

# ASSEMBLY PART NUMBERS R4-EM - T B A - 1 S C - P M

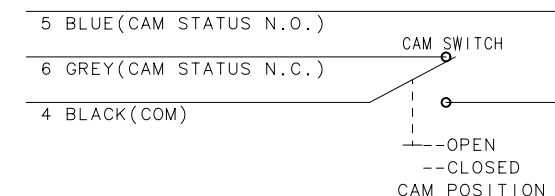
REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
A	31MAY2013	DJK/CLB	INITIAL RELEASE

- |  |  |   |
|--|--|---|
| <b>T</b> TRIGGER STYLE<br>7 DELAYED RELOCK, SIDE TRIGGER<br>R7 DELAYED RELOCK, REAR TRIGGER                  | <b>S</b> SWITCH OPTIONS<br>3 NO SWITCH<br>6 SINGLE SWITCH (CAM ONLY)<br>7 DUAL SWITCH (CAM AND TRIGGER)            | <b>P</b> PACKAGING OPTIONS<br>NONE INDIVIDUALLY PACKAGED<br>1 BULK PACKAGED |
| <b>B</b> BASE MOUNTING STYLE<br>1 1/4-20 THREADED MOUNTING<br>2 M6 THREADED MOUNTING<br>3 THRU HOLE MOUNTING | <b>C</b> CONNECTOR OPTIONS<br>1 NON-SEALED CONNECTOR<br>2 NO CONNECTOR (STRIPPED AND TINNED)<br>3 SEALED CONNECTOR | <b>M</b> MATERIAL OPTIONS<br>NONE STEEL PLATED<br>B STAINLESS STEEL         |
| <b>A</b> ALTERNATE CONFIGURATIONS<br>NONE LIGHT CAM SPRING<br>2 STRONG (KICK OUT)CAM SPRING                  |  |   |

NOTES:

- A**=(NONE)LIGHT CAM SPRING, IS A LOW FORCE SPRING INTENDED TO PROVIDE MINIMAL KICKOUT FORCE AT THE CAM IN THE OPENING DIRECTION. APPROXIMATE FORCE WITH CAM IN CLOSED POSITION, FORCE= 1.5 N
- A**=2 STRONG (KICKOUT OUT)SPRING, IS INTENDED TO PROVIDE A KICKOUT FORCE AT THE CAM IN THE OPENING DIRECTION. APPROXIMATE FORCE WITH CAM IN CLOSED POSITION, FORCE= 6.4 N
- S**=6 SINGLE SWITCH (CAM ONLY)

	CAM POSITION	
	CAM OPEN	CAM CLOSED
BLACK/GREY WIRES	CLOSED CIRCUIT	OPEN CIRCUIT
BLACK/BLUE WIRES	OPEN CIRCUIT	CLOSED CIRCUIT

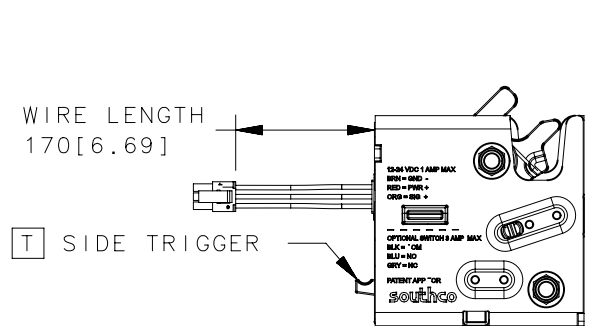
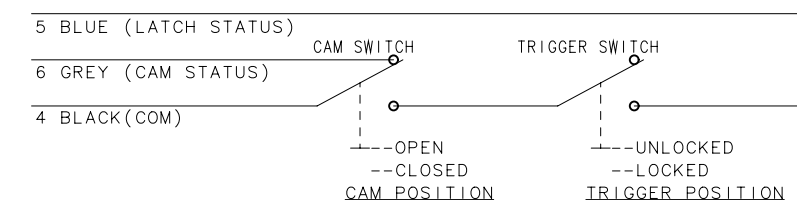


**S**=7 DUAL SWITCH (CAM AND TRIGGER)

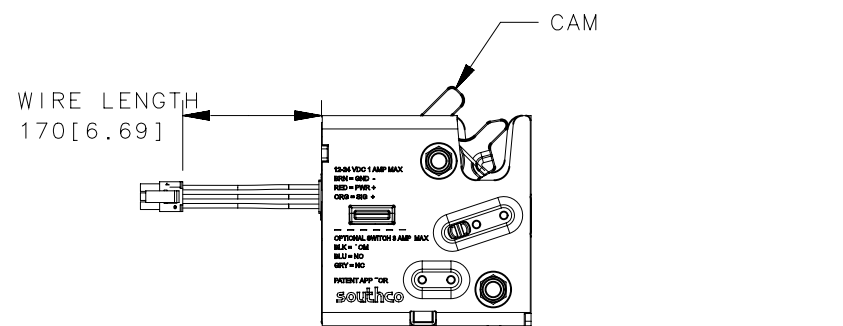
TRIGGER POSITION	CAM POSITION	
	CAM OPEN	CAM CLOSED
LOCKED	OPEN CIRCUIT	CLOSED CIRCUIT
UNLOCKED	OPEN CIRCUIT	OPEN CIRCUIT

