PHASE FAILURE DEVICES MKC-05, MKC-05P, MKC-06, MKC-06P and FR-02



due to the phase failure. "Thermal-magnetic relay" which is an essential element in motor protection is generally too slow to assure demurrage without tripping due to both its electromechanical structure and the use of high current setting range.MKC-05-05P, MKC-06-06P and FR-02 Motor Protection Relays which are designed to protect the desired equipment against phase failure, asymmetry and phase sequence failure on 3 phase systems with or without neutral connection, are manufactured to serve the following purposes.

Utilisation and Working Principle

By using the asymmetry adjustment knob(%asm.) on the front panel, the upper asymmetry limit of the system which will be protected is determined. If the unbalance asymmetry into the system with the adjusted value, the device waits as long as the Delay-OFF time(Delay) and if the unbalance is still over the adjusted value, the relay of the device breaks contact(OUT LED turns off and Asm. LED turns on). If the unbalance on the system(asymmetry) falls under the adjusted value, the device waits as long as the Delay-ON time(Reset Delay) and if the unbalance is still under the adjusted value, the relay of the device makes contact(OUT LED turns on and Asm. LED turns off) LED turns off)

PROTECTION FEATURES :

1- Voltage Unbalance (Can be Adjusted or Disabled) (MKC-05 / 05P / 06 / 06P) Unbalanced voltage(asymmetry) may occur when; The mains are loaded with unbalanced distribution,

One of the 3 phases of the motor has lost. In this case, some amount of voltage which is produced by other phases will be induced on the lost phase. Amount of this voltage depends on both the motor type and amount of load.

Voltage depends on both the motor type and amount of load. Output relay is making contract when a phase has been lost or an unbalanced Phase-Phase voltage value, which is occured for any reason, is smaller than the user defined asymetrical value. If this unbalanced voltage value exceeds the adjusted asymetrical value(5-15%); output relay will break contact and switch off the motor at the end of adjusted time delay(0.1-20 sec.); relays LED on the front panel is turned off. Asymmetry error LED is turned ON. If the fault disappears within the delay time, the output relay will not break contact and will not switch off the motor.

In applications; a proper asymetrical value should be adjusted considering the induced voltage value in two-phase which are remained after the other one has lost



The voltage asymmetry causes the rise in motor temperature and a reduction of the rated motor power.

Voltage asymmetry limit values can be adjusted between 5%-15% by the user or can be disabled. Hysteresis is 30% of the adjusted asymmetry value. Example: Given 3x380 V supply with 10% asymmetry, Relay switches OFF at: 380-(10x400/100)=340 V

Relay switches ON at: 380-((10-(10x%30))x400/100)=353,2 V

2- Phase Sequence Protection (MKC-05 / 05P / 06 / 06P and FR-02):



When the phase sequence is correct (L1, L2, L3 in clockwise direction) the output relay is activated; however, if the sequence is changed by any reason, the output relay switches OFF immediately. Relay LED is OFF, Phase Sequence error LED turns ON. **3-Lost Phase Fault**

(MKC-05 / 05P / 06 / 06P):

If the value for any of the phases drop down the lost phase limit value(Unx0.5), Phs.Seq. - Asm. LEDs turn on simultaneously and the relay breaks contact wthout delay.

Phase Sequence Fault Function Diagram 4- Insufficient Supply Voltage (MKC-05 / 05P / 06 / 06P and FR-02)

In devices which are supplied from a 3 phase capacitive source(MKC-05/06), the supply voltage is the mean value of voltages from all three phases. If this mean value (L3 phase for MKC-05P/06P devices) is less than half the supply voltage, the relay gives an insufficient supply voltage warning(asm. and Phs. Seq. LEDs flash alternately) and the relay breaks contact without delay.

MKC-05 and FR-02 with Neutral => (VL1+VL2+VL3)/3 < 115 VAC (P-N)

MKC-05P => VL3< 110 VAC (P-N) MKC-06 without Neutral => (VL12+VL23+VL31)/3 < 200 VAC (P-P)

MKC-06P => VL31< 190 VAC (P-P)

Precautions For Installation and Safe Use

Failure to follow those instructions will result in death or serious injury. Disconnect all power before working on equipment.

When the device is connected to the network, do not remove the front panel. Do not try to clean the device with solvent or the like. Only clean the device with a dried cloth.

Verify correct terminal connections before operation.

