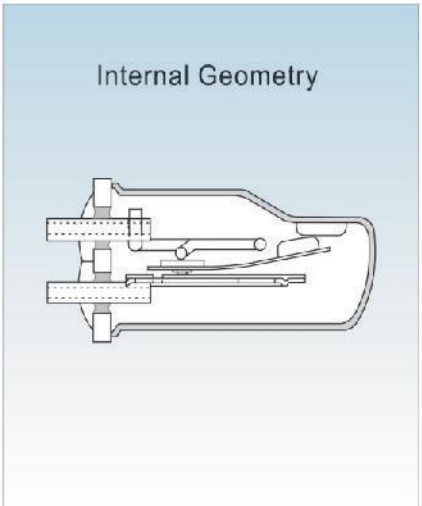
Specifications

Open temperature....90°C-150°C in 5°C increments.

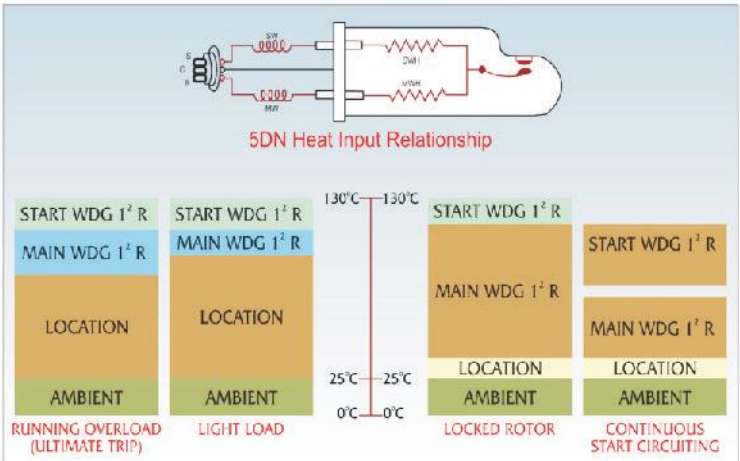
Tolerance.....±5°C open
±9°C close

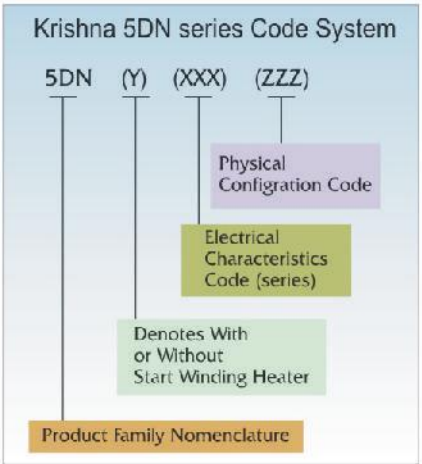
DIMENSIONS





CIRCUIT DIAGRAM





Shree Krishna Controls Pvt. Ltd. (SKCPL) provides customer assistance in varied technical areas.Since SKCPL does not possess full access to data concerning all of the uses and application of customer's products, no responsibility is assumed by SKCPL neither for customer product design nor for any infringements of patents or right of other which may result from SKCPL assistance / products. Due to our ongoing research products are updated and hence the above specifications are subject to changes without prior notice.

24DN SERIES

THREE PHASE, HERMETICALLY SEALED
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 24DN series hermetically sealed three phase on winding protector is automatic reset device which interrupts line current at the centerpoint of a WYE (star) wound motor. These protectors are complied with Restriction On use of Hazardous Substances (RoHS). These protectors are manufactured as per international quality standards at our most modern manufacturing facility at Vasai, India.

SALIENT FEATURES

- Hermetically sealed three phase on winding protector.
- Suitable for three phase Refrigeration & Air conditioning Compressor motor.
- Snap acting and auto-reset type.
- Compact & reliable design suitable for close coupling to motor windings.
- Protects WYE (star) wound three phase motors from 1HP to 6HP.
- Hermetically sealed for leakage protection.
- Design for low and high side pressure applications.
- Rugged construction resistant to mechanical damages.

APPLICATIONS

This protector gives protection to three phase motors used in refrigerators and air conditioning compressors from high winding temperature. However it may be used for protection of any WYE wound three phase motor where hermetic sealing is required due to environmental condition. Compact design of the device allows it to be installed directly on motor windings for close temperature monitoring to improve its over temperature protection.