CAM STATUS INDICATOR CIRCUIT CONDITIONS FOR BLACK AND GREY WIRES

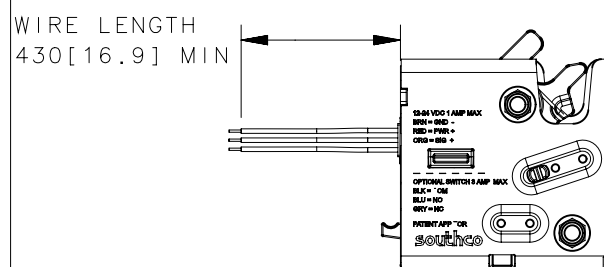
CAM POSITION	
CAM OPEN	CAM CLOSED
CLOSED CIRCUIT	OPEN CIRCUIT



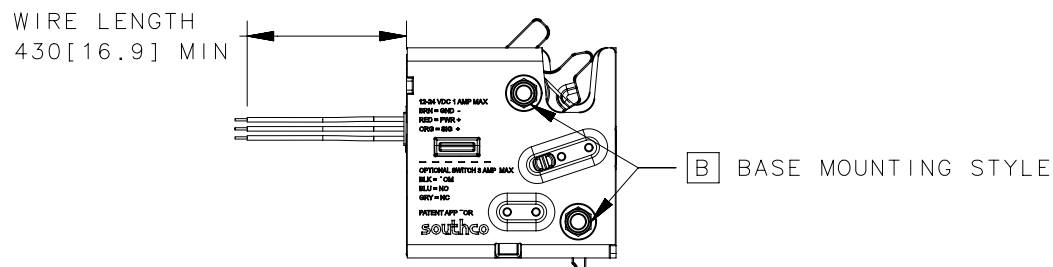
R4-EM-7XX-1X1-XX  
**T** SIDE TRIGGER  
**C** NON-SEALED CONNECTOR



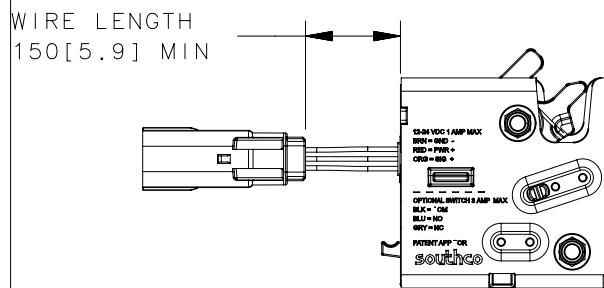
R4-EM-R7XX-1X1-XX  
