

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
F	01MAR2017	DJK/KAM	PRN: P2017-0495

NOTE:

- A. MATERIAL AND FINISH:**  
 TOP HOUSING, COVER - NYLON AND PC/ABS  
 BOTTOM HOUSING, PIVOT PINS - STEEL, ZINC PLATED  
 CAM, TRIGGER - STEEL, SEALED  
 GEARS - ACETAL  
 PINS, SCREWS - STEEL, ZINC PLATED  
 PIN, SPRINGS - STAINLESS STEEL PASSIVATED  
 -SOME COMPONENTS ARE NOT HALOGEN FREE.
- B. ELECTRICAL SPECIFICATION:**  
 OPERATING VOLTAGE: -12V MODELS: 10.8 TO 13.2 VDC  
 -24V MODELS: 21.6 TO 26.4 VDC  
 TYPICAL OPERATING CURRENT: -12V MODELS: LESS THAN 200 mA AT 12VDC  
 -24V MODELS: LESS THAN 100 mA AT 24VDC  
 PEAK/STALL OPERATING CURRENT: -12V MODELS: 1A MAX AT 12VDC  
 -24V MODELS: 0.3A MAX AT 24VDC
- CAUTION!** NO STALL PROTECTION IS PROVIDED IN LATCH. USE APPROPRIATE CIRCUIT PROTECTION.  
 TYPICAL LATCH TRANSIT TIME TO RELEASE: 800 MILLISECONDS, 1.5 SECOND MAX.  
 OPERATING TEMPERATURE RANGE: -20C TO 60C NON-ICING, NON-CONDENSING ENVIRONMENT  
 OPERATING HUMIDITY: 85% MAX.  
 NOT INTENDED FOR DIRECT EXPOSURE TO OUTDOOR ELEMENTS.

- H. MECHANICAL OPERATION**  
 THE LATCH IS PROVIDED WITH A MECHANICAL TRIGGER TO RELEASE THE LATCH.  
 THE MAXIMUM TRAVEL OF THE TRIGGER IS SHOWN ON SHEET 2 AND 3. 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. ALSO, ENSURE THAT THE TRIGGER IS FREE TO RETURN TO THE FULLY LOCKED STATE.
- FOR REMOTE ACTUATOR CABLE INSTALLATION, INSERT BALL END CABLE THROUGH HOLE IN BRACKET ON LATCH AND THROUGH SLOT IN TRIGGER BEFORE SECURING CABLE JACKET TO LATCH. SECURE JACKET PROPERLY TO PREVENT DAMAGE TO LATCH. CONTACT SOUTHCO FOR AVAILABLE MECHANICAL OVERRIDE CABLES AND ACTUATORS.
- I. STRIKER BOLT ASSEMBLIES SOLD SEPARATELY. CONTACT SOUTHCO FOR ADDITIONAL INFORMATION.**  
 -STRIKER BOLT PART NUMBER: R4-90-121-10, REFER TO CUSTOMER DRAWING  
 J-R4-90-121-10 FOR ADDITIONAL INFORMATION  
 -STRIKER PART NUMBER: R4-90-800-10, REFER TO CUSTOMER DRAWING  
 J-R4-90-804-10 FOR ADDITIONAL INFORMATION  
 -DOOR SENSOR STRIKER PART NUMBER: R4-90-804-10, REFER TO CUSTOMER DRAWING  
 J-R4-90-804-10 FOR ADDITIONAL INFORMATION. REQUIRED FOR DOOR POSITION STATUS OPTION.
- J. CAM TORSION SPRING AVERAGE KICK OUT FORCE UPON UNLOCKING FROM CLOSED POSITION: 3.0N. AVERAGE CLOSING EFFORT REQUIRED TO CLOSE LATCH FROM OPEN POSITION: 6.5N.**
- K. PACKAGED IN INDIVIDUAL BOXES OR ADD -1 TO PART NUMBER FOR BULK PACKAGING**  
 EXAMPLE: R4-EM-81-230 INDIVIDUAL  
 R4-EM-81-230-1 BULK
- L. FOR SOUTHCO TYPE 5 CABLE ASSEMBLIES, THE VARIABLE "TLC" = 9.0mm. SEE J-AC-C DRAWING FOR DETAILS.**

- 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, AND GROUND TO AN APPROPRIATE DC POWER SUPPLY.  
 -RECOMMENDED DC POWER SUPPLY: -FOR 12V MODELS 1 AMP MINIMUM IS RECOMMENDED.  
 -FOR 24V MODELS 0.5 AMP MINIMUM IS RECOMMENDED.  
 -POWER MUST BE AVAILABLE TO OPERATE THE LATCH AND MUST REMAIN AVAILABLE DURING THE FULL RELEASE TRANSIT TIME OF THE LATCH.