Mount device to the panel.

Electrical equipment should be serviced only by your compedent seller.

No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.

A5049 Rev.4

BREAK OF THE NEUTRAL CONNECTION FOR DEVICES WITH NEUTRAL (MKC-05/05P/FR-02):

(MKC-us/us/rH-u2): Measurement is done between Phase and Neutral for devices with capacitive supply. If the neutral connection is lost, the neutral point of the system shifts because of the asymmetrical phase loading. The device continues the take measurements according to the shifted neutral system point. When the neutral connection is lost on devices supplied with transformer and SMPS, the device supply is cut and relay of the device opens

100

10

1 k

100 10

> 20 40 60 80 100 120 140 160 180 200 Temperature (°C)

3- PTC Protection (MKC-05P / 06P)

3- PTC Protection (MKC-05P / 06P) If motor coil temperature exceeds the temperature limit of PTC, the motor is disconnected immediately. The output relay is opened and Relay LED turns off. This feature is only available for MKC-05P and MKC-06P. Resistance-Temperature values for three PTC with different temperature limit values (110 °C, 120 °C, 130 °C) are shown on the figure on the right. If you want to cancel PTC protection on a device with PTC protection feature, the PTC terminals on the device should be short-circuited. circuited.

Connection Diagrams



TECHNICAL PROPERTIES

Supply Voltage (Un) 230V AC MKC-06 / FR-02 220V AC MKC-06P, -400V AC MKC-06 / Rev2 220V AC MKC-06P, -400V AC MKC-06 / 06, FR-02 -5006 Hz. MKC-06 / 06, FR-02 -500 / 06, Hz. MKC-06 / 06, FR-02 -500 / 06, Hz. MKC-06 / 06, FR-02 -500 / 06, Hz.	Measurement and Supply Circuit	
2400V AC MKC-06, 380V AC MKC-06P Supply Yottage Gap (ΔU) : Please refer to the side label on the device. Supply Frequency : 4863 Hz. MKC-069 (06, FP-02) 9ewer Consumption (max.) : 30 VA / 2 W (50 Hz.) Measurement Method : True RMS Settings : 30% of the acjusted asymmetry value Delary-Onf(Beats) : 01 20 sec. Delary-Onf(Beat Delay) : 0.1 20 sec. Voitage Adjustment Range(asm. %) : 5% 15%. (With/Without Neutral) Can be disabled. Hysteresis : 30% of the acjusted asymmetry value Delary-Onf(Beat Delay) : 0.1 20 sec. Voitage Adjustment Accuracy : ± 3% Cutput : ± 5% 100 msec. Repetition Accuracy(Vitage) : ± 1 Change-over(CO) Contact. 8A, 250V, 2000VA (Cose=1) Electrical Life : 105 Mechanical Life : 107 Ambiant Conditions : 20°C	Supply Voltage (Un)	: 230V AC MKC-05 / FR-02, 220V AC MKC-05P,
Supply Voltage Gap (∆U) Please refer to the side label on the device. Supply Frequency 1486314z. MKC-05 / 06F. FR-02 Stopply Frequency 130 VA / 2 W (50 Hz.) Measurement Method 1 True RMS Settings 130 VA / 2 W (50 Hz.) Asymmetry Adjustment Range(asm. %) 1 S% 15%. (With/Without Neutral) Can be disabled. Hysteresis 130 WA of the adjusted asymmetry value Delary-Oft(Delar) 0.1 20 sec. Voltage Adjustment Accuracy 1 ± 0.5%. Repetition Accuracy(Voltage) 1 ± 0.5%. Accuracy of the Set Times 1 ± 5 % + 100 msec. Repetition Accuracy(Voltage) 1 ± 0.5%. Output Type 1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosp=1) Electrical Life 110 ⁶ Mechanical Life 110 ⁷ Ambiant Conditions		: 400V AC MKC-06, 380V AC MKC-06P
Supply Frequency :4863 Hz. MKC-06 (D6, FR-02 :50/00 Hz. MKC-05P / 06P Power Consumption (max.) :30 VA / 2W (50 Hz.) Measurement Method : True RMS Sattings : Sw.:.15% (WithWithout Neutral) Can be disabled. Hysteresis : 30% of the adjusted asymmetry value Delay-OffRest Delay) : 0.1 20 sec. Voltage Adjustment Accuracy : 4.0.5% Repetition Accuracy(Voltage) : 1.0.5% Repetition Accuracy(Voltage) : 1.0.5% Output : 1.05% Output : 1.05 Mechanical Life : 106 Mechanical Life : 107 Ambiant Conditions : 2.90°C +55°C. / -40°C +70°C Relative Humidity : <.%90 (without condensation) Connection : 4mm² (12AWG) solid conductor cable : 2.22.5mm² (14AWG) solid conductor cable : 2.22.5mm² (14AWG) solid conductor cable : 2.23.5mm² (14AWG) solid conductor cable : 2.23.5mm² (14AWG) solid conductor cable : 2.24.5mm² (14AWG) solid conductor cable : 2.23.5mm² (14AWG) solid conductor cable : 2.25.5mm² (14AWG) solid conductor cable : 2.23.5mm² (14AWG) solid conductor cable : 2.25.5mm² (14AWG) solid conductor cable : 2.23.5	Supply Voltage Gap (△U)	: Please refer to the side label on the device.
