

November 9, 2023

P-RFQ No. 2023-080

## REQUEST FOR QUOTATION

### SUPPLY AND DELIVERY OF VARIOUS ELECTROMECHANICAL COMPONENTS FOR BOOSTER PUMP

The Santa Maria Water District (SMWD) hereinafter referred to as "the Purchaser", through its Bids and Awards Committee (BAC), invite interested parties to submit price quotation for the project, "**SUPPLY AND DELIVERY OF VARIOUS ELECTROMECHANICAL COMPONENTS FOR BOOSTER PUMP**" through Small Value Procurement (Sec. 53.9 of R.A. No. 9184) with Approved Budget for the Contract (ABC) of One Hundred Eighteen Thousand Four Hundred Thirty-Four and Eight Centavos Only (**₱118,434.08**).

	Description	Qty	Unit	Unit Cost	Total Amount
1	<b>CURRENT TRANSFORMER</b> 50/60HZ; 150/5A; 220V AC Conductor Trough: 1T Burden VA: 5VA Class 1.0	3	PC		
2	<b>STRANDED WIRE 16 THHN</b>	150	MTR		
3	<b>AUXILLARY CONTACTOR</b> 2 NO + 2 NC – screw clamp terminals	1	SET		
4	<b>AUXILLARY CONTACTOR</b> 1 NO + 1 NC – screw-clamps terminals	1	SET		
5	<b>THERMAL OVERLOAD RELAY</b> 37...50A, class 10A	1	PC		
6	<b>THERMAL OVERLOAD RELAY</b> 48...65A - class 10A	1	PC		
7	<b>MAGNETIC CONTACTOR</b> 3P(3 NO) – AC-3 - <= 440 V 32 A – 220 V AC coil	1	SET		
8	<b>MAGNETIC CONTACTOR</b> 3P(3 NO) – AC-3 - <= 440 V 50 A – 220 V AC 50/60 Hz coil	1	PC		
9	<b>UNDER/OVER RELAY VOLTAGE SENSOR</b>	1	PC		
10	<b>FLOATLESS RELAY</b> AC: 110V, 220V, 240V, 50/60Hz	1	PC		
11	<b>TIMER</b> 50/60Hz; 250VAC (resistive load) 3S/30S/3M/30M	1	PC		
12	<b>MAGNETIC CONTACTOR</b> 3P(3 NO) – AC-3 - <= 440 V 65 A – 220 V AC 50/60 Hz coil	1	PC		



13	<b>THERMAL OVERLOAD RELAY</b> 80...104 A - class 10A	1	PC		
	*** nothing follows ***				
	*** please see attached technical specifications ***				

All items listed under the purchaser's specifications must be complied on a pass-fail basis.

Failure to meet any one of the requirements will result to rejection.

Likewise, it is understood that Purchaser's specifications are minimum requirements. The Bidder/Supplier may offer higher specifications or additional items, if any.

Procurement procedures will be conducted in accordance with the provisions of the Implementing Rules and Regulations (IRR) of Republic Act No. 9184 (Government Procurement Reform Act).

It is the intent of the Purchaser to evaluate the quotation for the item and award will be made to the quotation resulting in the overall lowest cost, meeting purchaser's technical specifications.

Likewise, in accordance with Section 54.6 and Appendix A of Annex "H" (Consolidated Guidelines for the Alternative Methods of Procurement) of the IRR of RA No. 9184, the supplier shall provide the following documentary requirements as a **condition for award** of the contract. The documents shall be attached together with the quotations.

1. PhilGEPS Registration Number
2. Mayor's/Business Permit
3. Photo Copy of Sample Official Receipt (OR)
4. Certificate of Registration (BIR FORM 2303); and
5. Duly Notarized Omnibus Sworn Statement. (If unable to have the document notarized, you may submit a signed unnotarized Omnibus Sworn Statement, subject to compliance therewith after award of contract but before payment).

Your prices must be quoted in Philippine Peso and must include the unit price and total price, inclusive of all taxes to be paid and other incidental cost to the delivery site if the contract is awarded.

Payment shall be through check and advance payment is not allowed. Payment shall only be made upon completion of delivery of all items.

All quotations may be typewritten or handwritten and may be placed in sealed envelope marked "**SUPPLY AND DELIVERY OF VARIOUS ELECTROMECHANICAL COMPONENTS FOR BOOSTER PUMP**" (RFQ No. 2023-080) and must be submitted on or before **November 15, 2023, 11:00AM** at the SMWD main office. It may also be sent thru email on our official email address at [smwdbulacan@yahoo.com](mailto:smwdbulacan@yahoo.com) on the specified time stated above and address to the General Manager, Engr. Carlos N. Santos Jr.