**T** REAR TRIGGER  
**C** NON-SEALED CONNECTOR



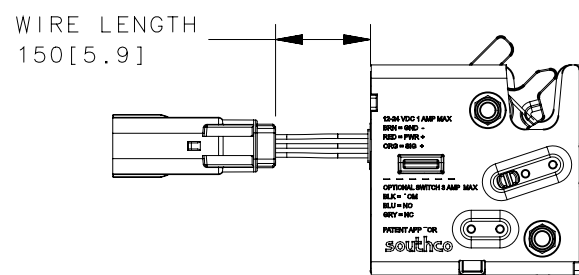
R4-EM-7XX-1X2-XX  
**T** SIDE TRIGGER  
**C** NO CONNECTOR



R4-EM-R7XX-1X2-XX  
**T** REAR TRIGGER  
**C** NO CONNECTOR



R4-EM-7XX-1X3-XX  
**T** SIDE TRIGGER  
**C** WITH SEALED CONNECTOR

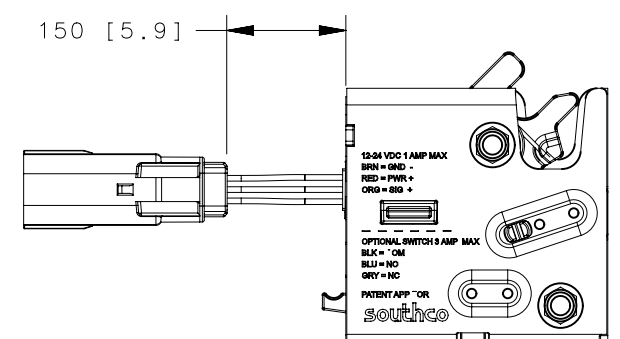
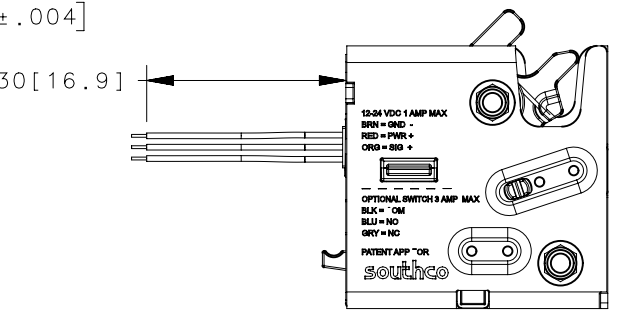
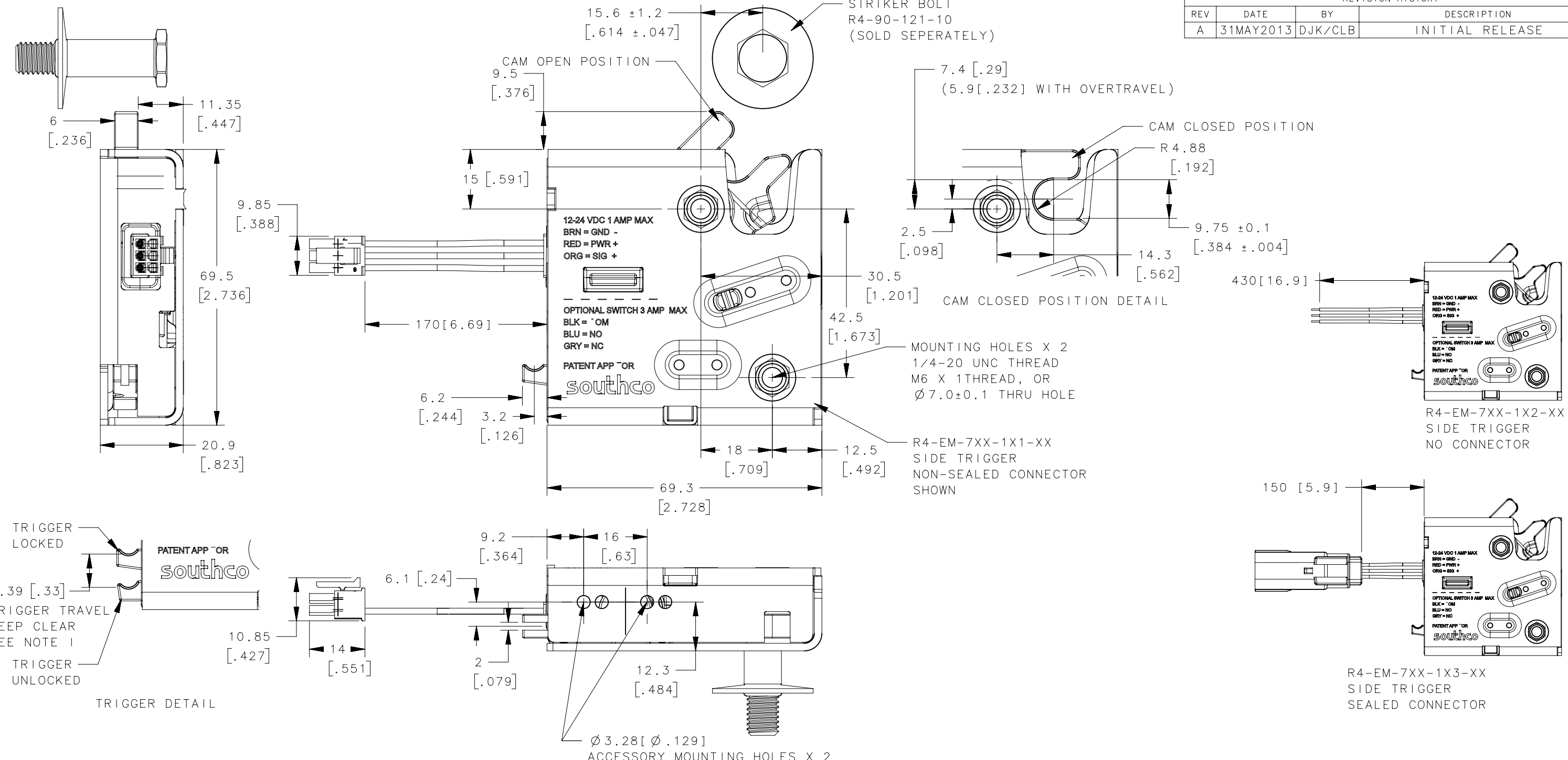