iso(k0 Hz, MKC-05P / 06P Power Consumption (max.) iso(k1/2 W (50 Hz.) Measurement Welhod iTue RMS Settings iTue RMS Asymmetry Adjustment Range(asm.%) iS%15% (With/Without Neutral) Can be disabled. Hysteresis iSo0% of the adjusted asymmetry value Delay-Onf(Reset Delay) i0.120 sec. Voltage Adjustment Accuracy i= 3% Repetition Accuracy(Voltage) i= 0.5% Accuracy of the Set Times i= 5% Repetition Accuracy(Time) i= 4 3% Output Output Type Output Type i 1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosp=1) Electrical Life i 10° Mabiant Conditions Operating Temperature / Storage Temperature Operating Temperature / Storage Temperature :20°C +55°C / -40°C +70°C Cable Cross-sections for Terminals :4 mm² (12AWG) sind conductor cable Screw-On Force :0.5 Nm (4.5in.lbs) Body :2.2 Smm² (HaWG) sind conductor cable Screw-On Force :0.5 Nm (4.5in.lbs) Body :10 gr. Only MKC-05P / 06P 200gr Installation :Inside the panel vertically or on to the rail	Supply Frequency	: 48 63 Hz. MKC-05 / 06, FR-02
Power Consumption (max.) :30 VA / 2 W (50 Hz.) Measurement Method : True PMKS Settings :30% of the adjusted asymmetry value Delay-Off(Delay) :0.120 sec. Delay-Off(Delay) :0.120 sec. Voltage Adjustment Accuracy :1 s 0% Repetition Accuracy(Voltage) :1 0.5% Accuracy of the Set Times :1 s 5% + 100 msec. Repetition Accuracy(Time) :1 0.5% Output Type :1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosp=1) Electrical Life :10° Mechanical Life :10° Mechanical Life :10° Connection : Cannection : Cable Cross-sections for Terminals :9 mm² (12AWG) sind conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG) solid conductor cable :2x2 5mm² (14AWG)		: 50/60 Hz. MKC-05P / 06P
Measurement Method : True RMS Stitlings	Power Consumption (max.)	: 30 VA / 2 W (50 Hz.)
Settings Asymmetry Adjustment Range(asm.%) : 5%15% (With/Without Neutral) Can be disabled. Hysteresis : 30% of the adjusted asymmetry value Delay-Off(Delay) : 0.1 20 sec. Voltage Adjustment Accuracy : 1 : 30% Repetition Accuracy(Voltage) : ± 0.5% Accuracy of the Set Times : ± 5% + 100 msec. Repetition Accuracy(Time) : ± 3% Output	Measurement Method	: True RMS
Asymmetry Adjustment Range(asm. %) :5%15% (With/Without Neutral) Can be disabled. Hysteresis :30% of the adjusted asymmetry value Delary-Oft(Delay) :0.120 sec. Voltage Adjustment Accuracy :± 3% Repetition Accuracy(Voltage) :± 0.5% Accuracy of the Set Times :± 5% + 100 msec. Repetition Accuracy(Voltage) :± 10% Output	Settings	
Hysteresis :30% of the adjusted asymmetry value Delay-Off(Delay) :0.120 sec. Delay-Off(Delay) :1.120 sec. Voltage Adjustment Accuracy :± 3% Repetition Accuracy(Voltage) :± 0.5% Accuracy of the Set Times :± 5% + 100 msec. Repetition Accuracy(Time) :± 3% Output : Output Type :1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosp=1) Electrical Life : 10 ⁵ Mechanical Life : 10 ⁵ Ambiant Conditions Operating Temperature / Storage Temperature : 20°C +55°C / -40°C +70°C Relative Humidity : < : : Connection : : Cable Cross-sections for Terminals : 4mm² (12AWG) stranded rigid cable : 20°C +55°C / I -40°C +70°C : Relative Humidity :<<%90 (without condensation) Connection : : Cable Cross-sections for Terminals : 4mm² (12AWG) stranded rigid cable : Screw-On Force : 0.5 Nm (4.5in.bs) : Body : : Instant Type : Plastic Compliant	Asymmetry Adjustment Range(asm. %)	: 5%15% (With/Without Neutral) Can be disabled.