Quotations shall be valid for thirty (30) calendar days from the deadline of submission of the same.



The delivery period shall be within **5 Days** from receipt of the Purchase Order (PO). The supplier should inform the purchaser at least two (2) days before the date of delivery. The Purchaser shall have the right to reject or to return the items that will be declared defective. The delivery will be made only during working days from 8:00 AM to 5:00 PM.

DELIVERY SITE: General Services Division of SMWD located at 301 J. P. Rizal St., Dulong Bayan, Santa Maria, Bulacan.

The prospective supplier shall submit the following

- a) Duly accomplished Quotation Form; and
- b) Brochures of the items offered, if any.

The Santa Maria Water District reserves the right to accept or reject any quotation, and to annul the procurement process and reject all quotations at any time prior to Contract award, without thereby incurring any liability to the affected supplier or suppliers. SMWD also reserves the right to waive any required formality in the proposals received, and select the proposal which it determines to be the most advantageous to the government.

**Prepared by:**

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**Noted by:**

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**BAC Chairperson**

## **AUXILLARY CONTACTOR – 2 NO + 2 NC SCREW CLAMP TERMINALS**

### **Main**

Range of product: TeSys D

TeSys D control relay

TeSys F

Product or component type: Auxiliary contact block

Product compatibility: CR1F

Auxiliary contacts operation: Instantaneous

Pole contact composition: 2 NO + 2 NC

Connections – terminals: Screw clamp terminals 2 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: solid - without cable end

Screw clamp terminals 2 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: solid - with cable end

Screw clamp terminals 2 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: flexible - without cable end

Screw clamp terminals 2 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: flexible - with cable end

Screw clamp terminals 1 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: solid - without cable end

Screw clamp terminals 1 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: solid - with cable end

Screw clamp terminals 1 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: flexible - without cable end

Screw clamp terminals 1 cable 1...2.5 mm<sup>2</sup> - cable

stiffness: flexible - with cable end

### **Complementary**

Mounting location: Front

[Ui] rated insulation voltage: 600 V - certifications CSA

690 V - conforming to IEC 60947-5-1

600 V - certifications UL

[Ue] rated operational voltage: 690 V AC 25...400 Hz

[Ith] conventional free air thermal current: 10 A at ≤ 60 °C

Irms rated making capacity: 250 A at ≤ 690 V DC conforming to IEC 60947-5-1

140 A at ≤ 690 V AC conforming to IEC 60947-5-1

Permissible short-time rating: 140 A at -5...60 °C 100 ms

120 A at -5...60 °C 500 ms

100 A at -5...60 °C 1 s

Protection type: GG fuse ≤ 10 A rating according to operational current for Ue ≤ 690 V

Associated fuse rating: IEC 60947-5-1

Mechanical durability: 30 Mcycles

Minimum switching current: 5 mA

Minimum switching voltage: 17 V

Non-overlap time: 1.5 ms on energisation (no overlap between NC and NO contact)

1.5 ms on de-energisation (no overlap between NC and NO contact)

Overlap time: 1.5 ms

Insulation resistance: > 10 MOhm

Product weight: 0.05 kg

## **AUXILLARY CONTACTOR – 1 NO + 1 NC SCREW CLAMPS TERMINALS**

### **Main**

Range: TeSys

TeSys Deca

Product or component type: Auxiliary contact block

Range compatibility: TeSys D CAD

TeSys D LC1D  
TeSys F LC1F  
TeSys F CR1F  
TeSys Deca CAD  
TeSys Deca LC1D

Mounting location: Front

Pole contact composition: 1 NO + 1 NC

Contacts operation: Instantaneous

[Ue] rated operational voltage: 690 V AC 25...400 Hz

[Ie] rated operational current: 6 A at 120 V AC-15

1.04 A at 690 V AC-15

0.55 A at 125 V DC-13

0.1 A at 600 V DC-13

[Ui] rated insulation voltage: 690 V conforming to IEC 60947-5-1

600 V conforming to UL

600 V conforming to CSA

[Ith] conventional free air thermal current: 10 A (at 60 °C)