R4-EM-R7XX-1X3-XX  
**T** REAR TRIGGER  
**C** WITH SEALED CONNECTOR

PRELIMINARY, SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

THIRD ANGLE PROJECTION				
MILLIMETERS [IN]				
SURFACE AREA	TOLERANCES UNLESS OTHERWISE NOTED	DESCRIPTION R4-EM OUTDOOR ELECTRONIC ROTARY LATCH DELAYED RELOCK		
VOLUME	ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.	SIZE B	SYSTEM NX	DWG NO. J-R4-EM-71-161
PROPRIETARY ITEM EXCEPT FOR USES EXPRESSLY GRANTED IN WRITING, INFORMATION DISCLOSED HEREON IS CONFIDENTIAL AND ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED BY SOUTHCO, INC.	PER ASME Y14.5M-1994	DRAWN BY GGG/	DATE 03DEC2012	SCALE 1:1 SHEET 1 OF 4

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
A	31MAY2013	DJK/CLB	INITIAL RELEASE



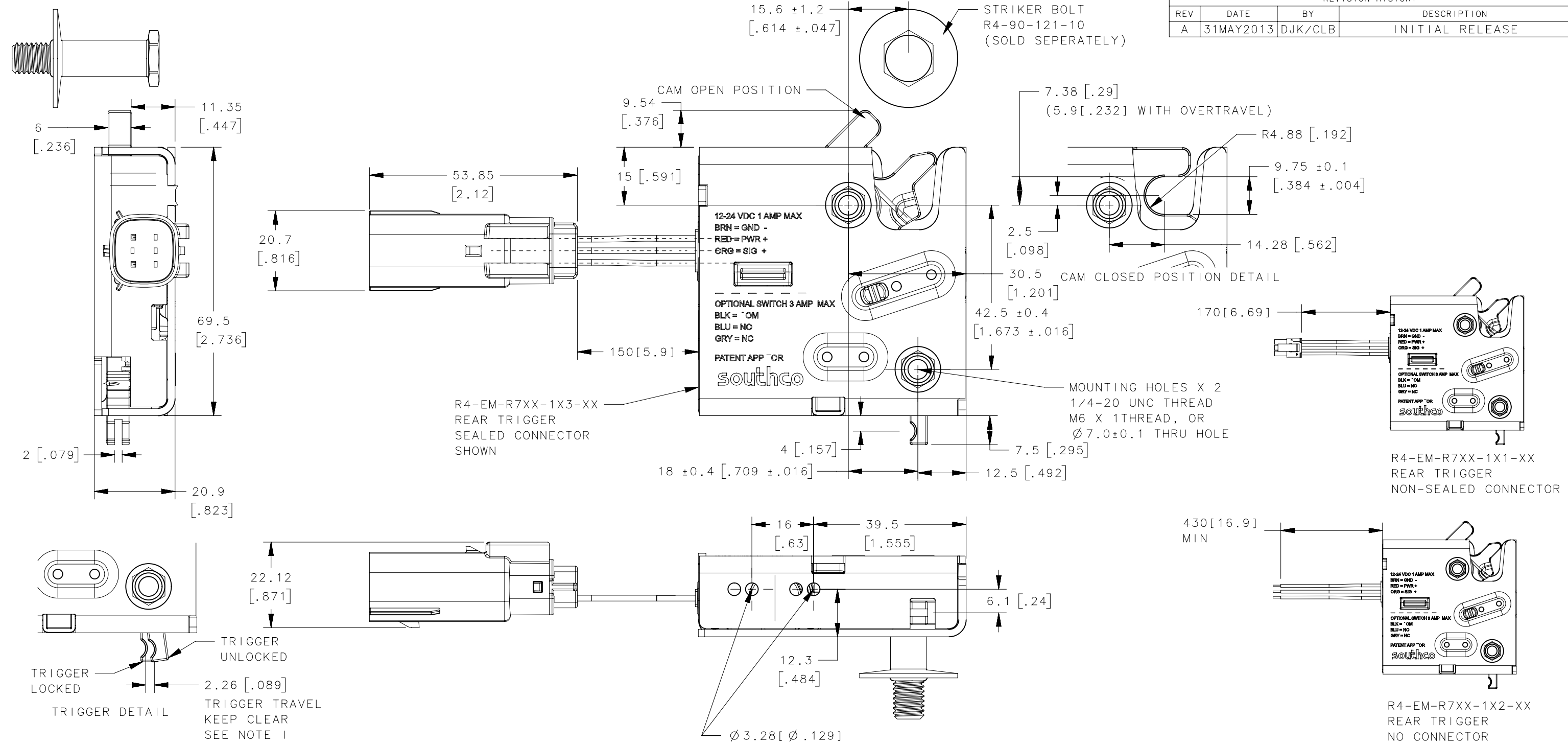
SIDE TRIGGER MODELS  
R4-EM-7BA-1SC-PM

OPTIONAL (SOLD SEPERATELY)  
R4-EM-52 MECHANICAL OVERRIDE BRACKET  
SEE NOTE 1 ON PAGE 4

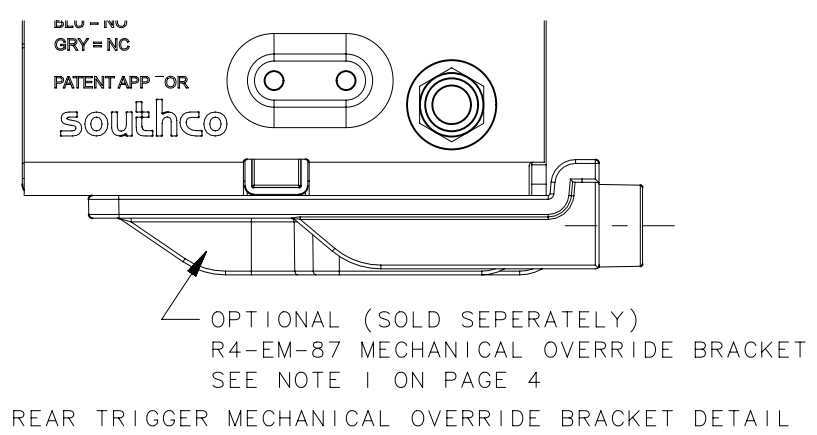
SIDE TRIGGER MECHANICAL OVERRIDE BRACKET DETAIL

THIRD ANGLE PROJECTION						
MILLIMETERS [IN]	DESCRIPTION R4-EM OUTDOOR ELECTRONIC ROTARY LATCH DELAYED RELOCK					
TOLERANCES UNLESS OTHERWISE NOTED	SIZE B	SYSTEM NX	DWG NO. J-R4-EM-71-161	PER ASME Y14.5M-1994		
ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.	DRAWN BY GGG/	DATE 03DEC2012	SCALE 1:1	SHEET 2 OF 4		

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
A	31MAY2013	DJK/CLB	INITIAL RELEASE



REAR TRIGGER MODELS  
R4-EM-R7BA-1SC-PM



THIRD ANGLE PROJECTION	MILLIMETERS [IN]		DESCRIPTION R4-EM OUTDOOR ELECTRONIC ROTARY LATCH DELAYED RELOCK	
SURFACE AREA	TOLERANCES UNLESS OTHERWISE NOTED		DWG NO. J-R4-EM-71-161	SCALE 1:1
VOLUME	ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.		PER ASME Y14.5M-1994	SHEET 3 OF 4
PROPRIETARY ITEM EXCEPT FOR USES EXPRESSLY GRANTED IN WRITING, INFORMATION DISCLOSED HEREON IS CONFIDENTIAL AND ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED BY SOUTHCO, INC.	DRAWN BY GGG/	DATE 03DEC2012		

NOTES:

A. MATERIAL AND FINISH

HOUSINGS: STEEL ZINC-NICKEL PLATED. (OPTIONAL 304 STAINLESS STEEL)  
 CAM AND TRIGGERS: STEEL PLATED. (OPTIONAL STAINLESS STEEL POWDER METAL 19.72% CHROMIUM / 17.82% NICKEL)  
 PINS: STEEL ZINC-NICKEL PLATED. (OPTIONAL 304 STAINLESS STEEL)  
 SPRINGS: 304 STAINLESS STEEL  
 ELECTRONIC ACTUATOR: PLASTIC (PC/ABS AND ACETAL), SILICONE AND BUNA SEALS, AND METAL COMPONENTS