It protects the motor in conditions like:

- Loss of refrigeration charge.
- Secondary single phasing (Loss of phase).
- Running overload.
- Low voltage locked rotor.
- High/low side pressure applications.

USAGES

"Krishna" 24DN series hermetically sealed three phase on winding protectors are mainly used in:

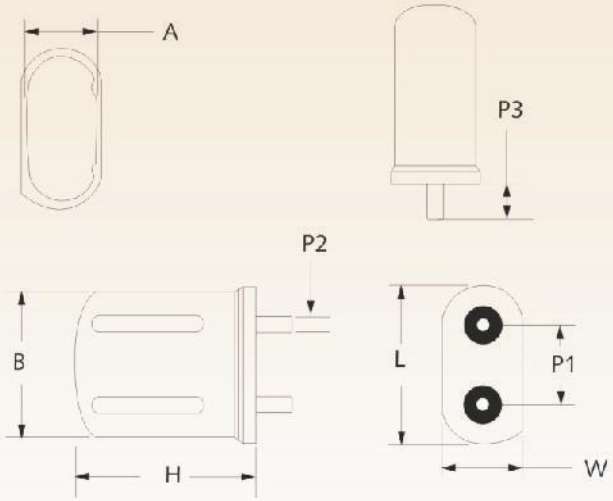
- Airconditioning Compressors
- Refrigeration Compressors
- Submersible Pumps
- High/low side pressure applications

PROTECTOR RATING

Unit	L	W	H	P1	P2	P3	A	B
Inch	1.170	0.670	1.140	0.556	0.089	0.250	0.585	1.080
mm	29.7	17.0	29.0	14.1	2.3	6.4	14.9	27.4

24 DN hermetically sealed motor protector

(Standard / High Capacity Device)



Third connection for WYE-centerpoint is made to housing by welded lead, QC tab or other customer option

Standard Series

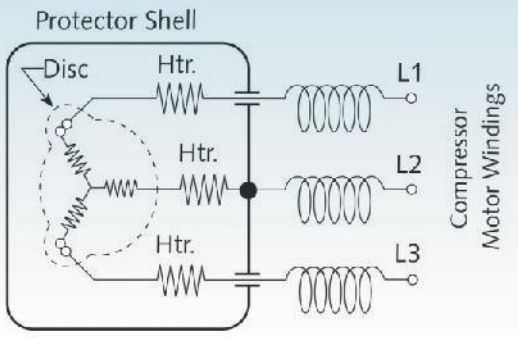
SERIES	VOLTAGE	CURRENT
0XX	230V	90A
1XX	380V / 460V	55A / 45A
2XX	575V	35A

High Capacity Series

SERIES	VOLTAGE	CURRENT
3XX	230V	105A
4XX	380V / 460V	80A / 75A
5XX	575V	60A

* To be used as a guide for selection only. Current ratings are based on life test data which has demonstrated high reliability at 5K cycles (standard series) and 2K cycles (high capacity series) at 0.7 power factor on Krishna life test boards.

Electrical Schematic



Specifications:

Opening Temperatures
95°C to 175°C in 5°C increments.
Tolerance..... ±5°C

Closing Temperatures to suit application
Tolerance..... ±9°C

Pressure Rating 1600 PSIG (110 bar)

25DN SERIES

THREE PHASE, HERMETICALLY SEALED
THERMAL OVERLOAD PROTECTOR (TOP)
SWITCHES

PRODUCT OVERVIEW

"Krishna" 25DN series hermetically sealed three phase on winding protector is automatic reset device which interrupts line current at the centerpoint of a WYE (star) wound motor. These protectors are complied with Restriction On use of Hazardous Substances (RoHS). These protectors are manufactured as per international quality standards at our most modern manufacturing facility at Vasai, India.

SALIENT FEATURES

- Hermetically sealed three phase on winding protector.
- Suitable for three phase Refrigeration & Air conditioning Compressor motor.
- Snap acting and auto-reset type.
- Compact & reliable design suitable for close coupling to motor windings.
- Protects WYE (star) wound three phase motors from 4HP to 10HP.
- Hermetically sealed for leakage protection.
- Design for low and high side pressure applications.
- Rugged construction resistant to mechanical damages.

