

# EARTH LEAKAGE RELAY SERIES : CMR

## Ordering Information:

17G715GF2 17G715KF2  
 17G745GF2 17G745KF2  
 17G755GF2 17G755KF2  
 17G815GF2 17G815KF2  
 17G845GF2 17G845KF2



## FEATURES:

- Wide range of Earth Leakage Current adjustment.
- Adjustable Earth Leakage trip time.
- Instantaneous trip (for details refer trip characteristics)
- Test feature to check complete Product Functionality.
- Manual Reset feature through reset switch on Product.
- Remote reset feature.
- 1C/O + 1NO relay output.
- LED indications for all failure conditions.
- Wide Auxiliary supply voltage range.
- Base or DIN rail mounting.
- Easy to install.
- Compact size.

## CAUTION:

- Always follow instructions stated in this product leaflet.
- Before installation, ensure that specifications agree with intended application.
- Installation to be done by skilled electrician.
- Suitable dampers should be provided in the event of excess vibration during installation.
- Automation and control devices must be installed so that they are protected against any risk of involuntary actuation.
- 6.Disconnect power before working on equipment.

## SUITABILITY FOR USE:

These are products with Auto reset, hence never use the product for an application involving significant risk to life without ensuring that the system as a whole has been designed to address the risks and that our products are properly rated and installed for the intended use within the entire system or equipment.

## NOTE:

- 1.Product innovation being a continuous process, we reserve right to alter any specifications w/o prior notice.
- The unit is factory set to 30mA trip and instantaneous delay. Adjustment of these settings can be made if necessary to suit the requirements of the installation. A seal is supplied allowing the user to secure the clear window and hence prevent any unnecessary adjustment of the settings.
- To satisfy regulations, it is recommended that the device be tested periodically to ensure correct operations.
- In case of excess harmonics power transmission cables have more leakage because of low impedance offered by cable capacitance,  $I_{\Delta n}$  setting need to keep at higher level.

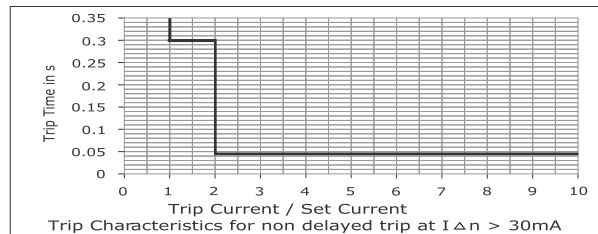
## TRIP CHARACTERISTICS:

Standard IEC 60947-2 annex M indicates the operating characteristic for a non-time-delay type in table B.1 in B.4.2.4.1 in standard IEC 60947-2 annex M. CBRs having  $I_{\Delta n} = 30$  mA shall be of the non-time-delay type. If the trip time is set at '0' sec, then for  $5I_{\Delta n}$  &  $10I_{\Delta n}$ , the tripping time will be < 40 ms for all current ranges.

Residual current	$I_{\Delta n}$	$2I_{\Delta n}$	$5I_{\Delta n}^{1)}$	$10I_{\Delta n}^{2)}$
Maximum break time	s	0.3	0.15	0.04

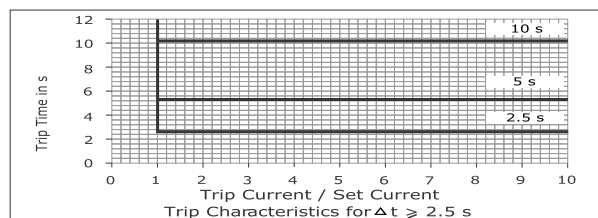
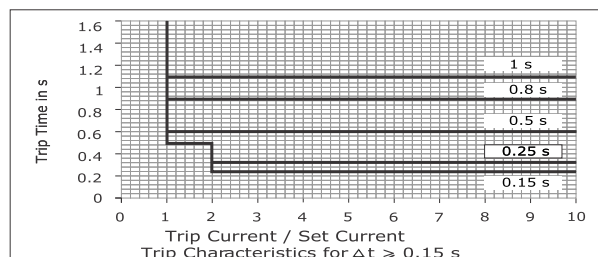
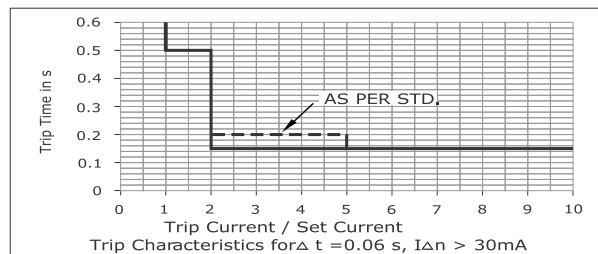
1) For CBRs having  $I_{\Delta n} \leq 30$  mA, 0.25 A may be used as an alternative to  $5I_{\Delta n}$

2) 0.5 A if 0.25 A is used according<sup>1)</sup> to note.