- CAUTION!** LATCH CAN BE DAMAGED IF WIRED INCORRECTLY, OR IF IMPROPER VOLTAGE IS APPLIED!  
 LATCH CONNECTOR PIN ASSIGNMENT:  
 PIN1: POWER                      PIN3: NONE OR OPTIONAL DOOR STATUS SIGNAL  
 PIN2: GROUND                    PIN4: LATCH STATUS SIGNAL

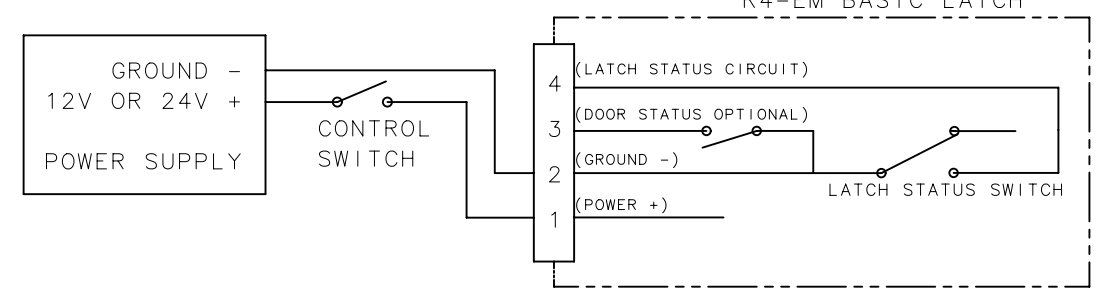
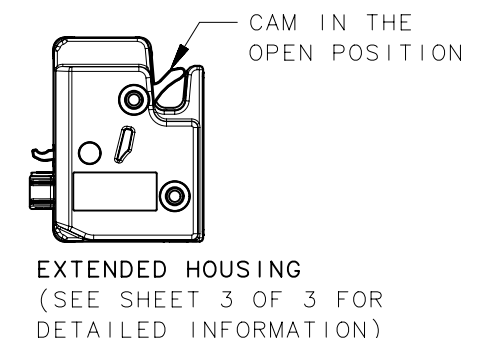
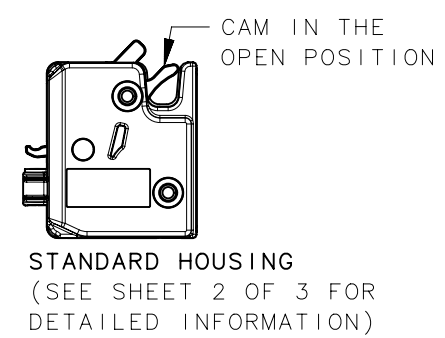
- D. ELECTRICAL OPERATION:**  
 TO RELEASE OR TRIGGER THE LATCH: PROVIDE POWER TO CONNECTOR PIN 1.  
 - CONNECT GROUND AND POWER, LATCH WILL TRIGGER UPON POWER UP.  
 - PROVIDE POWER FOR A MINIMUM OF 1.1 SECOND.  
 - POWER CAN REMAIN ON INDEFINITELY WITHOUT RE-TRIGGERING WITH CAM IN OPEN POSITION.  
 - POWER MUST BE REMOVED TO CLOSE THE LATCH.

- NOTE:**  
 -THE DOOR MUST BE FREE TO OPEN WHEN THE LATCH IS COMMANDED TO OPEN.  
 THE LATCH WILL CONTINUE TO TRY TO OPEN FOR AS LONG AS POWER IS SUPPLIED WHEN THE CAM IS IN THE CLOSED POSITION. IT IS RECOMMENDED TO LIMIT THE POWER ON TIME.  
 IF POWER FAILS, OR IS REMOVED DURING TRANSIT THE LATCH MAY BE LEFT IN AN INDETERMINANT STATE.

