



DESCRIPTIVE AND TEST REPORT

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REPORT NO: LR 12528-351

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Issued by J. Pankowski, Eng.

Certificate of Compliance has been issued.

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SUBJECT

CLASS 3211 05 - INDUSTRIAL CONTROL EQUIPMENT - Motor Controllers - Manual

AC Cam Type Controllers, open types, for flush-mounting or back-of-panel mounting, in various combination as required for reversing, speed control or for star-delta, 1- or 3-phase, Types TO-..., 14A, 3 hp, 200V, 3 hp, 230V, 10 hp, 460V, 12.5 hp, 575V ac, 3 ph, 0.75 hp, 115V, 2 hp, 200V ac, 1 ph.

Notes:

1. The controllers may be additional code rated A600 P300 and 10A, 600V ac.
2. The type designations are completed with suffix letters and numbers indicating the switching combination, type of mounting or mechanical details.

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APPLICABLE REQUIREMENTS

CAN/CSA C22.2 No. 14-M95 - Industrial Control Equipment

MARKINGS

Submittor's name or trademark (Bell-symbol over capital M in oval), type designation, electrical ratings and CSA Monogram are shown on adhesive paper label. See Ill. No. 1 for details.

ALTERATIONS

The markings are in accordance with the "Markings" paragraph above.

FACTORY TESTS

The equipment at the conclusion of manufacture, before shipment, shall withstand for one min, without breakdown, the application of 1000V ac plus twice rated voltage between live parts and metal parts, which may be grounded, on a basis of at least 3% of the daily production intended to bear the CSA Monogram.

As an alternative, a potential 20 percent higher may be applied for one second. The factory test may be made at existing room temperatures.

Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

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DESCRIPTION

See attached photograph Fig. No. 1

This switch is provided with up to 2 (double break) contacts in a deck. From 1 up to 11 decks may be assembled together.

1. Switching Sections: Self-extinguishing polyamide composition A3XG7, A3X1G5 or A3X3G5 made by BASF, overall dimensions of 2 decks including top cover (1a) and base plate (1b) 30 mm by 48 mm by 44.7 mm min thickness 0.8 mm. The inner space of the 2 decks contains up to 4 separated contacts (opposite polarity) with the appropriate switch mechanism. The recesses and barriers co-operate. The terminals are accessible from the rear side. The switching sections are mounted together by means of 2 polyamide composition A3X1G5 or A3X3G5 mounting studs (1c) screwed to the switching mechanism.
2. Stationary Contacts: Silver nickel alloy disc 2.5 mm dia by 0.35 mm high, welded to the copper alloy contact carrier (2a) shaped as shown, 9.7 mm by 7 mm by 14 mm by 1 mm thick. The carriers are clamped in recesses of the switching section.
3. Movable Contacts: Silver nickel alloy disc 2.2 mm dia by 0.35 mm high, welded to the copper alloy contact bridge (3a), 13 mm by 0.8 mm wide by 5 mm wide. The bridge is mounted in the movable contact carrier consisting of actuator and contact retainer. The actuator (3c) is made of Type Ultem 2300 manufactured by GE Plastics or alternate material E2010G6 manufactured by BASF the overall dimensions of the 2 parts are 18 mm by 9 mm by 8 mm. The coiled chromium plated nickel or spring (3d) is 3.3 mm od 0.3 mm dia wire and pushes the contact bridge in its test-position.
4. Supply Connections: The stationary contact carriers terminate into the supply terminals (4a), approximately 8 mm square and provided with an internal threading of at least 3 full threads for the 3.2 mm dia plated steel screw with self-lifting wire clamp. The head of the terminal screw may be provided with \pm slit for screw driver operation.
5. Switching Mechanism: Consisting of:
 - 5a) Latching Base: Self-extinguishing polyamide composition (A3XG7, A3X1G5 or A3X3G5), 39 mm dia by approximately 20 mm high. In the base the spring operated latching mechanism is housed, which may provide an automatic spring return.
 - 5b) Spindle: Consisting of 2 parts. Part (5b1) made of polyamide composition (A3XG7) for mounting the operating knob, Part (5b2) made of polyamide composition (A3X1G5, A3X3G5 or A3XG7) on which the operating cams are stacked.
 - 5e) Operating Cams: Made of Ultramid (B3s), 4.7 mm thick by 15.5 mm dia.

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Note: No jumpers provided. If the terminals must be interconnected this must be made by CSA certified wire of a suitable cross-section in AWG. See attached photograph Fig. No. 2

Mounting Means: See manufacturer's illustrative material. The switch may appear in the following designs for the different types of mounting. One up to twelve switch positions are possible.

1. Suffix "E": For flush mounting. The switch is screwed to a mounting surface by two plated steel screws and a mounting flange of self-extinguishing polyamide composition (Ultramid B3S made by BASF). A plastic front plate showing the switch positions "I" and "O" etc. and a cover plate are provided.
2. Suffix "EZ": Same construction and dimensions are described for the switch with suffix "E", except that this type is provided with an additional mounting body of the same material as the switch body. Overall dimensions 48 mm dia by 28 mm high. The switch is suitable for mounting in a hole of 22.5 mm dia.
3. Suffix "EA/SVB": Same construction and dimensions as described for the switch with suffix "E", except that this type is intended for use as main switch or similar applications. The handle can be locked with up to 3 padlocks. Overall 65 mm dia made of self-extinguishing polyamide composition type 6 nylon, glass-reinforced or Ultramid B3S, made by BASF. The handle is made of the same material. A sub-base for grounding purposes may be screwed to the rear side of the switch, made of the same material as the body.

Overall 48 mm by 38 mm by 16 mm high bearing two copper alloy strips 1 mm thick, each having two threaded holes for the 4 mm dia plated steel screws with captive wire clamps. The heads may have \pm screw driver slits.

4. Suffix "IVS": Provided snap-on feature on an "U"-shaped metal mounting rail. The terminals are accessible from the front side. The base plate is replaced by another plate of the same material, having a spring-loaded clamp for mounting on the rail. Two holes 5 mm dia are also provided, the switch mechanism is covered by an additional cover, made of self-extinguishing plastic material Noryl PX 1105, made by General Electric or Durethan, overall dimensions 54 mm by 55 mm by 27.5 mm high, min wall thickness 0.8 mm and using additional front plate.

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5. Suffix "Z": Suitable for mounting on an U-shaped metal mounting rail or by screws. The sub-base for grounding purposes as described for type with suffix EA/SVB may be mounted. Extension shafts 27 mm long may be stacked on the shaft. The front plate is mounted to the mounting surface by an additional plate.
6. Suffix "V/SVB": Same as described for type with suffix "Z", except that the handle can be locked with up to 3 padlocks as described for the type with suffix "SVB".