For CBR's having limiting non-actuating time of 0.06 s the operating characteristic is given in table B.2. in B.4.2.4.1 in standard IEC 60947-2 annex M.

Residual current	$I_{\Delta n}$	$2I_{\Delta n}$	$5I_{\Delta n}$	$10I_{\Delta n}$
Maximum break time	s	0.5	0.2	0.15



## Technical Specifications:

Ordering Cat. Nos.:		17G715GF2 17G815GF2	17G715KF2 17G815KF2	17G745GF2 17G845GF2	17G745KF2 17G845KF2	17G755GF2	17G755KF2
<b>Supply Characteristics:</b>							
Supply Voltage (中)		110 - 240 VAC/ VDC, 50/60Hz		220-415VAC/ 220VDC, 50/60Hz		15 VDC	
Supply Variation		-20% to +20%				-20% to +10%	
Power Consumption (Max.)		5 VA		10 VA		1.2 Watt	
LED Indication	Power On	ON (Green Led)					
	EL / CT	ON (Red Led) Relay Trip / Blinking (CT OPEN)					
	Leakage Current / TST	By Bar graph 30%(Green), 45%(Green), 60%(Yellow), and 75%(Red), Blink Test / reset switch is pressed					
Threshold $I_{\Delta n}(A)$	For '17G7' devices	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 20 - 30					
	For '17G8' devices	0.03 - 0.05 - 0.1 - 0.3 - 0.5 - 0.75 - 1 - 3 - 5 - 10					
<b>Relay O/P Characteristics:</b>							
Contact Rating		1 C/O + 1 NO; 5 A (Resistive) @ 240 VAC / 30 VDC					
Contact Arrangement		1 C/O SPDT and 1 NO SPST					
Utilization Category (AC-15)		3.0 A at 120 V & 1.5 A at 240 V					
Utilization Category (DC-13)		0.22 A at 125 V & 0.10 A at 250 V					
Mechanical Life Expectancy		1X10 <sup>7</sup>					
Electrical Life Expectancy		1X10 <sup>5</sup>					
Contact Material		Ag Alloy					
<b>Feature Characteristics:</b>							
Reset		Manual Reset	Auto Reset	Manual Reset	Auto Reset	Manual Reset	Auto Reset
No. of AUTO Resets		-	4	-	4	-	4
Clear Auto Reset		After 1 hour of healthy condition or supply interruption					
Test / Reset		Local and Remote (Non Potential Free Contacts) (Up to 10 m)					
$\Delta t$ settings (s)		0.040 - 0.06 - 0.15 - 0.25 - 0.5 - 0.8 - 1 - 2.5 - 5 - 10					
Reset Enable		Below 50% of set $I_{\Delta n}$ in presence of CBCT					
Reset Time		<1 s					
Type Class		'A' True RMS measurement upto $I_{\Delta 1}A$ (as per IEC 60947-2 Annex M) <sup>1)</sup>					
		'AC' True RMS measurement 30mA to 30A (as per IEC 60947-2 Annex M)					
Setting Accuracy		- 20% (Including CBCT accuracy)					
Repeat Accuracy		± 2%					
<b>Ambient Conditions:</b>							
Storage Temperature		-20°C to + 80°C					
Operating Temperature		-15°C to + 60°C					
Relative Humidity		5 to 95% Rh (without condensation)					
Max. Operating Altitude		2000 m					
Degree of Protection		IP-20 for Terminals, IP-40 for Enclosure					
Operating Position		Any					
Pollution Degree		II					
<b>Others:</b>							
Mounting		Base / Din Rail					
Dimensions in mm (W X H X D)		36 X 90 X 65					
Weight Approx. (Un-packed)		150 g					
Enclosure Colour		RAL 7016					
Knob Colour		RAL 6018					
<b>CBCT for Type A &amp; AC Current</b>							
CBCT Cat. ID's	Size (W X H X D) mm	Inner Diameter	$I_{\Delta n}$ setting range for Type AC current		$I_{\Delta n}$ setting range if there are pulsating DC current (Type A)		
17H7NNHN3	37x91x71	38 mm	30mA to 30A		30mA to 1A		
17H7NNIN3	37x117x97	57 mm	30mA to 30A		30mA to 3A		
17H7NNQN3	37x133x109.3	70 mm	30mA to 30A		30mA to 3A		
17H7NNJN3	37x155x132	92 mm	30mA to 30A		30mA to 3A		
17H7NNLN3	37x176x153	120 mm	30mA to 30A		30mA to 3A		
17H7NNKN3	37x282x250	210 mm	30mA to 30A		30mA to 3A		
<b>CBCT for Type AC Current</b>							
17H7NNRN3	37x91x71	38 mm	30mA to 30A		Turns Ratio : 1500:1 (Common for all CBCT)  Burden : 74ohm, 2W, to give 1V output at 30A.		
17H7NNVN3	37x117x97	57 mm	30mA to 30A				
17H7NNSN3	37x133x109.3	70 mm	30mA to 30A				
17H7NNTN3	37x155x132	92 mm	30mA to 30A				
17H7NNUN3	37x176x153	120 mm	30mA to 30A				
<b>Rectangular CBCT for Type AC Current</b>							
17H9NNWN0	380x115x35	300x50 mm	1A to 30A		2.1 Kg.		
17H9NNXN0	400x225x35	350x150 mm	1A to 30A		3.2 Kg.		