Delay-Off(Delay) :0.120 sec. Voltage Adjustment Accuracy :± 3% Repetition Accuracy(Voltage) :± 0.5% Accuracy of the Set Times :± 5% + 100 msec. Repetition Accuracy(Time) :± 3% Output Type :1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosφ=1) Electrical Life :105 Mechanical Life :107 Ambiant Conditions :20°C +55°C / +0°C +70°C Pelative Humidity :<%90 (without condensation) Connection :20°C +55°C / +0°C Relative Humidity :<%90 (without condensation) Connection :4mm? (12AWG) stranded rigid cable :20x Smm? (1AAWG) solid conductor cable :2x2 Smm? (1AAWG) solid conductor cable :2xe Smm? (1AAWG) solid conductor cable :2x2 Smm? (1AAWG) solid conductor cable :2xe Smm? (1AAWG) solid conductor cable :2x2 Smm? (1AAWG) solid conductor cable :2xe Smm? (1AAWG) solid conductor cable :2xe Smm? (1AAWG) solid conductor cable :2xe Smm? (1AAWG) solid conductor cable :2xe Smm? (1AAWG) solid conductor cable :2xe Solid on :100 gr (1AWG) solid conductor cable Isolation :100 gr (1AWG) solid conductor cable :2xe Congliant w	Hysteresis	: 30% of the adjusted asymmetry value
Delay-On(Reset Delay) :0.1 20 sec. Voltage Adjustment Accuracy :± 3% Repetition Accuracy(Voltage) :± 0.% Accuracy of the Set Times :± 5% + 100 msec. Repetition Accuracy(Time) :± 3% Output 0 Output Type :1 Change-over(CO) Contact; 8A, 250V, 2000VA (Cose=1) Electrical Life :105 Mechanical Life :107 Ambiant Conditions - Operating Temperature / Storage Temperature :20°C+55°C / -40°C+70°C Connection : Connection : Cable Cross-sections for Terminals :4mm² (12AWG) stranded rigid cable :Dmm? (14AWG) solid conductor cable :2v2.5mm? (14AWG) solid conductor cable :Screw-On Force :0.5 Nm (4.5in.lbs) Body - Installation : Inside the panel vertically or on to the rail Material Type :Plastic Compliant with UL 94 VO Protection Class :IP 20 (Terminals), IP 40 (Front Panel) Dimensions :Type PK 28 Weight :100 gr. Only MKC-05P / 06P 200gr Isolation Coordination :Exceeding Voltage Category III, Pollution Degree 3	Delay-Off(Delay)	: 0.1 20 sec.
Voltage Adjustment Accuracy 1± 3% Repetition Accuracy(Voltage) 1± 0.5% Accuracy of the Set Times 1± 55% + 100 msec. Repetition Accuracy(Time) 1± 55% + 100 msec. Output	Delay-On(Reset Delay)	: 0.1 20 sec.
Repetition Accuracy(Voltage) 1± 0.5% Accuracy of the Set Times 1± 5% + 100 msec. Repetition Accuracy(Time) 1± 3% Output	Voltage Adjustment Accuracy	:±3%
Accuracy of the Set Times 1 ± 5% + 100 msec. Repetition Accuracy(Time) 1 ± 5% Output 0 Output Type 1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosp=1) Electrical Life 105 Ambiant Conditions 107 Operating Temperature / Storage Temperature : 20°C +55°C / -40°C +70°C Relative Humidity : < 4%90 (without condensation) Connection 6 Cable Cross-sections for Terminals : 4mm? (12AWG) stranded rigid cable : 6mm? (1AAWG) solid conductor cable : 2x2.5mm? (14AWG) solid conductor cable Screw-On Force : 0.5 Nm (4.5in.lbs) Body Installation Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals). IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 yr. Only MKC-05P / 06P 200gr Isolation Notage (EN 60255-5) : 440 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 24V AC 50 Hz 1 minute. Isolation Resistance (EN 60255-5)	Repetition Accuracy(Voltage)	: ± 0.5%
Repetition Accuracy(Time) :± 3% Output : Output Type :1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cose=1) Electrical Life :10 ⁵ Mechanical Life :10 ⁷ Ambiant Conditions - Operating Temperature / Storage Temperature :20°C +55°C 1 -40°C +70°C Relative Humidity :<<%90 (without condensation) Connection - Cable Cross-sections for Terminals :4mm² (12AWG) stranded rigid cable :5mm² (10AWG) solid conductor cable 2:x2.5mm² (10AWG) solid conductor cable :2x2.5mm² (10AWG) solid conductor cable 2:x2.5mm² (10AWG) solid conductor cable :2x2.5mm² (10AWG) solid conductor cable Screw-On Force :0.5 Nm (4.5mlbs) Body - - Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : I/P 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 24 W A C 60 Hz. 1 minute. I	Accuracy of the Set Times	: ± 5% + 100 msec.