- E. POSITION FEEDBACK SWITCHES:**  
 -"LATCH STATUS" LATCH CONNECTOR PIN 4 PROVIDES AN OPEN CIRCUIT WHEN LATCH IS FULLY SECURED, OR SWITCH CLOSURE TO GROUND PER THE LATCH STATUS TABLE.  
 RECOMMENDED MAX SWITCH CURRENT: 1A MAX AT 12 OR 24 VDC  
 SWITCH RATING: 3A AT 125 VAC  
 -OPTIONAL "DOOR STATUS" LATCH CONNECTOR PIN 3 PROVIDES AN OPEN CIRCUIT OR SWITCH CLOSURE TO GROUND PER THE DOOR STATUS TABLE WHEN USED WITH A MAGNETIC STRIKER ON THE DOOR. SEE NOTE I FOR STRIKERS.  
 RECOMMENDED MAX DOOR SWITCH CURRENT: 400mA MAX AT 12 OR 24 VDC.

- WARNING!** SWITCH CIRCUITS ARE NOT FUSED OR ELECTRICALLY PROTECTED. USE APPROPRIATE EXTERNAL CIRCUIT PROTECTION. CORRECTLY WIRE SWITCH PER ELECTRICAL HOOKUP DIAGRAM AND DO NOT SHORT CIRCUIT. A SHORT CIRCUIT CAN DAMAGE LATCH AND MAY POSE AN ELECTRICAL FIRE HAZARD.

- F. LATCH CONNECTOR**  
 MANUFACTURER: MOLEX, SERIES: MICRO-FIT 3.0  
 -3.0MM PITCH MICRO-FIT HEADER, DUAL ROW, 4 POSITIONS, MOLEX P/N:43045-0400 OR EQUIVALENT.  
 MATE CONNECTOR/WIRE HARNESS REQUIRED (NOT SUPPLIED)  
 -CONNECTOR: RECEPTACLE HOUSING, DUAL ROW, 4 POSITION 3MM : MOLEX:P/N 43025-0400  
 -CONTACTS: FEMALE CRIMP TERMINAL (SOCKET) MOLEX P/N 43030-0007  
 OPTIONAL MATE WIRE HARNESSES ARE AVAILABE. SEE J-EA-W24-X03 OR CONTACT SOUTHCO FOR DETAILS.
- G. MOUNTING:**  
 -MOUNT THE LATCH SECURELY USING TWO (2) SCREWS (SCREWS NOT PROVIDED).  
 -MOUNTING HOLES ARE AVAILABLE WITH 1/4-20 UNC THREAD, M6x1 THREAD OR Ø7.0 THRU HOLE  
 -MAXIMUM ALLOWABLE TORQUE ON THREADED MOUNTING SCREWS IS 560N.cm [50 in.lbs]