B. ELECTRICAL SPECIFICATIONS:

OPERATING VOLTAGE: 12 TO 24 VDC NOMINAL  
 TYPICAL OPERATING CURRENT: LESS THAN 500 MILLIAMPS AT 12 VDC  
 PEAK / STALL OPERATING CURRENT: 1A MAX (STALL LIMITED TO 1.4 SECONDS)  
 TOTAL STANDBY CURRENT: LOCKED: LESS THAN 100 MICROAMPS  
 UNLOCKED: LESS THAN 10 MILLIAMPS AT 12 TO 24 VDC  
 CONTROL SIGNAL HIGH (UNLOCK COMMAND): 6 VDC TO OPERATING VOLTAGE, 5.5 MILLIAMPS MAX  
 CONTROL SIGNAL LOW (LATCHED COMMAND): 0 TO 1 VDC (OPEN)  
 LATCH TRANSIT TIME TO RELEASE: 600 MILLISECONDS NO LOAD, 1.4 SECOND MAX  
 OPERATING TEMPERATURE RANGE: -40C TO +80C

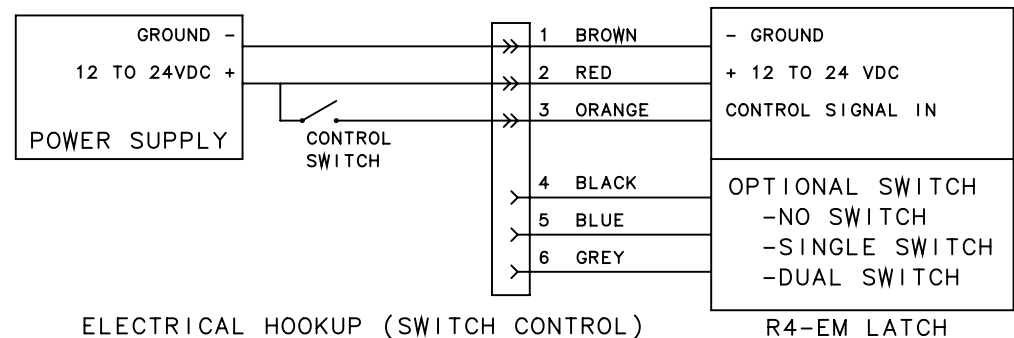
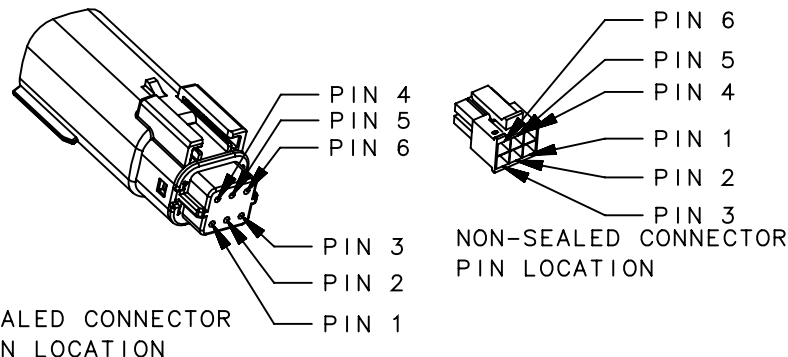
C. ELECTRICAL CONNECTIONS AND HOOKUP:

A BASIC SWITCH CONTROL ELECTRICAL HOOKUP DIAGRAM IS PROVIDED FOR REFERENCE.  
 CONSULT WITH A SOUTHCO REPRESENTATIVE FOR ADDITIONAL ELECTRICAL HOOKUP INFORMATION.  
 - CONNECT POWER, GROUND AND CONTROL SIGNAL WIRES TO AN APPROPRIATE DC POWER SUPPLY  
 - A DC POWER SUPPLY CAPABLE OF SUPPLYING 12 TO 24 VDC AT 1 AMP MINIMUM PER LATCH IS RECOMMENDED  
 - POWER MUST BE AVAILABLE TO OPERATE THE LATCH AND MUST REMAIN AVAILABLE DURING THE FULL TRANSIT TIME OF THE LATCH DURING LOCKING OR UNLOCKING

CAUTION! LATCH CAN BE DAMAGED IF WIRED INCORRECTLY, OR IF IMPROPER VOLTAGE IS APPLIED!

WIRE COLOR CODE / CONNECTOR PIN ASSIGNMENT: SEE CONNECTOR PINOUT TABLE AND PIN LOCATION DETAILS

CONNECTOR PINOUT		
PIN	WIRE COLOR	FUNCTION
1	BROWN	GROUND (-)
2	RED	POWER (+)
3	ORANGE	CONTROL SIGNAL
4	BLACK	SWITCH COMMON
5	BLUE	SWITCH N.O.
6	GREY	SWITCH N.C.



SEE PAGE 1 FOR SWITCH SCHEMATICS

D. ELECTRICAL OPERATION:

TO UNLOCK OR RELEASE THE LATCH:  
 PROVIDE THE FOLLOWING CONTROL SIGNAL TO THE ORANGE WIRE OR CONNECTOR PIN 3  
 - PROVIDE 12 TO 24 VDC (CONTROL SIGNAL HIGH) FOR A MINIMUM OF 50 MILLISECONDS  
 - THE CONTROL SIGNAL CAN REMAIN HIGH INDEFINITELY  
 - THE LATCH WILL STAY UNLOCKED FOR A MINIMUM OF 20 MILLISECONDS OR AS LONG AS THE SIGNAL IS HIGH  
 TO LOCK THE LATCH:  
 PROVIDE THE FOLLOWING CONTROL SIGNAL TO THE ORANGE WIRE OR CONNECTOR PIN 3  
 - PROVIDE CONTROL SIGNAL LOW FOR 50 MILLISECONDS. POWER MUST BE AVAILABLE DURING TRANSIT TO LOCKED POSITION.

NOTE:

- THE DOOR IS NOT LATCHED WHEN IN THE UNLOCKED POSITION. ENSURE THAT YOUR DOOR IS BIASED CLOSED OR DETENTED IN THE CLOSED POSITION. THE CAM MUST REMAIN IN THE CLOSED POSITION TO RE-LOCK.  
 - FROM THE LOCKED POSITION WITH THE CAM IN THE OPEN POSITION, THE DOOR CAN BE PUSHED TO CLOSED AND WILL LOCK.