Standards: EN/IEC 60947-5-1

UL 60947-5-1

CSA C22.2 No 60947-5-1

GB/T 14048.5

product certifications: CB, UL, CSA, CCC, EAC, UKCA

#### **Complementary**

Irms rated making capacity: 140 A AC conforming to IEC 60947-5-1

250 A DC conforming to IEC 60947-5-1

Permissible short-time rating: 100 A 60 °C 1 s

120 A 60 °C 500 ms

140 A 60 °C 100 ms

Protection type: GG fuse 10 A

Mechanical durability: 30 Mcycles

Minimum switching current: 5 mA

Minimum switching voltage: 17 V

Non-overlap time: 1.5 ms on de-energisation no overlap between NC and NO contact

1.5 ms on energisation no overlap between NC and NO contact

Insulation resistance: > 10 MOhm

Connections – terminals: Screw clamp terminals 1 cable(s) 1...4 mm<sup>2</sup>flexible with cable end

Screw clamp terminals 1 cable(s) 1...4 mm<sup>2</sup>flexible without cable end

Screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup>flexible with cable end

Screw clamp terminals 2 cable(s) 1...4 mm<sup>2</sup>flexible without cable end

Screw clamp terminals 1 cable(s) 1...4 mm<sup>2</sup>rigid without cable end

Screw clamp terminals 2 cable(s) 1...4 mm<sup>2</sup>rigid without cable end

Tightening torque: 1.7 N.m - with screwdriver flat Ø 6 mm

1.7 N.m - with screwdriver Philips No 2

1.7 N.m - with screwdriver pozidriv No 2

Height: 48 mm

Width: 26 mm

Depth: 42 mm

Colour: Dark grey

#### **THERMAL OVERLOAD RELAY – 37...50A, CLASS 10A**

##### **Main**

Range: TeSys

TeSys Deca

Product or component type: Differential thermal overload relay

Relay application: Motor protection

Product compatibility: LC1D65A

LC1D50A

LC1D40A

Network type:DC

AC

Thermal overload class: Class 10A conforming to IEC 60947-4-1

Thermal protection adjustment range: 37...50 A

[Ui] rated insulation voltage: Power circuit: 600 V conforming to CSA

Power circuit: 600 V conforming to UL

Power circuit: 690 V conforming to IEC 60947-4-1

### **Complementary**

Network frequency: 0...400 Hz

Mounting support: Plate, with specific accessories

Rail, with specific accessories

Under contactor

Tripping threshold: 1.14 +/- 0.06 I<sub>r</sub> conforming to IEC 60947-4-1

Auxiliary contact composition: 1 NO + 1 NC

[I<sub>th</sub>] conventional free air thermal current: 5 A for signalling circuit

Permissible current: 0.95 A at 380 V AC-15 for signalling circuit

0.06 A at 440 V DC-13 for signalling circuit

[U<sub>e</sub>] rated operational voltage: 690 V AC 0...400 Hz for power circuit conforming to IEC 60947-4-1

Associated fuse rating: 4 A gG for signalling circuit

4 A BS for signalling circuit

[U<sub>imp</sub>] rated impulse withstand voltage: 6 kV

Phase failure sensitivity: Tripping current 130 % of I<sub>r</sub> on two phase, the last one at 0

Control type: Red push-button: stop

Blue push-button: reset

Temperature compensation: -20...60 °C

Connections – terminals: Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> flexible without cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> flexible with cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> solid without cable end

Power circuit: EverLink BTR screw connectors 1 cable(s) 1...35 mm<sup>2</sup> flexible without cable end

Power circuit: EverLink BTR screw connectors 1 cable(s) 1...35 mm<sup>2</sup> flexible with cable end

Power circuit: EverLink BTR screw connectors 1 cable(s) 1...35 mm<sup>2</sup> solid without cable end

Tightening torque: Control circuit: 1.7 N.m - on screw clamp terminals

Power circuit: 5 N.m - on EverLink BTR screw connectors

Height: 70 mm

Width: 55 mm

Depth: 123 mm

Net weight: 0.375 kg

### **THERMAL OVERLOAD RELAY – 48...65A – CLASS 10A**

#### **Main**

Range: TeSys

TeSys Deca

Product or component type: Differential thermal overload relay

Relay application: Motor protection

Product compatibility: LC1D65A

LC1D50A

Network type: DC

AC

Thermal overload class: Class 10A conforming to IEC 60947-4-1

Thermal protection adjustment range: 48...65 A

[Ui] rated insulation voltage: Power circuit: 600 V conforming to CSA

Power circuit: 600 V conforming to UL

**Power circuit: 690 V conforming to IEC 60947-4-1**

#### **Complementary**

Network frequency: 0...400 Hz

Mounting support: Plate, with specific accessories

Rail, with specific accessories

Under contactor

Tripping threshold: 1.14 +/- 0.06 I<sub>r</sub> conforming to IEC 60947-4-1

Auxiliary contact composition: 1 NO + 1 NC

[I<sub>th</sub>] conventional free air thermal current: 5 A for signalling circuit