Incase of any query, please write us at [service@gicindia.com](mailto:service@gicindia.com)

Or visit [www.gicindia.com](http://www.gicindia.com)



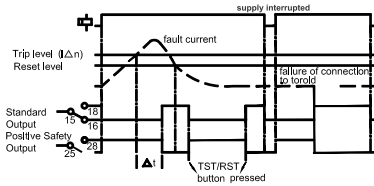
**Functional Description :**  
**Earth Leakage Protection :**

Earth Leakage relay is a micro controller based device meant to measure leakage current and isolate the faulty circuit from the system. Leakage current is sensed through core balance current transformer. Trip occurs when Earth Leakage Current exceeds the Set value of trip current, for the trip time which is adjustable by means of a front mounted potentiometer. For details refer trip characteristics. The Red LED "EL" indicates the presence of Earth Leakage.

**CBCT Connections :**

All main primary conductors shall pass through the core area of CBCT. Use shielded wires for secondary terminal connections to B1 & B2. Connect the shield to the Y2 terminal of device, which is circuit ground of device. The CT wires should be placed adequately away from high current carrying conductors or source of strong magnetic field to avoid noise pickup. The Earth Leakage Relay also verifies CT connection. If CT winding is open, red LED "EL" blinks.

**Functional Diagram**



**Test & Reset :**

Press & hold Tact switch for 1s. Product will change its state from Healthy to Trip (Test) and vice versa (Reset)

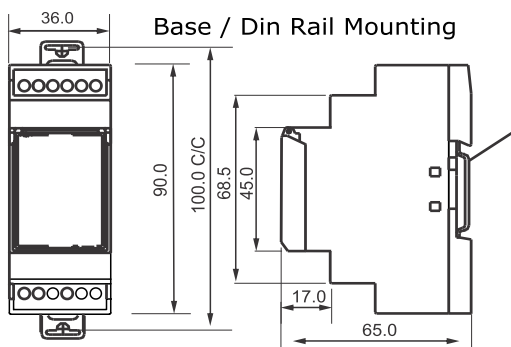
**Remote test & Reset :**

For remote test reset connect to external push button switch between Y1 & Y2. For test sequence, press & hold the external push button switch for 1 s

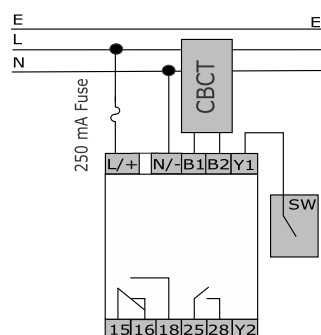
**Auto/Reset :**

In case of 17G715KF2 & 17G745KF2, product will reset after 15 min. only for 4 attempts. Reset count is cleared after 1 hour of Healthy condition or supply interruption or press of test /reset switch.