E. OPTIONAL POSITION FEEDBACK SWITCHES:

- NO SWITCH: MODELS WITHOUT SWITCH WILL NOT HAVE BLACK, BLUE OR GREY WIRES  
 - SINGLE SWITCH: CAM ONLY STATUS INDICATOR CIRCUIT. SEE PAGE 1 OF 4 FOR OUTPUT AND SCHEMATIC.  
 - DUAL SWITCH: CAM AND TRIGGER LATCH STATUS INDICATOR CIRCUIT, AND CAM STATUS INDICATOR CIRCUIT.

SEE PAGE 1 OF 4 FOR OUTPUT AND SCHEMATIC.

SWITCH RATINGS: 3 AMP MAX AT 12 VDC

WARNING! SWITCH CIRCUIT IS NOT FUSED OR ELECTRICALLY PROTECTED! USE APPROPRIATE EXTERNAL CIRCUIT PROTECTION.

WIRE SWITCH CORRECTLY PER ELECTRICAL HOOKUP DIAGRAM AND DO NOT SHORT CIRCUIT.

A SHORT CIRCUIT CAN DAMAGE LATCH AND MAY POSE AN ELECTRICAL FIRE HAZARD!

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
A	31MAY2013	DJK/CLB	INITIAL RELEASE

F. OPTIONAL NON-SEALED LATCH CONNECTOR:

MANUFACTURER: MOLEX, SERIES: MICROFIT 3.0  
 - CONNECTOR RECEPTICAL 6 POSITION 3mm VERTICAL DUAL, MOLEX P/N: 43025-0600  
 - CONTACTS: FEMALE CRIMP TERMINAL (SOCKET) MOLEX P/N: 43030-0007  
 WIRE: 22 AWG STYLE AWM 1569  
 WIRE LENGTH: SEE TABLE FOR AVAILABLE LENGTHS

MATE FOR NON-SEALED CONNECTOR (NOT SUPPLIED)

MANUFACTURER: MOLEX, SERIES: MICROFIT 3.0  
 - CONNECTOR PLUG 6 POSITION 3 mm VERTICAL DUAL, MOLEX P/N: 43020-0601  
 - RECOMMENDED CONTACTS (6 MAX REQUIRED): MOLEX, MALE CRIMP TERMINAL (PIN), MOLEX P/N: 43031-XXXX  
 - RECOMMENDED WIRE GAGE: 22 AWG

G. OPTIONAL SEALED LATCH CONNECTOR:

MANUFACTURER: MOLEX, SERIES: MX150  
 - CONNECTOR SEALED MALE, 6 POSITION DUAL ROW, 3.50mm PITCH MX150, POLARIZATION A, MOLEX P/N: 33482-0601  
 - CONTACTS: MOLEX, MALE CRIMP TERMINAL, TIN, MOLEX P/N: 33000-0003  
 WIRE: 22 AWG STYLE AWM 1569  
 WIRE LENGTH: SEE TABLE FOR AVAILABLE LENGTHS

MATE FOR SEALED LATCH CONNECTOR (NOT SUPPLIED)

MANUFACTURER: MOLEX, SERIES: MX150  
 - CONNECTOR SEALED FEMALE, 6 POS DUAL ROW, 3.50 mm PITCH MX150, POLARIZATION A, MOLEX P/N: 33472-0601  
 - RECOMMENDED CONTACTS (6 MAX REQUIRED): MOLEX, FEMALE CRIMP TERMINAL, TIN 18-22 AWG, MOLEX P/N: 33012-2003  
 - RECOMMENDED WIRE GAGE: 22 AWG

H. MOUNTING

- MOUNT THE LATCH SECURELY USING TWO (2) SCREWS IN MOUNTING HOLES PROVIDED (SCREWS NOT PROVIDED)  
 - MOUNTING HOLES ARE AVAILABLE WITH 1/4 - 20 UNC THREAD, M6 X 1 THREAD OR THRU HOLE  
 - MAXIMUM ALLOWABLE TORQUE ON THREADED MOUNTING SCREWS IS 650 N.cm (57.5 in.lb)

I. MECHANICAL OPERATION:

THE LATCH IS PROVIDED WITH A MECHANICAL TRIGGER TO RELEASE THE LATCH.  
 SEE TRIGGER DETAIL VIEWS FOR SIDE AND REAR TRIGGER MODELS ON PAGE 3 AND 4 FOR TRIGGER TRAVELS.  
 THE TRIGGER MOVES THROUGH ITS FULL TRAVEL DURING ELECTRICAL OPERATION OF THE LATCH.