Output Output Type : 1 Change-over(CO) Contact; 8A, 250V, 2000VA (Cosp=1) Electrical Life : 10 ⁵ Mechanical Life : 10 ⁷ Amblant Conditions : 20°C +55°C 1 -40°C +70°C Perating Temperature / Storage Temperature : 20°C +55°C 1 - 40°C +70°C Relative Humidity : <%90 (without condensation) Connection : 4mm² (12AWG) stranded rigid cable : 6mm² (10AWG) solid conductor cable Screw-On Force : 0.5 Nm (4.5in.1bs) Body : Inside the panel vertically or on to the rail Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation Votage (EN 6025-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) : 4 V 1.2 / 50 uS Dielectric Resistance (EN 6025-5) : 2 kVA 65 UK 2. EN-61000-6-2 : Immunity EN-61000-6-2 : Immunity EN-61000-6-3 : Product Standard	Repetition Accuracy(Time)	: ± 3%
Output Type :1 Change-over(CO) Contact, 8A, 250V, 2000VA (Cosp=1) Electrical Life :10 ⁶ Mechanical Life :107 Ambiant Conditions :20°C+55°C / -40°C+70°C Relative Hunidity :<%90 (without condensation) Connection :0107 Cable Cross-sections for Terminals :4mm? (12AWG) stranded rigid cable ::007 (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x2.5mm? (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x2.5mm? (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x2.5mm? (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x2.5mm? (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x2.5mm? (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x2.5mm? (14AWG) solid conductor cable :2x2.5mm? (14AWG) solid conductor cable ::2x1.5mm? :14AWG solid conductor cable ::2x2.5mm? :10	Output	
Electrical Life : 105 Mechanical Life : 107 Ambiant Conditions : Operating Temperature / Storage Temperature :: 20°C +55°C / -40°C +70°C Relative Humidity :: 4%90 (without condensation) Connection : Cable Cross-sections for Terminals : 4mm² (12AWG) stranded rigid cable :: 6mm² (10AWG) solid conductor cable :: 242.5mm² (10AWG) solid conductor cable Screw-On Force :: 0.5 Nm (4 Sin:lbs) Body : Material Type : Plastic Compliant with UL 94 VO Protection Class :: IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight :: 100 V Isolation Voltage (EN 60255-5) :: 4400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) :: 24 VA C 50 Hz.1 minute. Isolation Resistance (EN 6025-5) :: 24 VA C 50 Hz.1 minute. Isolation Coordination :: Solot MM / 500 V DC Followed Standards :: Product Standard EN+60025-6 : 2 KV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kW AC 50 Hz.1 minute. Isolation Resistan	Output Type	: 1 Change-over(CO) Contact, 8A, 250V, 2000VA (Coso=1)
Mechanical Life : 107 Ambiant Conditions +55°C / -40°C+70°C Operating Temperature / Storage Temperature :>20°C+55°C / -40°C+70°C Relative Humidity :<5%90 (without condensation) Connection +55°C / -40°C+70°C Relative Humidity :<5%90 (without condensation) +55°C Cable Cross-sections for Terminals : 4mm² (12AWG) stranded rigid cable : 5mm² (14AWG) solid conductor cable +55°C Screw-On Force ::0.5 km (4.5in.lbs) +55°C +55°C Body +55°C +55°C +55°C Protection Class ::IP 20 (Terminals), IP 40 (Front Panel) +56°C Dimensions ::Type PK 28 +56°C +56°C Weight ::100 gr. Only MKC-05P / 06P 200gr +5600 V +5600 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 +500 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 +500 V Isolation Resistance (EN 60255-5) : 24 VA C 50 Hz.1 minute. +500 V Isolation Resistance (EN 60255-5) : 24 VA C 50 Hz.1 minute. +500 V DC	Electrical Life	: 10 ⁵