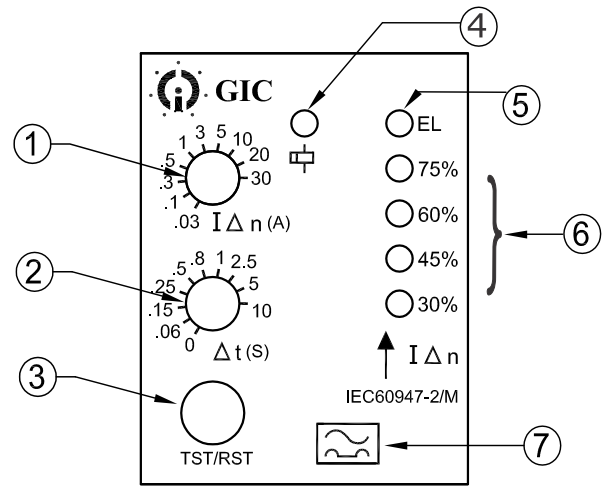
**Overall Dimensions and Mounting Details:**



**SINGLE PHASE APPLICATION**



**Front Facia:**

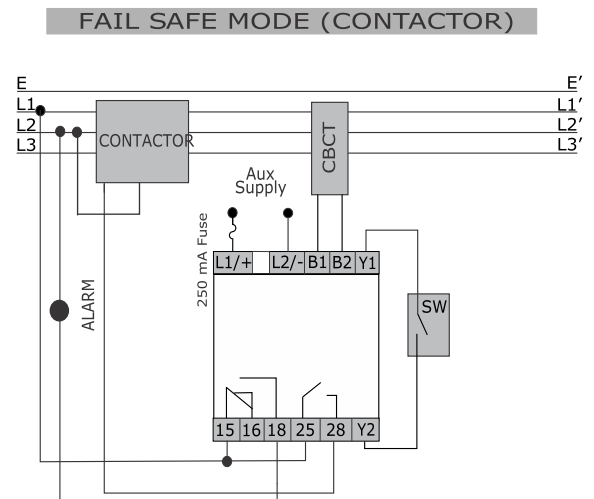


1. Potentiometer for Earth leakage current setting.
2. Potentiometer for Trip time set setting.
3. Test / Reset function push button
4. Power ON LED Indication.
5. Earth Leakage fault LED indication/CT open.
6. Bar graph for Earth Fault indication/TEST/RESET switch short.
7. Type A indication.

**Note:**

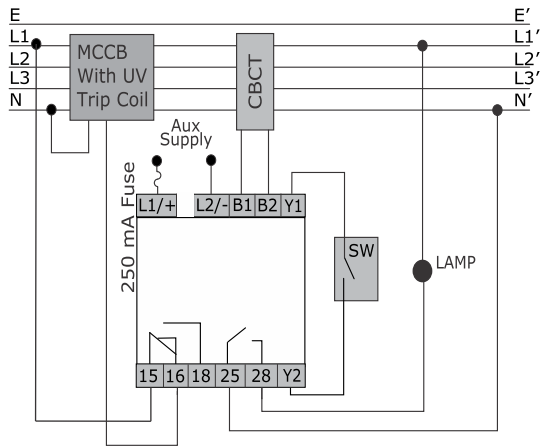
1. For CT Connections use shielded wire and connect shield to Terminal Y2.
2. For single phase applications, only Live and Neutral need to be passed through CBCT.
3. Do not pass Earth conductor through CBCT connected to Earth Leakage Relay.
4. All conductors to be protected must pass through CBCT.
5. Do not apply supply voltage at CT and switch terminal.
6. Connect the wires between CBCT and ELR with respect to B1 B2. Wire gauge should be as mentioned under "Terminal Details".
7. This unit satisfies the requirements for Type A devices which only need to detect residual alternating Currents.

**Connection Diagram:**

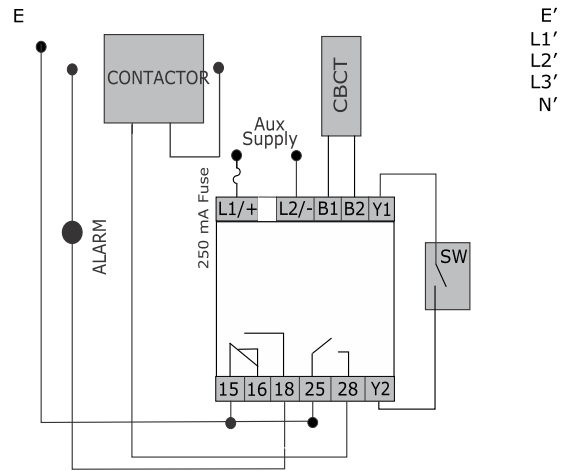


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 Or visit [www.gicindia.com](http://www.gicindia.com)

