



Certificate of Compliance

Certificate: 1185829 (LR 81057-3)

Master Contract: 154155

Project: 2677326

Date Issued: January 22, 2014

Issued to: Westlock Controls Corporation

280 North Midland Ave

Saddle Brook, NJ 07663

USA

Attention: Mr. Anthony Paolini

The products listed below are eligible to bear the CSA Mark shown



T. Munteanu

Issued by: T. Munteanu, P.Eng.

PRODUCTS

CLASS 3211 07 - INDUSTRIAL CONTROL EQUIPMENT - Miscellaneous Apparatus

“ACCUTRACK” valve position monitor Model 5044 with two P & F NJ2-V3-N switches; CSA Types 4 and 4X enclosure, rated 3 mA max, 5-25V dc.

“ACCUTRACK” valve position monitor Model 9358 with two magnetic MAGNUM switches rated 3A, 120V ac, 2A, 24V dc for tungsten contacts or 0.295A, 120V ac, 1A, 24V dc for rhodium contacts; Model 1040 with spdt switches, CSA Type 4 enclosure rated 3A, 120V ac; 2A, 24V dc.

APPLICABLE REQUIREMENTS

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

CAN/CSA-C22.2 No. 94 - Special Purpose Enclosures



Supplement to Certificate of Compliance

Certificate: 1185829

Master Contract: 154155

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
2677326	Jan 22, 2014	Covers the addition of alternate switch type XT-90 Magnum.
2599676	May 31, 2013	Covers the addition of alternate plastic material for enclosure of model 1040.

History

Project	Date	Description
1185829	April 4, 2001	Alternate reed switch for Model 5044.
-8	Jan. 11, 1999	Alternate CSA Type 4X enclosure for Model 5044
-9	Nov. 16, 1998	Addition of "ACCUTRACK" valve position monitor, Model 5044.
-3	Oct. 23, 1991	Original certification.



Descriptive Report and Test Results

MASTER CONTRACT: 154155

REPORT: 1185829

PROJECT: 2677326

- Edition 1:** June 9, 1988; Application No LR 81057-3 - Toronto
Issued by J. Elgee, P. Eng, Reviewed by T. Smith, P. Eng.
- Edition 2:** November 16, 1998; Application No LR 81057-9 - Toronto
Issued by T. Munteanu B. Sc; Reviewed by G. Lipa, C.E.T.

Illustrations Added: Ills 5, 6
Figures Added: Fig 2
- Edition 3:** January 11, 1999; Application No LR 81057-8 - Toronto
Issued by T. Munteanu B. Sc; Reviewed by R. MacKenzie, P. Eng.
- Edition 4:** April 4, 2001; Project 1185829 - Toronto
Issued by T. Munteanu, P. Eng.
- Edition 5:** April 1, 2013; Project 2599676 – Toronto
Issued by T. Munteanu, P.Eng.
- Edition 6:** January 22, 2014; Project 2677326 – Toronto
Issued by T. Munteanu, P.Eng.

Report pages reissued

Contents: Certificate of Compliance - Page 1
Supplement of Certificate of Compliance - Page 1
Descriptive and Test - Pages 1 to 8
Figures - 1, 2
Illustrations - 1 to 6

PRODUCTS

CLASS 3211 07 - INDUSTRIAL CONTROL EQUIPMENT - Miscellaneous Apparatus

“ACCUTRACK” valve position monitor Model 5044 with two P & F NJ2-V3-N switches; CSA Types 4 and 4X enclosure, rated 3 mA max, 5-25V dc.

“ACCUTRACK” valve position monitor Model 9358 with two magnetic MAGNUM switches rated 3A, 120V ac, 2A, 24V dc for tungsten contacts or 0.295A, 120V ac, 1A, 24V dc for rhodium contacts; Model 1040 with spdt switches; CSA Type 4 enclosure rated 3A, 120V ac; 2A, 24V dc.

This report shall not be reproduced, except in full, without the approval of CSA Group.

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 14-13 - Industrial Control Equipment
CAN/CSA-C22.2 No. 94-M91 - Special Purpose Enclosures

MARKINGS

Product markings shall be in accordance with the related standards. In addition, it shall be the responsibility of the manufacturer to provide additional markings on the product to comply with the requirements of the local regulatory authorities. For example, in Canada, any caution and warning markings must be provided in French and English.

The submitter's name, and/or file number "LR 81057", model designation, complete electrical rating, "CSA Type 4" and CSA Monogram appear on an Accepted aluminum label permanently affixed to the enclosure. A wiring diagram is made available either in the containing carton or on a paper label permanently affixed to the inside of the enclosure. Refer to Ills 4 and 5 for marking details.