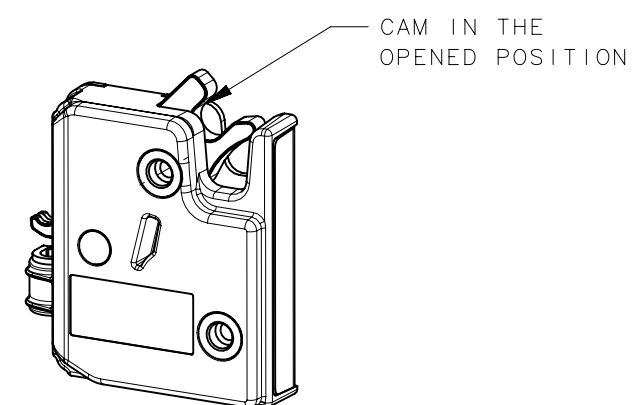
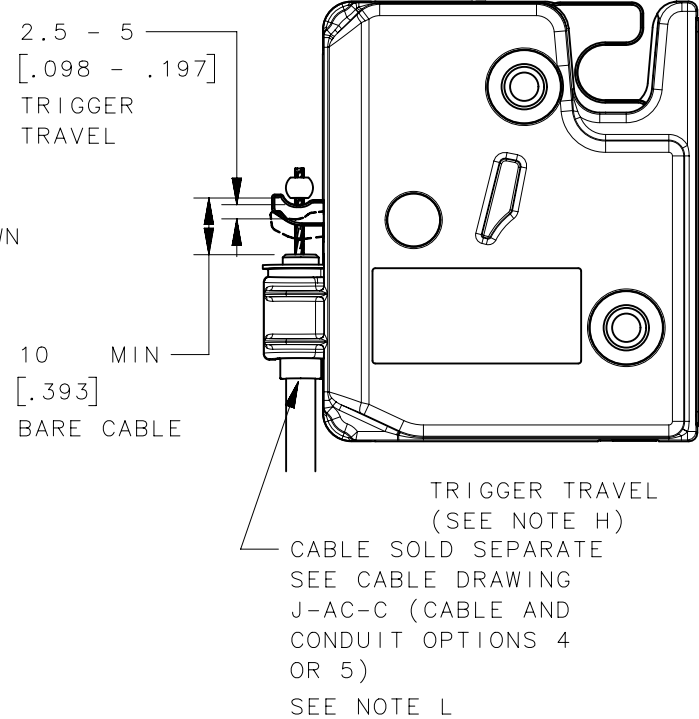
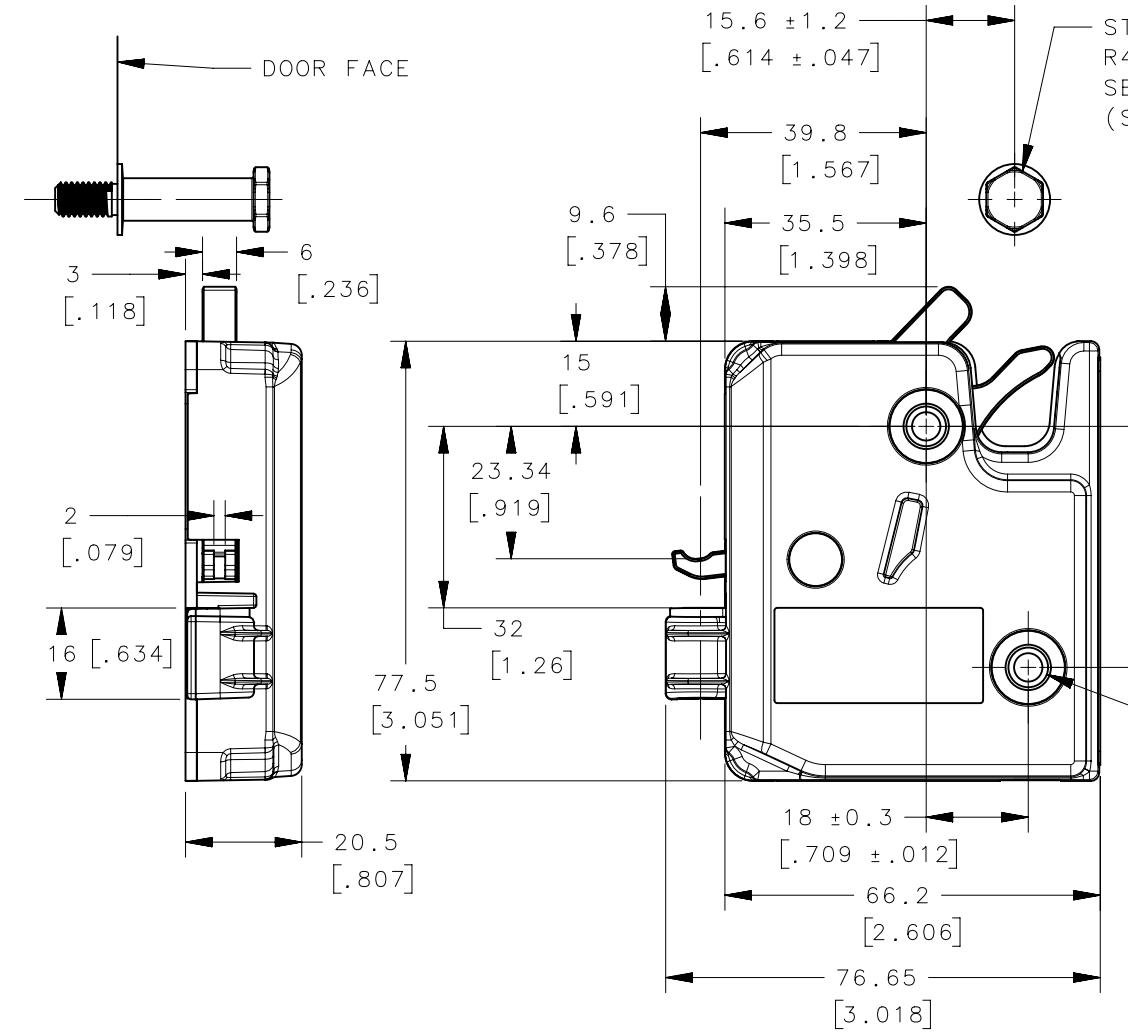