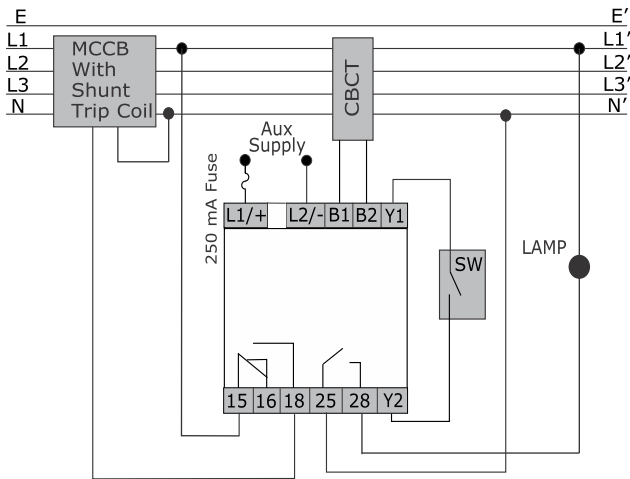
### NON-FAIL SAFE MODE (UV TRIP COIL)



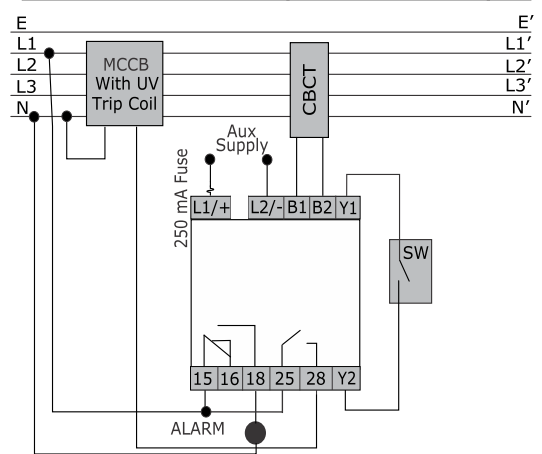
### FAIL SAFE MODE (CONTACTOR)



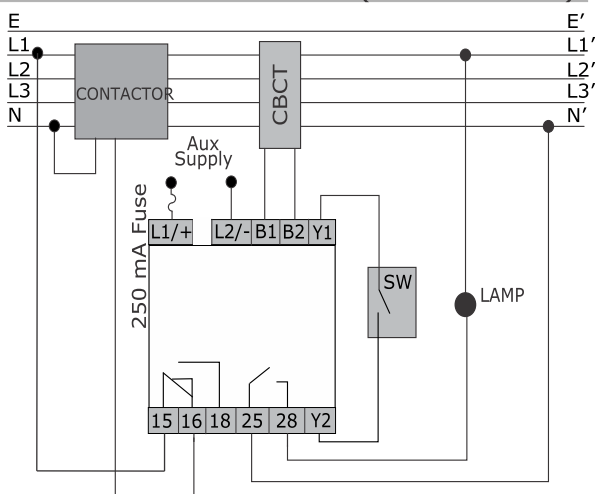
### NON-FAIL SAFE MODE (SHUNT TRIP COIL)



### FAIL SAFE MODE (UV TRIP COIL)



### NON-FAIL SAFE MODE (CONTACTOR)



### Conformity to standards EMC:

Harmonic Current Emission	IEC 61000-3-2	Class A
Voltage Flicker and Fluctuations	IEC 61000-3-3	Class A
ESD	IEC 61000-4-2	Level II
Radiated Susceptibility	IEC 61000-4-3	Level I "Criteria B"
Electrical Fast Transients	IEC 61000-4-4	Level IV
Surge	IEC 61000-4-5	Level IV for AC & Level I for DC Products
Conducted Susceptibility	IEC 61000-4-6	Level III
Voltage Dips and Interruptions(AC)	IEC 61000-4-11	Level I, II, III, IV, V, VI, & VII
Voltage Dips and Interruptions(DC)	50% for 50mSec @ Nominal Voltage 15V DC	
Conducted Emission	CISPR 11	Class A
Radiated Emission	CISPR 11	Class A

### Safety:

Test Voltage Between I/P & O/P	IEC 60947-5-1 / UL 508	2 kV
Test Voltage Between all Terminals & Enclosure	IEC 60947-5-1 / UL 508	2.5 kV
Over Voltage Category	IEC 60947-1	IV
Impulse Voltage Between I/P & O/P	IEC 60947-5-1	Level 4kV
Single Fault	IEC 61010-1	
Insulation Resistance	UL 508	>50KOhm
Leakage Current	UL 508	<3.5 mA