ALTERATIONS

1. The markings are as indicated in "Markings" above.
2. Sharp edges around conduit entry holes are rounded on inside of enclosure.
3. Solder joints are mechanically secured before soldering.

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 the max rated voltage between live parts and exposed non-current-carrying metal parts. The factory test may be made at existing room temperature. As an alternative, a potential 20 percent higher may be applied for one sec.

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.

SPECIAL INSTRUCTIONS FOR FIELD SERVICES

1. Component descriptions marked with either the "(INT)" or "(INT*)" identifiers may be substituted with other components providing the requirements specified under the notes in the "Description" are complied with.

COMPONENT SPECIAL PICKUP

1. Component descriptions marked with the identifier "(CT)" are subject to annual pickup and Conformity Testing.
2. N/A

DESCRIPTION

Notes:

1. Component Substitution
 - a) Critical components (those identified by mfr name, cat no), which are NOT identified with either “INT” or “INT*” are not eligible for substitution without evaluation and report updating.
 - b) The term “INT” means a “Certified” and/or “Listed” (or a “Recognized” and/or “Accepted”) component may be replaced by one “Certified” and/or “Listed” by an organization (accredited by OSHA/SCC), for the same application; providing the applicable country identifiers are included and requirements in item “d” below are complied with.
 - c) The term “INT*” means a “Recognized” and/or “Accepted” component may be replaced by one “Recognized” and/or “Accepted” by an organization (accredited by OSHA/SCC), for the same application, providing the applicable country identifiers are included, the component is **also** CSA Certified, the requirements in item “d” below are complied with and any “conditions of suitability” for the component (as recorded in this descriptive report) are complied with.
 - d) Components which have been substituted, must be of an equivalent rating, configuration (size, orientation, mounting) and the applicable minimum creepage and clearance distances are to be maintained from live parts to bonded metal parts and secondary parts.
 - e) Substitution of a “Certified” and/or “Listed” component with a component that is “Recognized” or “Accepted” is not permitted without evaluation and report updating.

Spacings: The electrical spacings of these devices are in compliance with Table 6, Group A of Std. 14.

General: These valve position monitors consist of CSA Certified switches housed in a polymeric enclosure. The only difference between Model 9358 and 1040 is that the reed switches are replaced by micro switches.

FIG 1 - Model -1040

See Fig 1 for details.

1. Visual Monitor: The Beacon visual monitor is manufactured of clear acrylic and is devoid of any external moving parts. The Beacon, by changing from all yellow to a yellow and black checker pattern offers visual recognition of open or closed valve position.
2. Cover: Polymeric, Type Zytel ST801-BK-10 manufactured by Dupont, Black colour having the following dimensions:

<u>Inside Dimensions, mm</u>			<u>Minimum Thickness, mm</u>	
<u>Length</u>	<u>Width</u>	<u>Depth</u>	<u>Side Wall</u>	<u>Top</u>
110.0	110.0	18.4	3.6	3.0

The cover exterior is cast with four integral bosses which are provided for the visual monitor (Item 1), each boss being approx 6.0mm in height. The shaft bearing opening is flush with the cover exterior and measures approx 12.7mm in dia. The cover interior exposes the shaft bearing boss being approx 6.8mm high. See Ill 3 for details.

The cover is secured to the body (Item 3) by use of four stainless steel cover screws, 16.5mm long.

Alternate: Same as above, except Type~ Zytel FR50 manufactured by DuPont, black colour.

3. Body: Polymeric, Type Zytel ST801-BK-10 manufactured by DuPont, black colour having the following dimensions:

<u>Inside Dimensions, mm</u>			<u>Minimum Thickness, mm</u>	
<u>Length</u>	<u>Width</u>	<u>Depth</u>	<u>Side Wall</u>	<u>Top</u>
110.0	110.0	31.2	3.6	3.0

The body exterior is provided with five integrally cast bosses. Four are provided for mounting purposes and are 11.0mm in height. The other boss is for the shaft bearing and measures approx 10.2mm high. The surface area made available for the joint is approx 10.2mm min 'wide.

Alternate: Same as above, except Type Zytel FR50 manufactured by DuPont, black colour.