APPLICATIONS

This protector gives protection to three phase motors used in refrigerators and air conditioning compressors from high winding temperature. However it may be used for protection of any WYE wound three phase motor where hermetic sealing is required due to environmental condition. Compact design of the device allows it to be installed directly on motor windings for close temperature monitoring to improve its over temperature protection.

It protects the motor in conditions like:

- Loss of refrigeration charge.
- Secondary single phasing (Loss of phase).
- Running overload.
- Low voltage locked rotor.
- High/low side pressure applications.

USAGES

"Krishna" 25DN series hermetically sealed three phase on winding protectors are mainly used in:

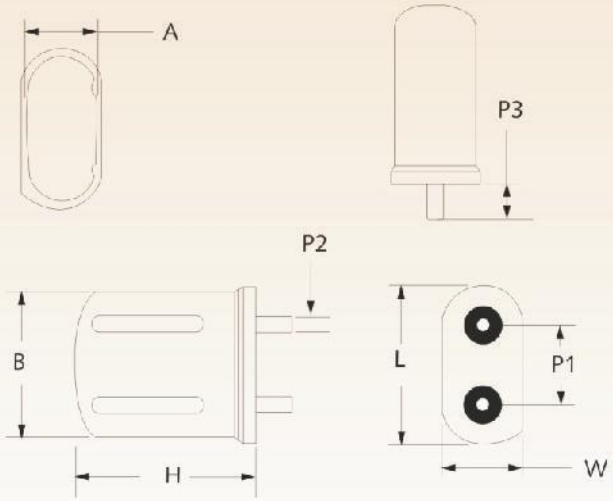
- Airconditioning Compressors
- Refrigeration Compressors
- Submersible Pumps
- High/low side pressure applications

THE ETERNAL GUARDIAN FOR MOTOR PROTECTION

PROTECTOR RATING

Unit	L	W	H	P1	P2	P3	A	B
Inch	1.470	0.860	1.375	0.735	0.125	0.250	0.765	1.375
mm	37.3	21.8	34.9	18.7	3.2	6.4	19.4	34.9

25 DN hermetically sealed motor protector
(Standard / High Capacity Device)



Third connection for WYE-centerpoint is made to housing by welded lead, QC tab or other customer option

Standard Series

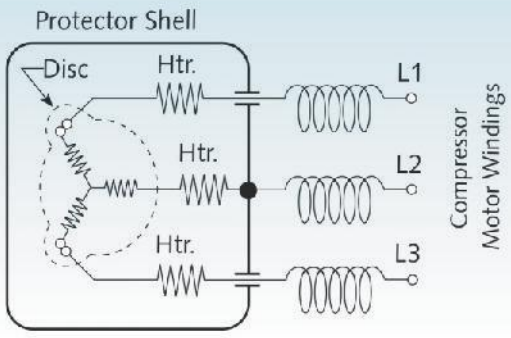
SERIES	VOLTAGE	CURRENT
0XX	230V	150A
1XX	380V / 460V	100A / 85A
2XX	575V	60A

High Capacity Series

SERIES	VOLTAGE	CURRENT
3XX	230V	240A
4XX	380V / 460V	175A / 145A
5XX	575V	100A

* To be used as a guide for selection only. Current ratings are based on life test data which has demonstrated high reliability at 5K cycles (standard series) and 2K cycles (high capacity series) at 0.7 power factor on Krishna life test boards.

Electrical Schematic



Specifications:

Opening Temperatures
95°C to 175°C in 5°C increments.
Tolerance..... ±5°C

Closing Temperatures to suit application
Tolerance..... ±9°C

Pressure Rating 1600 PSIG (110 bar)