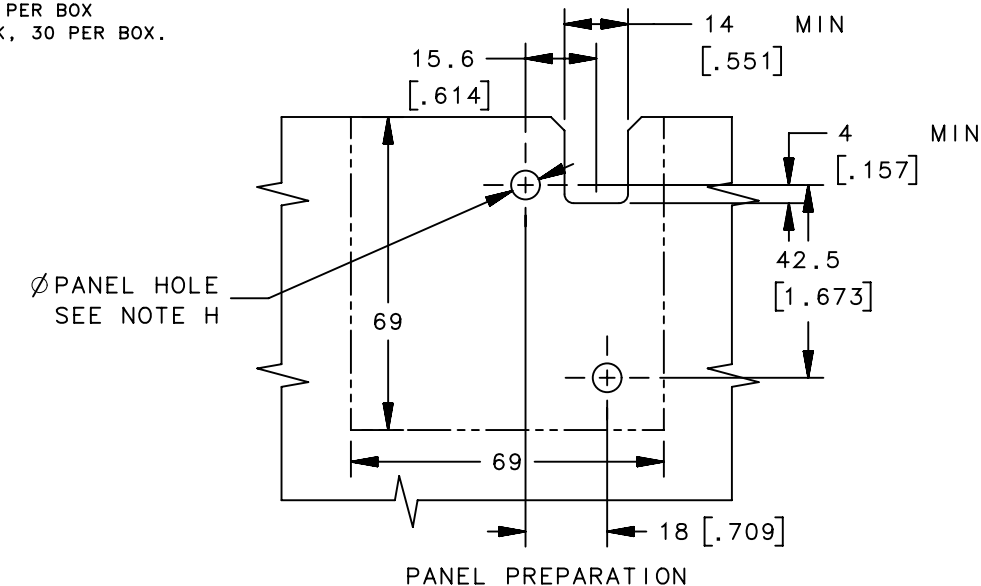
CAUTION! IT IS IMPORTANT TO NOT OBSTRUCT THE MOTION OF THE TRIGGER DURING ELECTRICAL OPERATION TO PREVENT LONG TERM DAMAGE TO THE ELECTRICAL COMPONENTS IN THE LATCH. TWO HOLES PROVIDED CAN BE USED TO MOUNT MECHANICAL OVERRIDE LINKAGE RETAINING BRACKETS. STANDARD 1/8" BLIND RIVETS CAN BE USED FOR FASTENING. FOLLOW MAX INSERTION DEPTH INDICATED AND ENSURE THAT NO PARTICLES ENTER THE LATCH. CONTACT SOUTHCO FOR MECHANICAL RELEASE CABLES AND ACTUATORS. AN OPTIONAL KIT WITH ONE CABLE MOUNTING BRACKET AND TWO RIVETS IS AVAILABLE AS P/N: R4-EM-52 FOR SIDE TRIGGER CONFIGURATION OR P/N: R4-EM-87 FOR REAR TRIGGER CONFIGURATION. SEE CUSTOMER DRAWING J-R4-EM-52 OR J-R4-EM-87 FOR MORE INFORMATION.

J. STRIKER BOLT ASSEMBLY SOLD SEPARATELY

STRIKER BOLT PART NUMBER R4-90-121-10. REFER TO CUSTOMER DRAWING J-R4-90-121 FOR ADDITIONAL INFORMATION.

K. PACKAGED IN INDIVIDUAL BOXES OR ADD -1 TO PART NUMBER FOR BULK PACKAGING

EXAMPLE: R4-EM-XXX-XXX: PACKAGED ONE UNIT PER BOX  
 R4-EM-XXX-XXX-1: PACKAGED IN BULK, 30 PER BOX.



THIRD ANGLE PROJECTION		 CONNECT · CREATE · INNOVATE	
MILLIMETERS [IN]			
SURFACE AREA		TOLERANCES UNLESS OTHERWISE NOTED	
VOLUME		ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.	
PROPRIETARY ITEM		DESCRIPTION	R4-EM OUTDOOR ELECTRONIC ROTARY LATCH DELAYED RELOCK
EXCEPT FOR USES EXPRESSLY GRANTED IN WRITING, INFORMATION DISCLOSED HEREON IS CONFIDENTIAL AND ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED BY SOUTHCO, INC.		SIZE	B NX
PER ASME Y14.5M-1994		DWG NO.	J-R4-EM-71-161
DRAWN BY		DATE	03DEC2012
SCALE		1:1	SHEET 4 OF 4

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
A	22NOV2014	DMS/GGG	PRN: P2014-2386

SOUTHCO PERFORMANCE GUIDELINES

THE PERFORMANCE GUIDELINES SHOWN ON THIS PAGE ARE SUPPLIED AS A GENERAL GUIDE ONLY, AS CONDITIONS VARY WITH EACH APPLICATION AND METHOD OF INSTALLATION. STRENGTH DATA GIVEN IS FOR FAILURE OF THE PRODUCT OR FOR SUFFICIENT DEFORMATION TO MAKE THE PRODUCT INOPERABLE. NO SAFETY FACTOR HAS BEEN APPLIED. IT'S RECOMMENDED THAT THE USER REQUEST A PRODUCT SAMPLE FOR TESTING TO DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE PURPOSE INTENDED AND THE USER'S PARTICULAR APPLICATION.