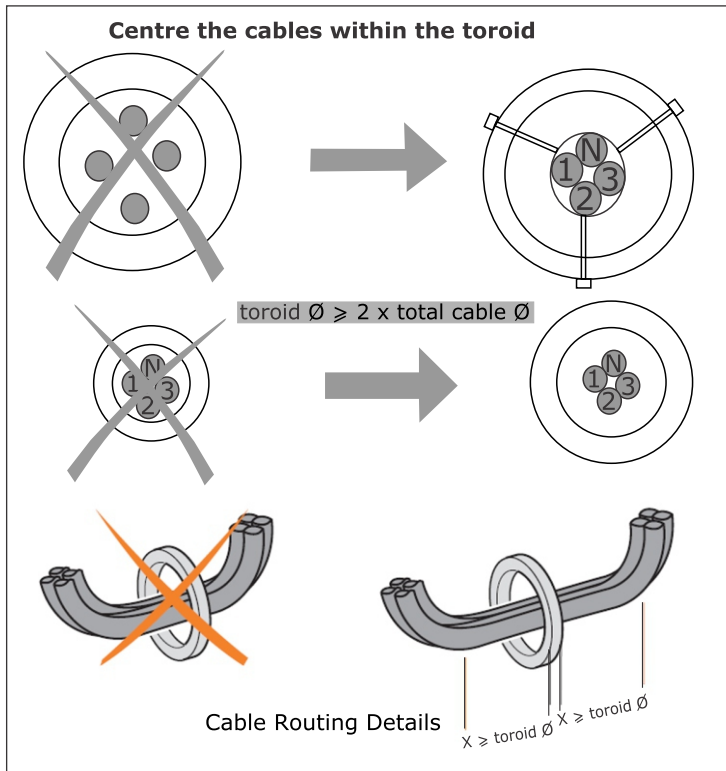
**Environmental Compliance:**

Cold Heat	IEC 60068-2-1	
Dry Heat	IEC 60068-2-2	
Vibration	IEC 60068-2-6	5g(10 - 50 Hz)
Repetitive Shock	IEC 60068-2-27	40 g, 6 ms
Non-repetitive Shock	IEC 60068-2-27	30 g, 15 ms

Note: As per IEC60947-2 (B.4.2.2) The minimum value of rated residual non operating current is 0.5 I<sub>an</sub>.

ELR Operating condition	Contact Positions	
	1 NO (PSO/Fail safe)	1 C/O (SO/Non fail safe)
No Auxiliary Supply		
Healthy / Reset State		
Trip state		

PSO - Positive safety output SO - Standard Output



**E-Waste Regulatory notice:**

Kindly treat, recycle or dispose of this equipment in an environmentally sound manner after End of Life, as per WEEE (Waste Electrical and Electronic Equipment) regulations; or hand it over to General Industrial Controls Pvt. Ltd, through website <https://www.gicindia.com/get-in-touch/>



# General Industrial Controls Private Limited

## TEST CERTIFICATE

CUSTOMER PO NUMBER :					
SERIAL NUMBER :					
QUANTITY : 01 Nos.		DATE :			
MODEL:	17K716QF4N		SUPPLY VOLTAGE :	110-240VAC/DC, ± 20%	
	17K726QF4N		240-415VAC/220DC, ± 20%		
CBCT:	38 MM		LEAKAGE CURRENT RANGE :	30mA to 30A	
	57 MM				
	70 MM		TRIP TIME :	0.1 TO 10 SEC	
	92 MM				
120 MM					

SR. NO	TEST	SPECIFICATION	OBSERVATION	REMARKS
1	LEAKAGE CURRENT	AT MINIMUM: 30mA      50mA 75mA      100mA 150mA     200mA 300mA	PASSED	
		AT MAXIMUM: 300mA      5A 7.5A        10A 15A         30A	PASSED	
2	TRIP TIME DELAY	IT SHOULD BE TRIP AS PER SETTING DELAY TIME	PASSED	
3	AUXILIARY SUPPLY VARIATION TEST	IT SHOULD BE WORK	PASSED	
4	INSULATION RESISTANCE TEST	MORE THEN 50 MEGA OHMS@500VDC	PASSED	

NOTE: HIGH VOLTAGE TEST NOT APPLICABLE FOR PLASTIC MODEL.

TESTED BY:

WITNESSED BY:

VERIFIED BY:

( NAME )

( NAME )

( NAME )