TRIGGER POSITION	CAM POSITION	
	CAM OPEN	CAM CLOSED
LOCKED	N/A	OPEN CIRCUIT
UNLOCKED	CLOSED CIRCUIT GROUND	CLOSED CIRCUIT GROUND

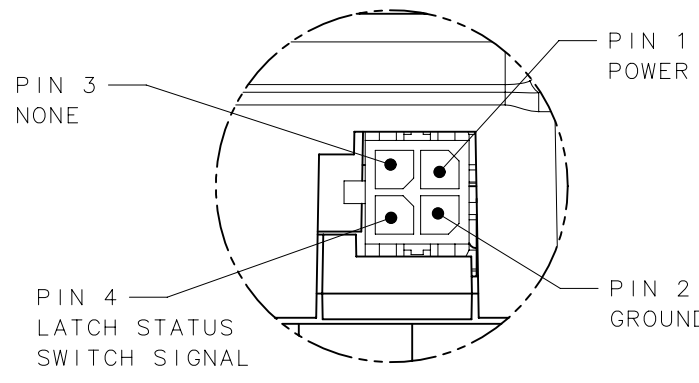
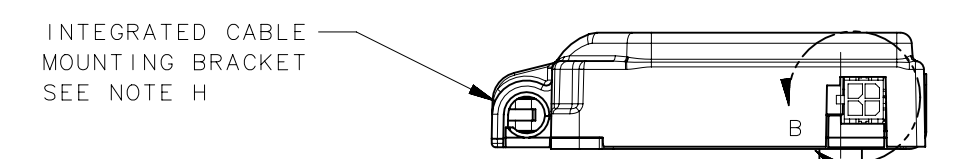
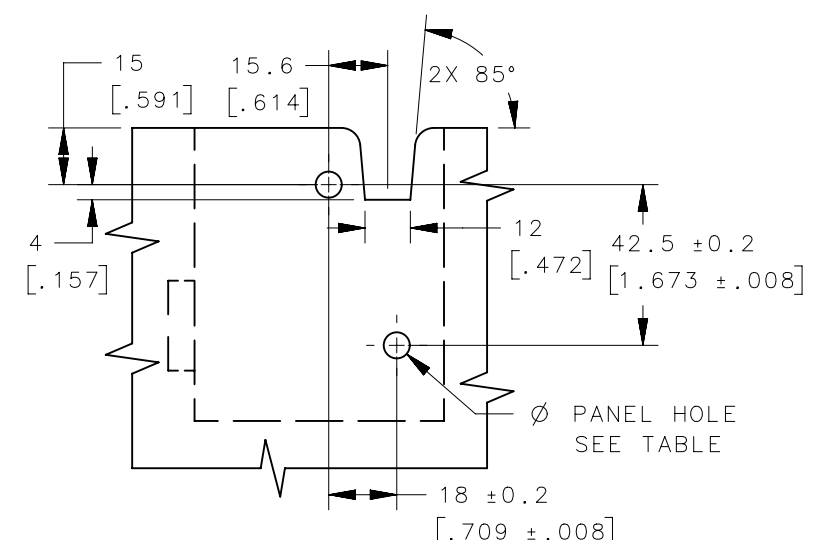
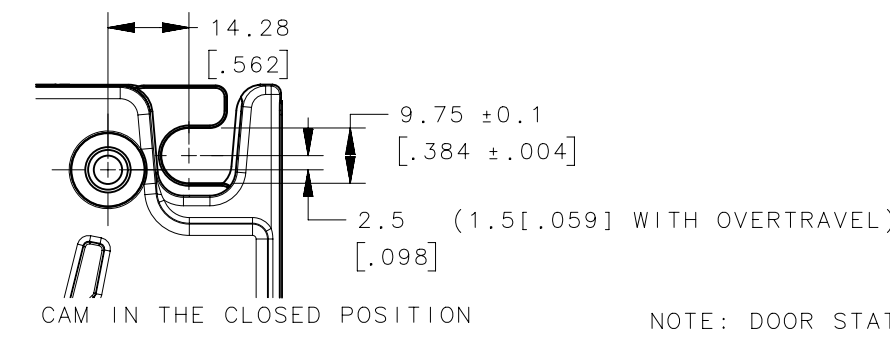
DOOR STATUS CIRCUIT (PIN 3)	DOOR STATUS	
	DOOR OPEN	DOOR CLOSED
OPEN CIRCUIT	OPEN CIRCUIT	CLOSED CIRCUIT GROUND