5CR SERIES

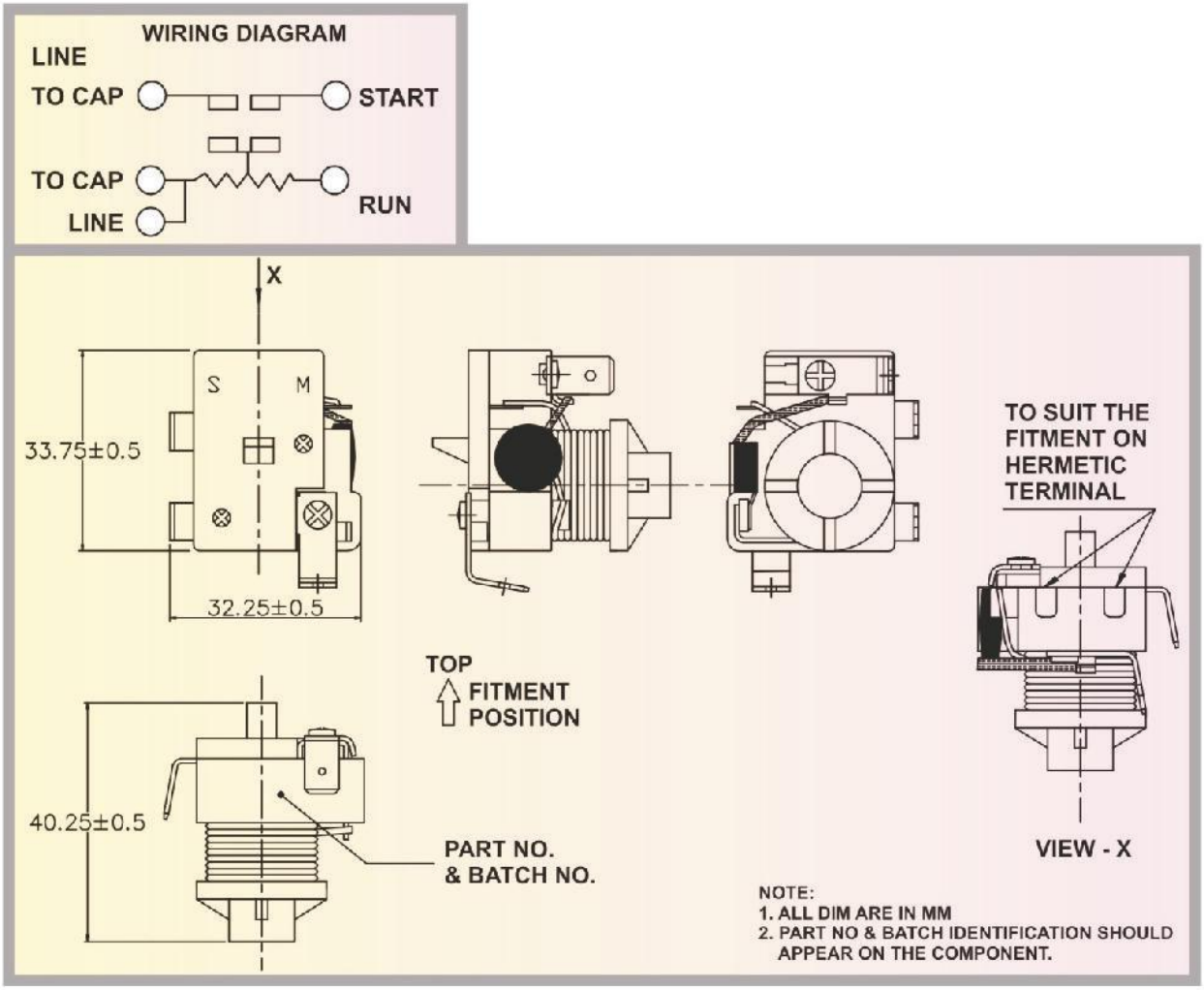
CURRENT RELAY

PRODUCT OVERVIEW

"Krishna" 5CR Series Relay is the traditional current sensitive, normally-open relay used in low horsepower, compressor motor start applications. It is available in thermoplastic material, recommended in humid environments or for frequent operations like food mixer applications. We have different types of Relays like Current Relay, Current Relay with NTC & PTC Relays.

USAGES

- Refrigeration Compressor.
- These are used in Domestic & Light to Medium Power Commercial
- Refrigeration from 1/20 HP to 1/3 HP.



PRODUCT CERTIFICATION

Agency	File Number	Standard Number
CB	HU000825-M1	IEC60730-2-10:2006 IEC60730-1:1999 +AMD1:2003