Ambiant Conditions Operating Temperature / Storage Temperature Scale Cross-sections for Terminals Cable Cross-sections for Terminals Cable Cross-sections for Terminals Screw-On Force Screw-On Force Installation Installation Installation Installation Screw-On Force Installation Installation Installation Installation Screw-On Force Installation Installation Installation Installation Screw-On Force Screw-On Force Installation Screw-On Force Screw-On Force <tr< th=""><th>Mechanical Life</th><th>: 107</th></tr<>	Mechanical Life	: 107
Operating Temperature / Storage Temperature :20°C+55°C J40°C+70°C Relative Humidity :<%90 (without condensation) Connection +55°C J40°C+70°C Cable Cross-sections for Terminals :4mm² (12AWG) stranded rigid cable :5mm² (10AWG) solid conductor cable Screw-On Force :0.5 Nm (4.5in.lbs) Body	Ambiant Conditions	
Relative Humidity : <%90 (without condensation) Connection : 4mm? (12AWG) stranded rigid cable : 6mm? (10AWG) solid conductor cable : 2x2.5mm? (14AWG) solid conductor cable : 2x2.5mm? (14AWG) solid conductor cable Screw-On Force : 0.5 Nm (4.5m.lbs) Body Installation Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-06P / 06P 200gr Isolation : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 400 V EN 6025-5) : 2 kV AC 50 Hz.1 minute, Isolation Coordination Elsolation Costinate (EN 6025-5) : 2 kV AC 50 Hz.1 minute, Isolation Resistance (EN 6025-5) Instant Burst Voltage (EN 6025-5) : 2 kV AC 50 Hz.1 minute, Isolation Resistance (EN 6025-5) EN-60025-5 : Solot MOHM / 500 V DC Followed Standards : EN-60025-5 : Immunity EN-61000-6-2 : Immunity EN-61000-6-2 : Emission Directives/Regulations To Be Followed : Emission 2/328/EEC LVD	Operating Temperature / Storage Temperature	:-20°C +55°C / -40°C +70°C
Connection Cable Cross-sections for Terminals : 4mm² (12AWG) stranded rigid cable : 6mm² (10AWG) solid conductor cable Screw-On Force : 0.5 Nm (4.5in.lbs) Body Inside the panel vertically or on to the rail Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Fornt Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation Vottage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, (EN 60255-5) Delectric Resistance (EN 60255-5) : 4 kV 1.2 / 50 uS Delectric Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. EN-60265 : 2 Product Standard EN-60265 : Product Standard EN-60265 : Product Standard EN-61000-6-2 : Immunity EN-61000-6-3 : Product Standard EN-61000-6-3 : Emission Directives/Regulations To Be Followed : Emission Directives/Regulations To Be Followed EMC	Relative Humidity	: <%90 (without condensation)
Cable Cross-sections for Terminals : 4mm? (12AWG) stranded rigid cable : 6mm? (10AWG) solid conductor cable : 2x2.5mm? (14AWG) solid conductor cable Body Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation Notage (EN 60255-5) : 400 V Isolation Votage (EN 60255-5) : 2 kV AC OP V Isolation Resistance (EN 60255-5) : 4 kV 1.2 / 50 uS Delectric Resistance (EN 60255-5) : 2 kV AC SO Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO HZ.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO HZ.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO HZ.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO HZ.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC SO HZ.1 minute. <th>Connection</th> <th></th>	Connection	
: 6mm² (10AWG) solid conductor cable : 2x2.5mm² (14AWG) solid conductor cable : 2x2.5mm² (14AWG) solid conductor cable Body Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Isolation Voltage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : Emsistine H=60005-3.<	Cable Cross-sections for Terminals	: 4mm ² (12AWG) stranded rigid cable
: 2x2.5mm² (14xWG) solid conductor cable Screw-On Force : 0.5 km (4.5in.lbs) Body Installation Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Fornt Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Isolation Coordination : Isolation Coordination : Exceeding Voltage Category III, (EN 60255-5) : 400 V Isolation Resistance (EN 60255-5) : 4 kV 1.2 / 50 uS Delectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 US Evedousd Standards : Evedousd Standards : Evedousd-sa : Immunity Eventous-sa, Eventous-s4 : Emission Directives/Regulations To Be Followed : Standards : Eventous-sa, Eventous-sa : Biolation Resistance : Standards </th <th></th> <th>: 6mm² (10AWG) solid conductor cable</th>		: 6mm ² (10AWG) solid conductor cable