Permissible current: 0.95 A at 380 V AC-15 for signalling circuit

0.06 A at 440 V DC-13 for signalling circuit

[U<sub>e</sub>] rated operational voltage: 690 V AC 0...400 Hz for power circuit conforming to IEC 60947-4-1

Associated fuse rating: 4 A gG for signalling circuit

4 A BS for signalling circuit

[U<sub>imp</sub>] rated impulse withstand voltage: 6 kV

Phase failure sensitivity: Tripping current 130 % of I<sub>r</sub> on two phase, the last one at 0

Control type: Red push-button: stop

Blue push-button: reset

Temperature compensation: -20...60 °C

Connections – terminals: Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> flexible without cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> flexible with cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> solid without cable end

Power circuit: EverLink BTR screw connectors 1 cable(s) 1...35 mm<sup>2</sup> flexible without cable end

Power circuit: EverLink BTR screw connectors 1 cable(s) 1...35 mm<sup>2</sup> flexible with cable end

Power circuit: EverLink BTR screw connectors 1 cable(s) 1...35 mm<sup>2</sup> solid without cable end

Tightening torque: Control circuit: 1.7 N.m - on screw clamp terminals

Power circuit: 5 N.m - on EverLink BTR screw connectors

Height: 70 mm

Width: 55 mm

Depth: 123 mm

Net weight: 0.375 kg

#### **MAGNETIC CONTACTOR – 3P(3 NO) – AC-3 <= 440 V 32 A – 220 V AC coil**

##### **Main**

Range of product: TeSys Deca

Product or component type: Contactor

Contactor Application: Resistive load

Motor control

Utilisation Category: AC-4

AC-1

AC-3

AC-3e

Poles description: 3P

[U<sub>e</sub>] rated operational voltage: Power circuit: <= 690 V AC 25...400 Hz

Power circuit: <= 300 V DC

[I<sub>e</sub>] rated operational current: 32 A (at <60 °C) at <= 440 V AC AC-3 for power circuit

50 A (at <60 °C) at <= 440 V AC AC-1 for power circuit

32 A (at <60 °C) at <= 440 V AC AC-3e for power circuit

[U<sub>c</sub>] control circuit voltage: 220 V AC 50/60 Hz

##### **Complementary**

Motor power kW: 7.5 kW at 220...230 V AC 50/60 Hz (AC-3)

15 kW at 380...400 V AC 50/60 Hz (AC-3)

15 kW at 415...440 V AC 50/60 Hz (AC-3)  
18.5 kW at 500 V AC 50/60 Hz (AC-3)  
18.5 kW at 660...690 V AC 50/60 Hz (AC-3)  
7.5 kW at 400 V AC 50/60 Hz (AC-4)  
7.5 kW at 220...230 V AC 50/60 Hz (AC-3e)  
15 kW at 380...400 V AC 50/60 Hz (AC-3e)  
15 kW at 415...440 V AC 50/60 Hz (AC-3e)  
18.5 kW at 500 V AC 50/60 Hz (AC-3e)  
18.5 kW at 660...690 V AC 50/60 Hz (AC-3e)

Motor power hp: 2 hp at 115 V AC 50/60 Hz for 1 phase motors  
5 hp at 230/240 V AC 50/60 Hz for 1 phase motors  
10 hp at 200/208 V AC 50/60 Hz for 3 phases motors  
10 hp at 230/240 V AC 50/60 Hz for 3 phases motors  
20 hp at 460/480 V AC 50/60 Hz for 3 phases motors  
25 hp at 575/600 V AC 50/60 Hz for 3 phases motors

Compatibility code: LC1D

Pole contact composition: 3 NO

Contact compatibility: M2

Protective cover: With

[Ith] conventional free air thermal current: 10 A (at 60 °C) for signalling circuit  
50 A (at 60 °C) for power circuit

Irms rated making capacity: 140 A AC for signalling circuit conforming to IEC 60947-5-1  
250 A DC for signalling circuit conforming to IEC 60947-5-1  
550 A at 440 V for power circuit conforming to IEC 60947

Rated breaking capacity: 550 A at 440 V for power circuit conforming to IEC 60947

[Icw] rated short-time withstand current: 260 A 40 °C - 10 s for power circuit  
430 A 40 °C - 1 s for power circuit  
60 A 40 °C - 10 min for power circuit  
138 A 40 °C - 1 min for power circuit  
100 A - 1 s for signalling circuit  
120 A - 500 ms for signalling circuit  
140 A - 100 ms for signalling circuit