THE ETERNAL GUARDIAN FOR MOTOR PROTECTION

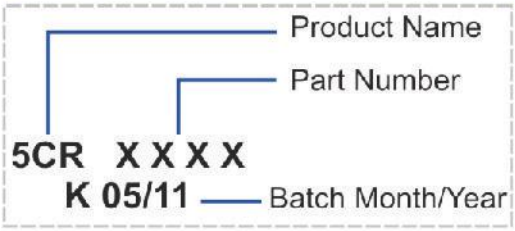
ELECTRICAL CHARACTERISTICS

- Class B coil (130 °C)
- P. U. current up to 11,55 amps
- Normally-open circuit, single pole, double break, for use on RSIR or CSIR applications.
- For Normal pollution condition (according to EN60730)
- Contact ratings.
  5CR 8 amps 120/250 VAC cosø 0.9
  5CRN 10 amps 120/250 VAC cosø 0.9
- Endurance: 5CR 200.000 operations
  5CRN 100.000 operations.
- Ambient temperature Tmax = 80 °C

MECHANICAL CHARACTERISTICS

- Plug-in mounting directly on Glass Terminal Main and Start Ø2.28 mm standard pins.
- 6.3 mm (.250") tabs and screw terminals available.
- Compact size.

CODING AND MARKING



PICK-UP AND DROP-OUT RANGE

5CR	Max. Pick-up Amp	Min. Drop out Amp
1	2,00	1,70
2	2,10	1,75
3	2,20	1,85
4	2,30	1,95
5	2,40	2,05
6	2,50	2,10
7	2,70	2,30
8	2,80	2,40
9	2,95	2,50
10	3,10	2,60
11	3,25	2,75
12	3,40	2,90
13	3,55	3,05
14	3,75	3,20
15	3,95	3,35
16	4,15	3,50
17	4,35	3,70
18	4,55	3,90
19	4,80	4,10

5CR	Max. Pick-up Amp	Min. Drop out Amp
20	5,05	4,30
21	5,30	4,50
22	5,55	4,70
23	5,80	4,95
24	6,10	5,20
25	6,40	5,45
26	6,75	5,70
27	7,10	6,00
28	7,45	6,30
29	7,80	6,65
30	8,20	7,00
31	8,60	7,35
32	9,05	7,70
33	9,50	8,05
34	10,00	8,45
35	10,50	8,90
36	11,00	9,35
37	11,55	9,80

For different Operating values, contact the Factory.

9EA SERIES

PTC MOTOR START RELAY

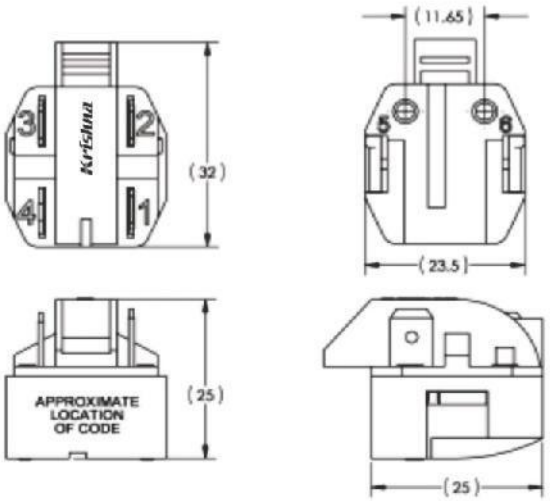
PRODUCT OVERVIEW

"Krishna" 9EA motor starter, a low-cost alternative to electro mechanical relays, performs the PTC (positive temperature coefficient) solid-state starter function. The 9EA is suitable for compressors used in refrigerators, freezers, water coolers, de-humidifiers, vending machines and similar refrigeration applications. It plugs directly onto the compressor terminal pins.

KEY FEATURES

- Utilizes PTC pill materials to energize / de-energize motor start windings
- Provides inherent start winding protection
- Optimal packaging approach improves efficiency
- Used in 120V or 240V applications
- Provides lowest power consumption in industry
- Wide spectrum of resistance ranges available

Dimensional Drawings (mm)