4. Sealing Ring: Compound No GS634 manufactured by Guard Rubber Co., min 2.0mm thick. Glued into a groove located in body flange (Item 3). Groove measures .0085 in (0.2mm) by .0055 in (0.14mm).
5. Mounting Plate:* Aluminum, min 2.0mm thick. Secured to base (Item 3) by use of two flat-head 12.0mm long mounting screws. Shaped as shown.
6. Switches: CSA Certified Types V3L-3052, manufactured by Micro Switch, rated 15A, 125 or 250V ac; .5A, 125V dc; .25A, 250V dc. Secured to mounting plate by use of two 41.6mm long machine screws. Insulated by use of two 0.5mm sheets manufactured from material; and separated by two immaterial, supporting columns. See Ill 1 for details.
7. Internal Wiring: CSA Certified, Type TEW, No 18 AWG, rated 105C, 600V, manufactured by Carol Cable Co. Inc., or Certified equivalent.
- All wiring is routed and secured away from sharp parts by nylon ties. wire leads are inserted through opening in switch connector tabs and mechanically secured prior to soldering.
8. Terminal Block:- CSA Certified, Cat No 230DS, manufactured by..Adels-Contact (LR 28387) or Certified equivalent. Up to 16 terminals may be provided. Secured to component mounting plate by two 1/2 in long screws. See Ill 2 for details.
9. Shaft: Stainless steel, approx 9.5mm in dia and 110.0mm long. Removal of shaft is prevented by snap ring at one end and cam spline at the other end. Cam spline is secured to shaft by a stainless steel roll pin.
10. Shaft O-Rings: Two provided, one located at each end of the shaft. Same material as described in Item 4 above. O-ring has a 1/16 in cross sectional dia and each 0-ring is located outside the required joint between the shaft and the shaft bushings.
11. Shaft Bushings: (Two provided). One bronze bushing is press-fit into the cover (Item 2) and one is press-fit into the body boss (Item 3). Both bushings are pinned in place to prevent removal.
12. Conduit openings: Two provided in body, each opening has provision for a 3/4 in -14 size conduit. Each opening is provided with a smooth and well rounded conduit stop. The conduit stop has an internal dia of 0.742 in min to 0.824 in max. Each opening shall have at least five full threads for conduit connection.
13. Wiring Diagram: Adhesive backed label secured to inside of cover. Refer to Fig 1 for details.

14. Termination Screw: Green coloured slot or hex-head, No 8-32 by 1/4 in wire binding screw, threads into threaded boss, located in body base (Item 3).

Model - 9358

Consists of all items mentioned above, except for Item 6

6. Switches: Accepted, magnetic reed switch with tungsten contacts, model MAGNUMXT-90 spdt rated 3 A, 120 V ac; 2 A, 24 V dc hermetically sealed. Previously accepted for use in this submittor's file. Please refer to report LR 81057-1, -5 for test records and details.

Alternate: Accepted, magnetic reed switch with rhodium contacts, model MAGNUMXT-90 spdt rated 0.3 A, 120 V ac when provided with UL Recognized Model HSR-V933W by Hermetic Switch switch with rhodium contacts; 1 A, 24 V dc when provided with CSA Certified Model HSR-630R by Hermetic Switch switch with rhodium contacts, hermetically sealed

No further description necessary.

Model - 5044: (Fig 2)

General: Consists of all items mentioned above, except for Items 2, 3 and 6.

2. Covers: Identical to Item 2 above, except for material which is E-17267-32 manufactured by Com Alloy (Ill 6)

<u>Inside Dimensions (mm)</u>			<u>Minimum Thickness (mm)</u>	
<u>Length</u>	<u>Width</u>	<u>Depth</u>	<u>Side Wall</u>	<u>Top</u>
122	114	18	4, 8	4, 8

3. Body: Identical to Item 3 above, except for material which is E-17267-32 manufactured by Com Alloy

<u>Inside Dimensions (mm)</u>			<u>Minimum Thickness (mm)</u>	
<u>Length</u>	<u>Width</u>	<u>Depth</u>	<u>Side Wall</u>	<u>Top</u>
122	114	40	4, 8	4, 8

6. Proximity Switch: CSA Certified Type NJ2-V3-N, manufactured by Pepperl and Fuchs (LR 96321) rated 3mA max, 5.25V dc.

Alternate: Magnetic reed switch, Magnum XT-90, spdt, rated 3A, 120V ac; 2A, 24V dc, hermetically sealed. Previously accepted for use in this submittor's file. Refer to Reports LR 81057-1, -5 for test records.

No further description was considered necessary.

TESTS

Application LR 81057-3

The following tests were conducted at CSA Toronto Laboratories:

1. Torque Test: Cl 6.14.7.3 of C22.2 No 14.
Enclosure was treated as end-of-line on run of conduit, therefore, only 22 N m of tightening torque was applied.

Results: Satisfactory.

2. Bending: Cl 6.14.7.4 of C22.2 No 14.
Bending moment applied was 16.9 N.M.

Results: Satisfactory.

3. Hosedown: Cl 6.8.2 of C22.2 No 94.

Results: The outside cap (beacon) was full of water, but no water was found in the enclosure. Therefore, satisfactory.