Associated fuse rating: 10 A gG for signalling circuit conforming to IEC 60947-5-1  
63 A gG at <= 690 V coordination type 1 for power circuit  
63 A gG at <= 690 V coordination type 2 for power circuit

Average impedance: 2 mOhm - Ith 50 A 50 Hz for power circuit

Power dissipation per pole: 2 W AC-3

5 W AC-1

2 W AC-3e

[Ui] rated insulation voltage: Power circuit: 690 V conforming to IEC 60947-4-1

Power circuit: 600 V CSA certified

Power circuit: 600 V UL certified

Signalling circuit: 690 V conforming to IEC 60947-1

Signalling circuit: 600 V CSA certified

Signalling circuit: 600 V UL certified

Overvoltage category: III

Pollution degree: 3

[Uimp] rated impulse withstand voltage: 6 kV conforming to IEC 60947

Safety reliability level: B10d = 1369863 cycles contactor with nominal load conforming to EN/ISO 13849-1

B10d = 20000000 cycles contactor with mechanical load conforming to EN/ISO 13849-1

Mechanical durability: 15 Mcycles

Electrical durability: 1.65 Mcycles 32 A AC-3 at  $U_e \leq 440$  V

1.4 Mcycles 50 A AC-1 at  $U_e \leq 440$  V

1.65 Mcycles 32 A AC-3e at  $U_e \leq 440$  V



Control circuit type: AC at 50/60 Hz standard

Coil technology: Without built-in suppressor module

Control circuit voltage limits: 0.3...0.6 U<sub>c</sub> (-40...70 °C):drop-out AC 50/60 Hz  
0.8...1.1 U<sub>c</sub> (-40...60 °C):operational AC 50 Hz  
0.85...1.1 U<sub>c</sub> (-40...60 °C):operational AC 60 Hz  
1...1.1 U<sub>c</sub> (60...70 °C):operational AC 50/60 Hz

Inrush power in VA: 70 VA 60 Hz cos phi 0.75 (at 20 °C)

70 VA 50 Hz cos phi 0.75 (at 20 °C)

Hold-in power consumption in VA: 7.5 VA 60 Hz cos phi 0.3 (at 20 °C)

7 VA 50 Hz cos phi 0.3 (at 20 °C)

Heat dissipation: 2...3 W at 50/60 Hz

Operating time: 12...22 ms closing

4...19 ms opening

Maximum operating rate: 3600 cyc/h 60 °C

## **MAGNETIC CONTACTOR – 3P(3 NO) – AC-3 <= 440 V 50 A – 220 V AC 50/60 Hz coil**

### **Main**

Range: TeSys

TeSys Deca

Product or component type: Contactor

contactor application: Resistive load

Motor control

utilisation category: AC-4

AC-1

AC-3

AC-3e

Poles description: 3P

[U<sub>e</sub>] rated operational voltage: Power circuit: <= 690 V AC 25...400 Hz

Power circuit: <= 300 V DC

[I<sub>e</sub>] rated operational current: 50 A (at <60 °C) at <= 440 V AC AC-3 for power circuit

80 A (at <60 °C) at <= 440 V AC AC-1 for power circuit

50 A (at <60 °C) at <= 440 V AC AC-3e for power circuit

**[U<sub>c</sub>] control circuit voltage: 220 V AC 50/60 Hz**

### **Complementary**

Motor power kW: 15 kW at 220...230 V AC 50/60 Hz (AC-3)

22 kW at 380...400 V AC 50/60 Hz (AC-3)

30 kW at 500 V AC 50/60 Hz (AC-3)

33 kW at 660...690 V AC 50/60 Hz (AC-3)

25 kW at 415 V AC 50/60 Hz (AC-3)

30 kW at 440 V AC 50/60 Hz (AC-3)

11 kW at 400 V AC 50/60 Hz (AC-4)

15 kW at 220...230 V AC 50/60 Hz (AC-3e)

22 kW at 380...400 V AC 50/60 Hz (AC-3e)

30 kW at 500 V AC 50/60 Hz (AC-3e)

33 kW at 660...690 V AC 50/60 Hz (AC-3e)

25 kW at 415 V AC 50/60 Hz (AC-3e)

30 kW at 440 V AC 50/60 Hz (AC-3e)

Motor power hp: 3 hp at 115 V AC 50/60 Hz for 1 phase motors

7.5 hp at 230/240 V AC 50/60 Hz for 1 phase motors

15 hp at 200/208 V AC 50/60 Hz for 3 phases motors

15 hp at 230/240 V AC 50/60 Hz for 3 phases motors

40 hp at 460/480 V AC 50/60 Hz for 3 phases motors

40 hp at 575/600 V AC 50/60 Hz for 3 phases motors

Compatibility code: LC1D

Pole contact composition: 3 NO

Contact compatibility: M2

Protective cover: With

[Ith] conventional free air thermal current: 10 A (at 60 °C) for signalling circuit