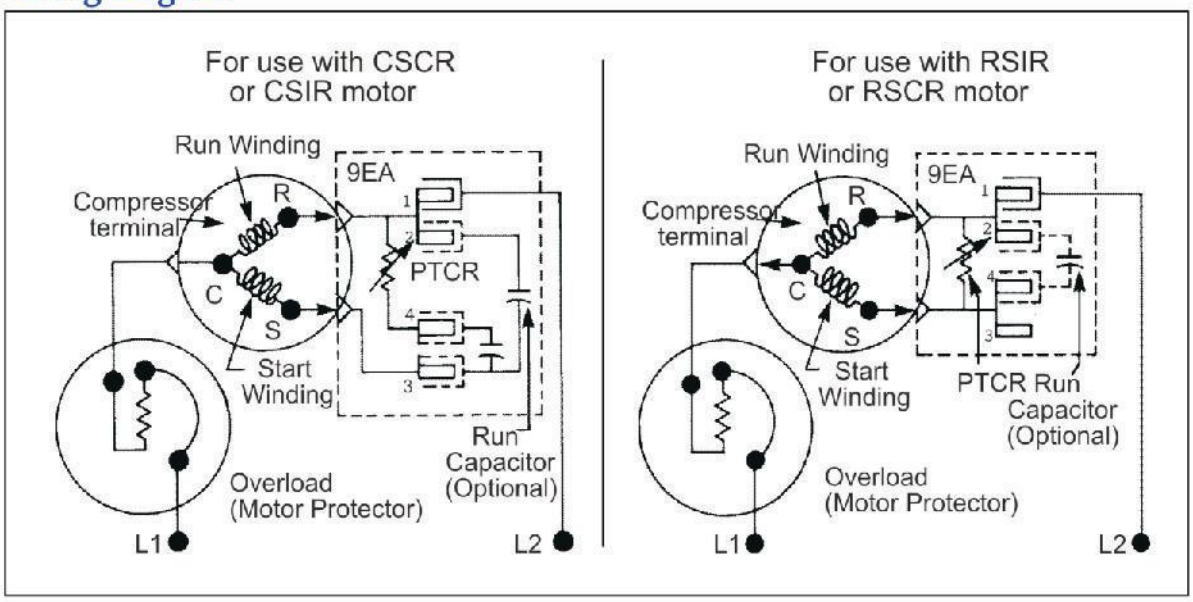
QUALITY

- PTC pills 100% electrically tested twice
- High reliability with no moving parts
- 500K cycles min. at max. rated condition
- Dissipates less than 2 watts under normal operating conditions

PTC PERFORMANCE

When power is first applied to the compressor via the 9EA, the PTC pill is in low resistance state. Current flows through the PTC pill to the start windings, causing a beneficial phase angle shift between start and main windings, and resulting in an increase in the starting torque.

Wiring Diagram



9EA PTC Motor Starter Design Chart

	Independent Variable	Device Property: Switch Time	Power	Max. Voltage	Cool Rate
PTCR	Resistance ↑	↓	↓	↑	↓
PTCR	Mass ↓	↓	↓	↓	↓
PTCR	Switch Temperature ↓	↓	↓	—	↑

General trends are shown for changes in the PTCR element specifications and the corresponding 9EA device properties.

Terminal Configurations

Device	Terminal Numbers 1	2	3	4
9EA	–	M	–	–
9EA	M	M	–	–
9EA	M	M	M	–
9EA	M	M	M	M
9EA	–	M	M	–

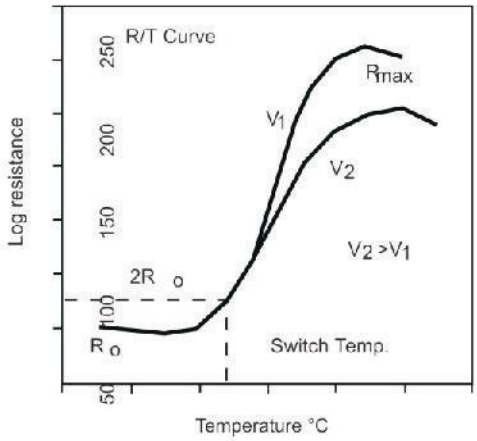
M = 1/4"Male Quick Connect Terminal

For other ratings contact SKCPL

Common Electrical Rating

Series 9EA	Application Voltage	VI max / V max	Nominal Resistance (Ohms)	Heat Capacity MCP
13CX	120	180 / 12	4.7 ± 20%	1.40
14CX	120	200 / 12	6.8 ± 20%	1.40
15CX	120	200 / 10	10 ± 20%	1.40
16CX	240	300 / 7	22 ± 20%	1.40
17CX	240	355 / 6	33 ± 20%	1.40
18CX	240	300 / 8	15 ± 20%	1.40
19CX	240	400 / 5	47 ± 20%	1.40

For other ratings contact SKCPL



4DN SERIES ¾"

SINGLE PHASE
MOTOR PROTECTOR

PRODUCT OVERVIEW

"Krishna" 4DN Series 3/4" Single Phase Motor Protector is normally closed. It has make or brake contact system, which is operated by a snap action disc and it is sensitive to both temperature and current.