Screw-On Force :0.5 Nm (4.5in.lbs) Body Installation Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class :: IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight :: 100 gr. Only MKC-05P / 06P 200gr Isolation Isolation Voltage (EN 6025-5) Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) :: 4 kV 1.2 / 50 uS Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 6025-5) :: 2 kVA CS OH 2.1 minute. EN-6000-6-2		: 2x2.5mm ² (14AWG) solid conductor cable
Body Installation : Inside the panel vertically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-0SP / 06P 200gr Isolation Voltage (EN 6025-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation coerdination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 V DC Followed Standards EN+61000-6-2 EN+61000-6-2 : Immunily EN+61000-6-4 <th>Screw-On Force</th> <th>: 0.5 Nm (4.5in.lbs)</th>	Screw-On Force	: 0.5 Nm (4.5in.lbs)
Installation : Inside the panel verically or on to the rail Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Solation Voltage (EN 60255-5) Isolation Coordination : Exceeding Voltage Category III, Instant Burst Voltage (EN 60255-5) Dilectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolator Resistance (EN 60255-5) : 2 kV AC 50 Uz. 1 minute. EN-60255-6 : Product Standard EN-60256-6 : Product Standard EN-60256-6 : Product Standard EN-61000-6-2 : Immunity EN 51000-6-4 : Emiss	Body	
Material Type : Plastic Compliant with UL 94 VO Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Isolation Ootage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, (EN 6025-5) Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Delectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation New Standards : EN-60255-6 : 2 kV AC 50 UZ Followed Standards : EN-60205-6 : Product Standard EN-60205-7 : Immunity EN-61000-6-2 : Immunity EN-61000-6-3, EN-6100wed :: Pollowed Standard : EN-61000-6-4 : Emission Directives/Regulations To Be Followed : 732/JEEC LVD 89/336/EEC EMC	Installation	: Inside the panel vertically or on to the rail
Protection Class : IP 20 (Terminals), IP 40 (Front Panel) Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation Noltage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Delectric Resistance (EN 60255-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-6) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6025-5) : 2 kV AC 50 Hz.1 minute. Isolation Resistance (EN 6000-6-4 : Emission Directives/Regulations To Be Followed : Emission <th>Material Type</th> <th>: Plastic Compliant with UL 94 VO</th>	Material Type	: Plastic Compliant with UL 94 VO
Dimensions : Type PK 28 Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Isolation Voltage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Dielectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 VDC Followed Standards : EN-60255-6 : Product Standard EN-60256-6 : Product Standard EN-60256-6 : Directives/Regulations To Be Followed 732/3EC LVD 8y/38/EEC EMC	Protection Class	: IP 20 (Terminals), IP 40 (Front Panel)
Weight : 100 gr. Only MKC-05P / 06P 200gr Isolation : Isolation Coordination : £xceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 12 / 50 uS Dielectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute. Isolator Resistance (EN 60255-5) : 2 kV AC 50 UZ. 1 minute. EN-60255-6 : Product Standard EN-60255-6 : Product Standard EN-60255-6 : Product Standard EN-60255-6 : Directives/Regulations To Be Followed 732/3FEC LVD 89/38/FEC EMC	Dimensions	: Type PK 28