80 A (at 60 °C) for power circuit

Irms rated making capacity: 140 A AC for signalling circuit conforming to IEC 60947-5-1

250 A DC for signalling circuit conforming to IEC 60947-5-1

900 A at 440 V for power circuit conforming to IEC 60947

Rated breaking capacity: 900 A at 440 V for power circuit conforming to IEC 60947

[Icw] rated short-time withstand current: 400 A 40 °C - 10 s for power circuit

810 A 40 °C - 1 s for power circuit

84 A 40 °C - 10 min for power circuit

208 A 40 °C - 1 min for power circuit

100 A - 1 s for signalling circuit

120 A - 500 ms for signalling circuit

140 A - 100 ms for signalling circuit

Associated fuse rating: 10 A gG for signalling circuit conforming to IEC 60947-5-1

100 A gG at  $\leq 690$  V coordination type 1 for power circuit

100 A gG at  $\leq 690$  V coordination type 2 for power circuit

Average impedance: 1.5 mOhm - Ith 80 A 50 Hz for power circuit

Power dissipation per pole: 3.7 W AC-3

9.6 W AC-1

3.7 W AC-3e

[Ui] rated insulation voltage: Power circuit: 600 V CSA certified

Power circuit: 600 V UL certified

Signalling circuit: 690 V conforming to IEC 60947-1

Signalling circuit: 600 V CSA certified

Signalling circuit: 600 V UL certified

Power circuit: 690 V conforming to IEC 60947-4-1

Overvoltage category: III

Pollution degree: 3

[Uimp] rated impulse withstand voltage: 6 kV conforming to IEC 60947

Safety reliability level: B10d = 1369863 cycles contactor with nominal load conforming to EN/ISO 13849-1

B10d = 20000000 cycles contactor with mechanical load conforming to EN/ISO 13849-1

Mechanical durability: 6 Mcycles

Electrical durability: 1.45 Mcycles 50 A AC-3 at  $U_e \leq 440$  V

1.1 Mcycles 80 A AC-1 at  $U_e \leq 440$  V

1.45 Mcycles 50 A AC-3e at  $U_e \leq 440$  V

Control circuit type: AC at 50/60 Hz standard

Coil technology: Without built-in suppressor module

Control circuit voltage limits: 0.3...0.6  $U_c$  (-40...70 °C):drop-out AC 50/60 Hz

0.8...1.1  $U_c$  (-40...60 °C):operational AC 50 Hz

0.85...1.1  $U_c$  (-40...60 °C):operational AC 60 Hz

1...1.1  $U_c$  (60...70 °C):operational AC 50/60 Hz

Inrush power in VA: 140 VA 60 Hz cos phi 0.75 (at 20 °C)

160 VA 50 Hz cos phi 0.75 (at 20 °C)

Hold-in power consumption in VA: 13 VA 60 Hz cos phi 0.3 (at 20 °C)

15 VA 50 Hz cos phi 0.3 (at 20 °C)

Heat dissipation: 4...5 W at 50/60 Hz

Operating time: 4...19 ms opening

12...26 ms closing

Maximum operating rate: 3600 cyc/h 60 °C

### **UNDER/OVER RELAY VOLTAGE SENSOR**

Operating Voltage: AC(V): 220,240, 380, 415, 440  
Allowable setting voltage range:  $\pm 5\% \sim \pm 20\%$  of rated operating voltage  
Rated frequency: 50/60Hz  
Rest time: AVR165: MAX 3sec fixed / AVR172: 0~10sec adjustable  
Contact rating: 250VAC 5A (Resistive load)  
Power Consumption: Approx. 3VA  
Life: Mechanical: 5,000,000 times / Electrical: 100,000 times  
Ambient temperature: -10 ~ +50 °C  
Weight: Approx. 170g