4. Flammability (Test A): Cl 6.14.2.2 of C22.2 No 14.
Flame test per CSA Std C22.2 No 0.6, Test A.

Specimen Number	Colour	Duration of Flame (sec) and Application No				
		1st	2nd	3rd	4th	.5th
1	black	Nil	Nil	Nil	Nil	Nil
2	black	Nil	Nil	Nil	Nil	Nil
3	Black	Nil	Nil	Nil	Nil	Nil

5. Cold Impact: Cl 6.14.4 of C22.2 No 14

Sample	Results
1	No visible cracks
2	No visible cracks
3	No visible cracks

6. Water Immersion: Cl 6.14.3 of C22.2 No 14.
Manufacturer: Westlock Controls
Device: Place position monitor
Test: Water immersion
Std: CSA C22.2 No 14-M87, Cl 6.14.3.

Tested By: D. Ghelani

Sample	No	<u>1</u>	<u>2</u>	<u>3</u>
Wet	1	61.31	42.43	41.64
Sample	2	36.56	45.58	40.87
(mm)	3	66.45	42.31	41.34
	4	36.13	44.78	40.27

Dry	1	61.29	42.44	41.61
Sample	2	36.51	45056	40.84
(mm)	3	66.42	42.31	41.34
	4	36.11	44.77	40.25
%	1	0.03	0.02	0.07
Moist-	2	0.08	0.04	0.07
ure	3	0.05	0.00	0.00
	4	0.06	0.02	0.05
Average		0.06	0.02	0.05
Percent				

Results: The water immersion test was satisfactory.

7. Conduit Gauging: From C22.2 No 0.5-M1982.

Application No LR 81057-9: Covers addition of Model 5044.

The following tests were conducted at CSA Toronto Laboratories on only one sample:

1. Torque Test: Cl 6.15.7 of C22.2 No 14-95

Torque applied: 90 NM

Results: Satisfactory.

2. Bending Test: Cl 6.15.7.4 of C22.2 No 14.

Weight applied at the end of the conduct: 7.065 kg.

Results: Satisfactory

3. Pull-Out Test: Cl 6.15.7.2

Pull-out force: 9.1 N

Results: Satisfactory

4. Impact Test: Cl 6.15.4

Impact energy: 6.78J

Results: Satisfactory

5. Flamability Test: (Test A): Cl 6.15.2

<u>Sample Thickness (mm)</u>	<u>4.82</u>
Duration of flame after application 1 (sec)	0
Duration of flame after application 2 (sec)	0
Duration of flame after application 3 (sec)	0
Duration of flame after application 4 (sec)	0
Duration of flame after application 5 (sec)	0

Specimen burned up to the holding clamp (Y or N)	N
Cotton ignited (Y or N)	N
Burn through (hole) diameter (mm)	N

Results: Satisfactory

Tests by R. Aitkenhead

6. Threaded Length Test: CI 4.14.1.2.

The threaded conduit entry is size 1/2 in diameter and the length is 3.5 X the pitch, which is satisfactory according to CI 4.3.2 of Std C22.2 No 0.5-1982.

Application No LR 81057-8: Covers alternate CSA Type 4X enclosure for Model 5044. The Com Alloy plastic material E-17267-32 is a NRTL Recognized Plastic suitable for outdoor use with respect to exposure to ultraviolet light, water exposure and immersion, and Model 5044 has been already qualified as a CSA Type 4 enclosure under a previous application. Flame, impact and conduit entry tests for type Com-Alloy material were investigated in LR 81057-9.

No tests were considered necessary.

Project 1185829: Covers alternate reed switch, Type Magnum XT-90. The alternate switch is accepted already in the submittor's file. For test records, see LR 81057-1. Since the alternate switch is used within its ratings, no additional tests were considered necessary.

Project 2677326: Covers alternate magnetic reed switch, Type Magnum XT-90 rated 0.295A, 120V ac, 1A, 24V dc when provided with rhodium contacts.

Now additional tests have been considered necessary since:

- a) The alternate switch Type Magnum XT-90 can be provided with CSA Certified Model HSR-630R by Hermetic Switch switch with rhodium contacts, hermetically sealed, rated 1A, 24V dc (see report 236890-1839161) or
- b) The alternate switch Type Magnum XT-90 can be provided with with UL Recognized Model HSR-V933W by Hermetic Switch switch with rhodium contacts, rated 0.295A, 120V ac (see UL File E13184, Vol. 1, Section 5, Issued 2004-10-05). The switch has been accepted based on the review of the Conditions of Acceptability in the UL Report attached as Appendix A in the Tests bin in Documentum.