Isolation Isolation Voltage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Dielectric Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. Isolation Resistance (EN 60255-5) : 2 kVA CS OH 2.1 minute. EN-60256-6 : Product Standard EN-60206-2 : Immunity EN-61000-6-3 : Emission Directives/Regulations To Be Followed Taty 732/JEEC LVD 89/38//EEC EMC	Weight	: 100 gr. Only MKC-05P / 06P 200gr
Isolation Voltage (EN 60255-5) : 400 V Isolation Coordination : Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 6025-5) : 4 kV 1.2 / 50 uS Dielectric Resistance (EN 6025-5) : 2 kV AC 50 Hz. 1 minute. Isolation Cover Standards : Followed Standards : EN-6025-5.6 : Product Standard EN-6025-5.6 : Product Standard EN-6025-5.6 : Product Standard EN-6025-6.1 : Emission Directives/Regulations To Be Followed : 72/32/ECC LVD 89/336/EEC EMC	Isolation	
Isolation Coordination Exceeding Voltage Category III, Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Dielectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute, Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute, Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute, Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute, Isolation Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 minute, EN-60255-6 : Product Standard EN-60205-6 : Product Standard EN-61000-6-2 : Immunity EN-61000-6-4 : Emission Directives/Regulations To Be Followed Tarity 73/23/EEC LVD 8y/336/EEC EMC	Isolation Voltage (EN 60255-5)	: 400 V
(EN 6025-5) Pollution Degree 3 Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Dielectric Resistance (EN 60255-5) : 2 kV AC 50 HZ. 1 minute. Isolation Resistance (EN 60255-5) : 2 kV AC 50 HZ. 1 minute. Isolation Resistance (EN 60255-5) : > 500 MOHM / 500 V DC Followed Standards EN-60255-6 EN-60255-6 : Product Standard EN-60205-6.2 : Immunity EN-61000-6-2 : Emission Directives/Regulations To Be Followed 73/2/JEC EN/230/EEC LVD Sel/230/EEC EMC	Isolation Coordination	: Exceeding Voltage Category III,
Instant Burst Voltage (EN 60255-5) : 4 kV 1.2 / 50 uS Dielectric Resistance (EN 60255-5) : 2 kV AC 50 Hz. 1 miute. Isolation Resistance (EN 60255-5) : 5 500 MOHM / 500 V DC Followed Standards EN-60255-6 EN-60255-6 : Product Standard EN-60265-6 : Immunity EN-61000-6-2 : Immunity EN-61000-6-3, EN-61000-6-4 : Emission Directives/Regulations To Be Followed Ta2/s/EEC EMC EMC	(EN 60255-5)	Pollution Degree 3
Dielectric Resistance (EN 60255-5) :2 kV AC 50 Hz. 1 minute. Isolation Resistance (EN 60255-5) :> 5000 MOHM /500 V DC Followed Standards EN-60255-6 EN-60255-6 : Product Standard EN-60206-63, EN-61000-6-4 : Emission Directives/Regulations To Be Followed Immunity 73/23/EEC LVD 89/336/EEC EMC	Instant Burst Voltage (EN 60255-5)	: 4 kV 1.2 / 50 uS
Isolation Resistance (EN 60255-5) :>500 MOHM / 500 V DC Followed Standards EN-60255-6 EN-60255-6 : Product Standard EN-61000-6-3 :: Immunity EN-61000-6-4 : Emission Directives/Regulations To Be Followed 72/3/EEC EN/5000-EC LVD S9/38/EEC EMC	Dielectric Resistance (EN 60255-5)	: 2 kV AC 50 Hz. 1 minute.
Followed Standards EN-60255-6 : Product Standard EN-6100-6-2 : Immunity EN-61000-6-3, EN-61000-6-4 : Emission Directives/Regulations To Be Followed : Zamission 72/3/EEC LVD 89/336/EEC EMC	Isolation Resistance (EN 60255-5)	: >500 MOHM / 500 V DC
EN-60255-6 : Product Standard EN-61000-6-2 : Immunity EN-61000-6-3, EN-61000-6-4 : Emission Directives/Regulations To Be Followed	Followed Standards	
EN-51000-5-2 : Immunity EN-51000-5-3, EN-51000-5-4 : Emission Directives/Regulations To Be Followed 73/23/EEC LVD 89/336/EEC EMC	EN-60255-6	: Product Standard
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Directives/Aegulations O Be Followed 73/23/EEC LVD 89/336/EEC EMC	EN-61000-6-3, EN-61000-6-4	: Emission
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