KEY FEATURES

- Precision calibration - temperature calibrated and inspected under controlled conditions for dependable performance.
- Easy installation.
- Inherent protection devices used in applications such as industrial motors agricultural equipment, well and sump pumps, fans, air conditioners refrigerators, home appliances, etc.
- When properly applied, protector stops power supply to motor when temperature exceeds maximum safe level due to an overload or locked rotor condition.
- Auto reset type.
- Sensitive to both temperature and current.

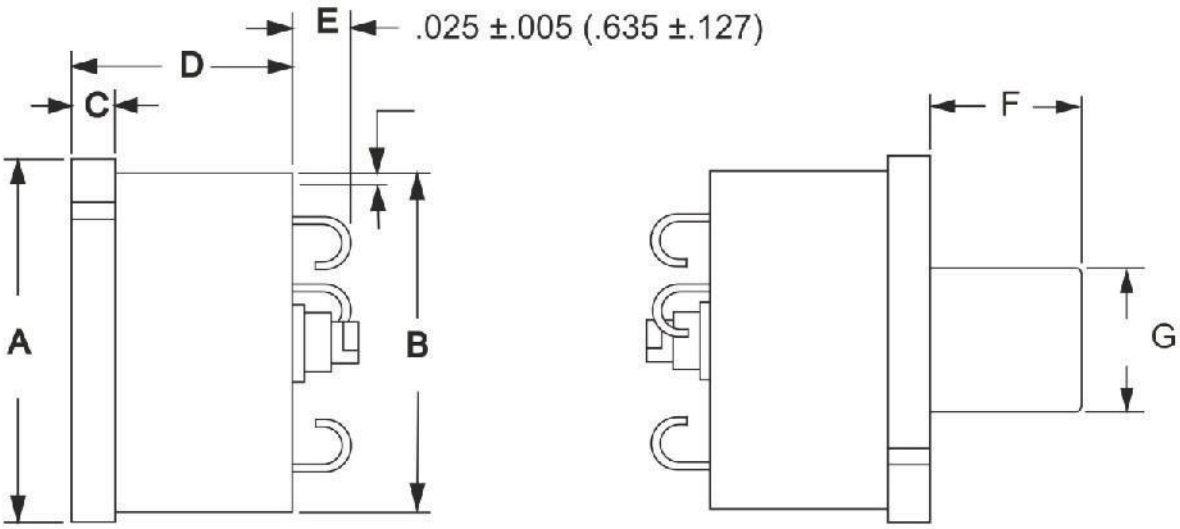
Contacts Open

"Krishna" Phenolic Motor Protectors are equipped with a bimetallic snap acting disc, on which the contacts are welded, and through which the current flows. If overheating conditions occur, the heating effect of the current flow through the disc and the influence of motor heat will cause the disc temperature to rise.

Contacts Closed

When the disc reaches the preset temperature level, the protector automatically opens and stop current flow to the motor, limiting the winding and shell temperature. When the motor has cooled down to an acceptable operating level, allowing the protector to cool to its reset temperature, the **"Krishna"** protector resets automatically to a closed contact position allowing the motor to restart.

Dimensional Drawings (Single Phase Types) Round Base



A	B	C	D	E Max.	F	G
1.031 ±.010	.970 ±.006	.125 ±.005	.625 ±.010	.171	23/64 ±1/32	.375 ±.006

KRISHNA

HOW TO REACH US

Krishna HOUSE

"KRISHNA HOUSE"
Shailesh Udyog Nagar,
Sativali Road, Vasai (East).
Dist. Palghar 401208
Maharashtra, INDIA

Total Distance : 50 km
from Mumbai International Airport to
Vasai Krishna House

Mumbai International Airport (Chatrapati Shivaji International Airport)

Shree Krishna Controls Pvt. Ltd.

AN ISO 9001 : 2015 COMPANY

"Krishna House" Shailesh Udyog Nagar, Opp. Nicholas Garage, Sativali Road,
Vasai (East) - 401 208, Dist. Palghar, Maharashtra, India.
Tel.: +91-250-648 10 19 (10 Lines)
Email: Info@krishnacontrols.com | Website: www.krishnacontrols.com