PERFORMANCE VALUES FOR R4-EM-X7XX-XXX AND R4-EM-X7XX-XXX-B  
SEE J-R4-EM-7-1

1. TENSILE FORCES (DIRECTION 1) ARE APPLIED AT THE NOMINAL LATERAL POSITION (ZERO MISALIGNMENT).

2. CYCLE LIFE WITH 44 N (10 lbf) TENSILE FORCE (DIRECTION 1) ON CAM :  
80,000 CYCLES AT AMBIENT TEMPRETURE.

MODELS TESTED: R4-EM-71-163  
R4-EM-R722-163  
R4-EM-71-163-B  
R4-EM-R712-163-B

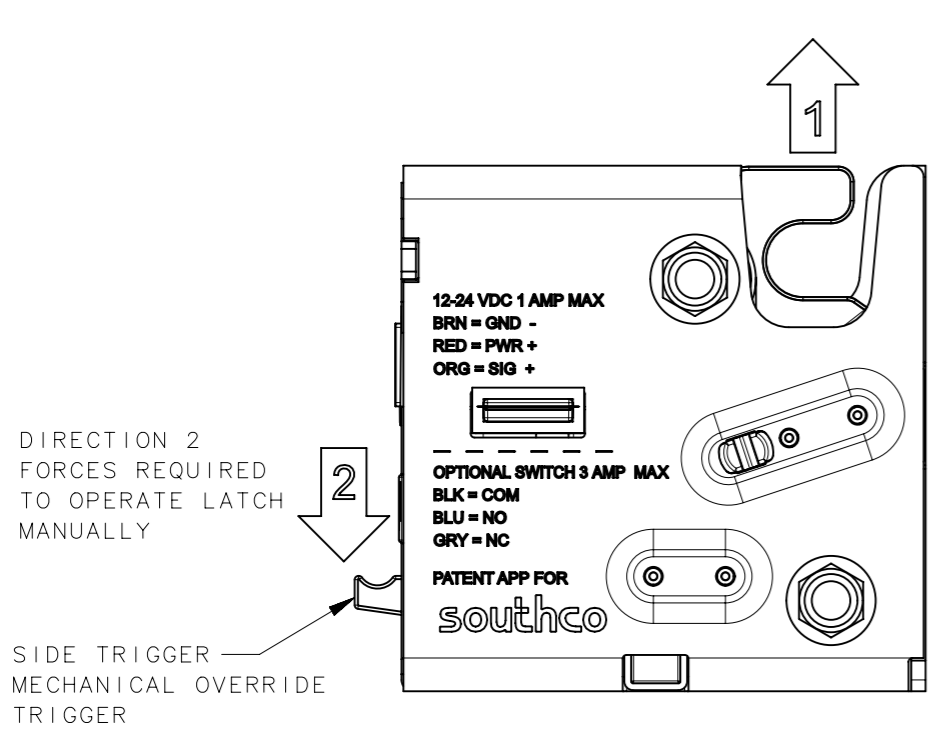
3. MAXIMUM TENSILE FORCE (DIRECTION 1) ON THE CAM THAT THE LATCH CAN RELEASE (OPEN) ELECTRICALLY ONE TIME:  
1557 N (350 lbf) MINIMUM.

4. AVERAGE ULTIMATE TENSILE LOAD (DIRECTION 1) ON THE CAM BEFORE LATCH CAM FAILURE:  
5300 N (1191 lbf) FOR STEEL MODELS R4-EM-X7XX-XXX  
4980 N (1119 lbf) FOR STAINLESS STEEL MODELS R4-EM-X7XX-XXX-B

5. AVERAGE ULTIMATE TENSILE LOAD (DIRECTION 1) WHEN USED WITH SOUTHCO STRIKER BOLT R4-90-121-10: 4420 N (993 lbf).

6. AVERAGE TENSILE FORCE (DIRECTION 2 or 3) REQUIRED ON THE MECHANICAL OVERRIDE TRIGGER TO OPERATE (OPEN) THE LATCH MANUALLY WITH A TENSILE FORCE ON THE CAM:

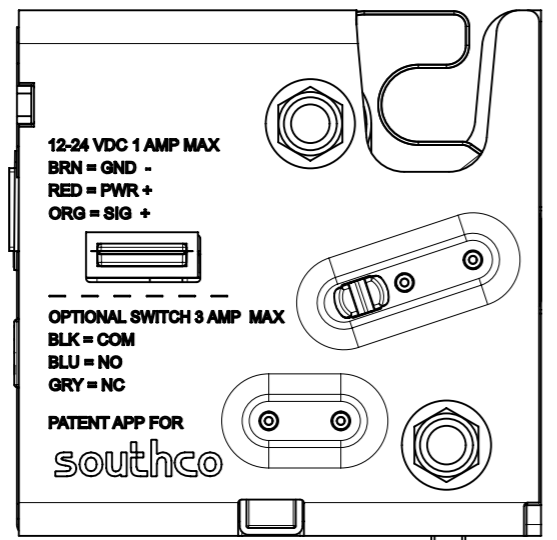
AVERAGE FORCE TO OPERATE LATCH WITH MECHANICAL OVERRIDE VS. LATCH CAM LOAD			
	100 N (22.48 lbf)	400 N (89.92 lbf)	700 N (157.36 lbf)
FORCE 1 (N) ON CAM			
FORCE 2 (N) ON SIDE TRIGGER MECHANICAL OVERRIDE	4.0 N (0.9 lbf)	11.8 N (2.7 lbf)	15.7 N (3.5 lbf)
FORCE 3 (N) ON REAR TRIGGER MECHANICAL OVERRIDE	17.0 N (3.8 lbf)	38.6 N (8.7 lbf)	58.7 N (13.2 lbf)



DIRECTION 1  
TENSILE FORCES  
APPLIED TO CAM

DIRECTION 2  
FORCES REQUIRED  
TO OPERATE LATCH  
MANUALLY

SIDE TRIGGER  
MECHANICAL OVERRIDE  
TRIGGER



DIRECTION 3  
FORCES REQUIRED  
TO OPERATE LATCH  
MANUALLY

REAR TRIGGER  
MECHANICAL OVERRIDE  
TRIGGER

REFERENCE: trR4-15267  
trR4-16759  
trR4-19432

	THIRD ANGLE PROJECTION		
	MILLIMETERS [IN]		
SURFACE AREA	TOLERANCES UNLESS OTHERWISE NOTED	DESCRIPTION R4-EM 7 SERIES ROTARY LATCH	
VOLUME	UP TO 0.5 ±0.05 OVER 0.5 UP TO 6 ±0.1 OVER 6 UP TO 30 ±0.2 OVER 30 ±0.3 ANGLES ±1°	SIZE A3	SYSTEM NX
PROPRIETARY ITEM <small>EXCEPT FOR USES EXPRESSLY GRANTED IN WRITING, INFORMATION DISCLOSED HEREON IS CONFIDENTIAL AND ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED BY SOUTHCO, INC.</small>	PER ASME Y14.5M-1994	DWG NO. TD-R4-EM-7-1-J	DATE 03MAR20014
		DRAWN BY DJK/GGG	SCALE 1:1
			SHEET 1 OF 1