### **FLOATLESS RELAY**

CLASSIFICATION: FLOATLESS RELAY  
DIMENSIONS(mm): 61H x 49W x 70D  
SOCKET TYPE: PF083A  
RATED VOLTAGE AC:110V,220V,240V,50/60HZ  
INDICATOR OPERATING: Two LED's use for two status  
OPERATE VOLTAGE: 85~110% of rated voltage  
SECOND VOLTAGE: 8VAC (except high sensing 24VAC)  
OPERATE RESISTANCE: 4K MIN.(GENERAL)  
RELEASE RESISTANCE: 15K MIN.(GENERAL)  
RESPONSE TIME OPERATE: 80 MSEC MAX.RELEASE:160MSEC MAX.  
CONTACT RATING 5A,250VAC(RESISTIVE LOAD)  
LENGTH OF CABLE: 1KMMAX.(GENERAL)  
INSULATION RESISTANCE: 100M (DC 500V)MIN  
DIELECTRIC STRENGTH: 1500VAC,50/60HZ, FOR 1MINUTE  
CONSUMED POWER: 3.2VA  
AMBIENT TEMPERATURE -10℃~+55℃  
AMBIENT HUMIDITY: 45~85%RH  
WEIGHT: 200g

### **TIMER**

Operating Voltage: DC(V): 12, 24, 48  
AC(V): 12, 24, 48, 100~120, 200~240  
Allowable operating voltage range: 85~110% of rated operating voltage  
Rated frequency: 50/60Hz  
Contact rating: 250VAC 5A (resistive load)  
Reset time: MAX 0.1S  
Power consumption: Approx. 5VA  
Life: Mechanical: 5,000,000 times  
Electrical: 100,000 times  
Ambient temperature: -10~ +50 K  
Ambient humidity: MAX 85% RH  
Weight: Approx. 88g

### **MAGNETIC CONTACTOR – 3P(3 NO) – AC-3 ≤ 440 V 65 A – 220 V AC 50/60 Hz coil**

#### **Main**

Range: TeSys  
TeSys Deca  
Range of product: TeSys Deca  
Product or component type: Contactor  
contactor application: Motor control  
Resistive load  
utilisation category: AC-4

AC-1  
AC-3  
AC-3e

Poles description: 3P

[Ue] rated operational voltage: Power circuit:  $\leq 690$  V AC 25...400 Hz

Power circuit:  $\leq 300$  V DC

[Ie] rated operational current: 80 A (at  $\leq 60^\circ\text{C}$ ) at  $\leq 440$  V AC AC-1 for power circuit

65 A (at  $\leq 60^\circ\text{C}$ ) at  $\leq 440$  V AC AC-3 for power circuit

65 A (at  $\leq 60^\circ\text{C}$ ) at  $\leq 440$  V AC AC-3e for power circuit

[Uc] control circuit voltage: 220 V AC 50/60 Hz

#### **Complementary**

Motor power kW: 11 kW at 400 V AC 50/60 Hz (AC-4)

18.5 kW at 220...230 V AC 50/60 Hz (AC-3)

30 kW at 380...400 V AC 50/60 Hz (AC-3)

37 kW at 500 V AC 50/60 Hz (AC-3)

37 kW at 660...690 V AC 50/60 Hz (AC-3)

18.5 kW at 220...230 V AC 50/60 Hz (AC-3e)

30 kW at 380...400 V AC 50/60 Hz (AC-3e)

37 kW at 500 V AC 50/60 Hz (AC-3e)

37 kW at 660...690 V AC 50/60 Hz (AC-3e)

Motor power hp: 40 hp at 460/480 V AC 50/60 Hz for 3 phases motors

5 hp at 115 V AC 50/60 Hz for 1 phase motors

10 hp at 230/240 V AC 50/60 Hz for 1 phase motors

20 hp at 200/208 V AC 50/60 Hz for 3 phases motors

20 hp at 230/240 V AC 50/60 Hz for 3 phases motors

50 hp at 575/600 V AC 50/60 Hz for 3 phases motors

Compatibility code: LC1D

Pole contact composition: 3 NO

Contact compatibility: M2

Protective cover: With

[Ith] conventional free air thermal current: 10 A (at  $60^\circ\text{C}$ ) for signalling circuit

80 A (at  $60^\circ\text{C}$ ) for power circuit

Irms rated making capacity: 140 A AC for signalling circuit conforming to IEC 60947-5-1

250 A DC for signalling circuit conforming to IEC 60947-5-1

1000 A at 440 V for power circuit conforming to IEC 60947

Rated breaking capacity: 1000 A at 440 V for power circuit conforming to IEC 60947

[Icw] rated short-time withstand current: 640 A  $40^\circ\text{C}$  - 10 s for power circuit

900 A  $40^\circ\text{C}$  - 1 s for power circuit

110 A  $40^\circ\text{C}$  - 10 min for power circuit

260 A  $40^\circ\text{C}$  - 1 min for power circuit

100 A - 1 s for signalling circuit

120 A - 500 ms for signalling circuit

140 A - 100 ms for signalling circuit

Associated fuse rating: 10 A gG for signalling circuit conforming to IEC 60947-5-1

125 A gG at  $\leq 690$  V coordination type 1 for power circuit

125 A gG at  $\leq 690$  V coordination type 2 for power circuit

Average impedance: 1.5 mOhm - Ith 80 A 50 Hz for power circuit

Power dissipation per pole: 9.6 W AC-1

6.3 W AC-3

6.3 W AC-3e

[Ui] rated insulation voltage: Power circuit: 600 V CSA certified

Power circuit: 600 V UL certified

Signalling circuit: 690 V conforming to IEC 60947-1

Signalling circuit: 600 V CSA certified

Signalling circuit: 600 V UL certified  
Power circuit: 690 V conforming to IEC 60947-4-1

Overvoltage category: III

Pollution degree: 3

[Uimp] rated impulse withstand voltage: 6 kV conforming to IEC 60947

Safety reliability level: B10d = 1369863 cycles contactor with nominal load conforming to EN/ISO 13849-1

B10d = 20000000 cycles contactor with mechanical load conforming to EN/ISO 13849-1

Mechanical durability: 6 Mcycles

Electrical durability: 1.4 Mcycles 80 A AC-1 at  $U_e \leq 440$  V

1.45 Mcycles 65 A AC-3 at  $U_e \leq 440$  V

1.45 Mcycles 65 A AC-3e at  $U_e \leq 440$  V

Control circuit type: AC at 50/60 Hz standard

Coil technology: Without built-in suppressor module

Control circuit voltage limits: 0.3...0.6  $U_c$  (-40...70 °C):drop-out AC 50/60 Hz

0.8...1.1  $U_c$  (-40...60 °C):operational AC 50 Hz

0.85...1.1  $U_c$  (-40...60 °C):operational AC 60 Hz

1...1.1  $U_c$  (60...70 °C):operational AC 50/60 Hz

Inrush power in VA: 140 VA 60 Hz cos phi 0.75 (at 20 °C)

160 VA 50 Hz cos phi 0.75 (at 20 °C)

Hold-in power consumption in VA: 13 VA 60 Hz cos phi 0.3 (at 20 °C)

15 VA 50 Hz cos phi 0.3 (at 20 °C)

Heat dissipation: 4...5 W at 50/60 Hz

Operating time: 4...19 ms opening

12...26 ms closing

Maximum operating rate: 3600 cyc/h 60 °C

## **THERMAL OVERLOAD RELAY – 80...104 A – CLASS 10A**

### **Main**

Range: TeSys

Product or component type: Differential thermal overload relay

Relay application: Motor protection

Product compatibility: LC1D95

LC1D80

Network type: AC

DC

Thermal overload class: Class 10A conforming to IEC 60947-4-1

Thermal protection adjustment range: 80...104 A

[Ui] rated insulation voltage: Power circuit: 1000 V conforming to IEC 60947-4-1

Power circuit: 600 V conforming to CSA

Power circuit: 600 V conforming to UL

### **Complementary**

Network frequency: 0...400 Hz

Mounting support: Plate, with specific accessories

Rail, with specific accessories

Under contactor

Tripping threshold: 1.14 +/- 0.06  $I_r$  conforming to IEC 60947-4-1

Auxiliary contact composition: 1 NO + 1 NC

[Ith] conventional free air thermal current: 5 A for signalling circuit

Permissible current: 0.72 A at 500 V AC-15 for signalling circuit

0.06 A at 440 V DC-13 for signalling circuit

[Ue] rated operational voltage: 1000 V AC 0...400 Hz for power circuit conforming to IEC 60947-4-1

Associated fuse rating: 4 A gG for signalling circuit

4 A BS for signalling circuit

[Uimp] rated impulse withstand voltage: 6 kV conforming to IEC 60947-1

Phase failure sensitivity: Tripping current 130 % of  $I_r$  on two phase, the last one at 0

Control type: Red push-button: stop

Blue push-button: reset

Temperature compensation: -20...60 °C

Connections – terminals: Power circuit: screw clamp terminals 1 cable(s) 4...35 mm<sup>2</sup> flexible without cable end

Power circuit: screw clamp terminals 1 cable(s) 4...35 mm<sup>2</sup> flexible with cable end

Power circuit: screw clamp terminals 1 cable(s) 4...35 mm<sup>2</sup> solid without cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> flexible without cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> flexible with cable end

Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm<sup>2</sup> solid without cable end

Tightening torque: Control circuit: 1.7 N.m - on screw clamp terminals

Power circuit: 9 N.m - on screw clamp terminals

Height: 81 mm

Width: 70 mm

Depth: 115 mm

Net weight: 0.51 kg