SURFACE AREA	THIRD ANGLE PROJECTION	DESCRIPTION	 CONNECT · CREATE · INNOVATE	
	MILLIMETERS [IN]			
VOLUME	TOLERANCES UNLESS OTHERWISE NOTED	R4-EM 8 SERIES ELECTROMECHANICAL ROTARY LOCK		
PROPRIETARY ITEM	ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.	SIZE A3	SYSTEM NX	DWG NO. J-R4-EM-8-1
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 DJK/GGG	DATE 25JUN2013	SCALE NTS SHEET 1 of 3

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2 X LATCH MOUNTING HOLES  
 $\varnothing 7 \pm 0.1$  [.276 ± .004] THRU HOLE  
 1/4-20 UNC THREADED, OR  
 M6 X 1 THREADED

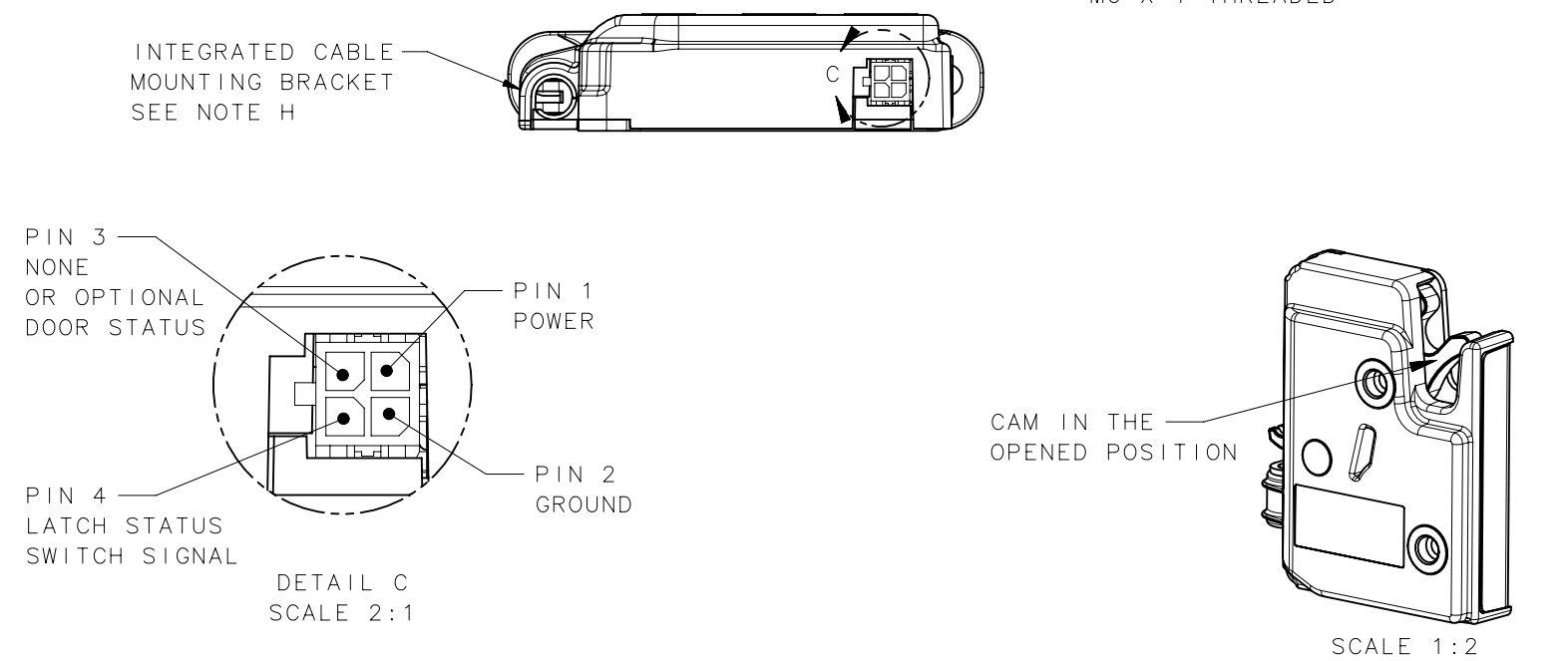
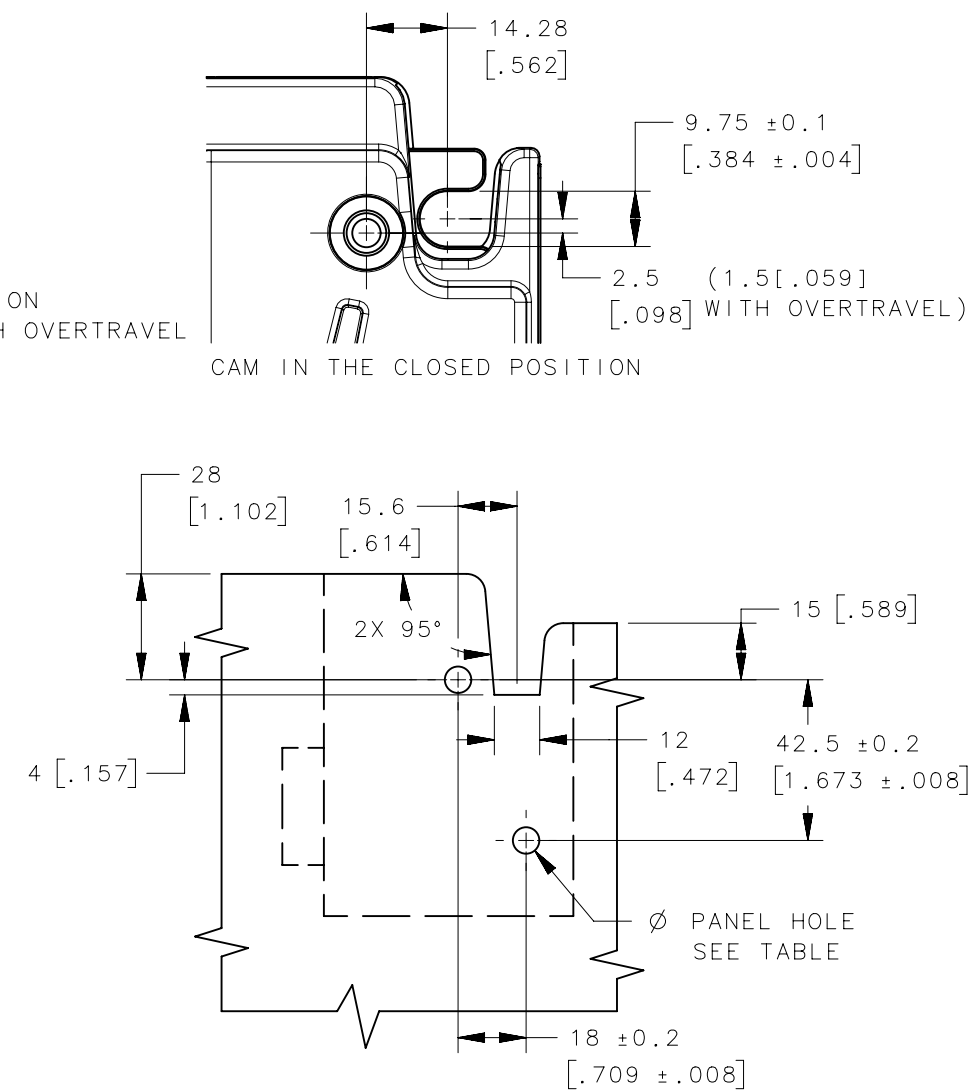
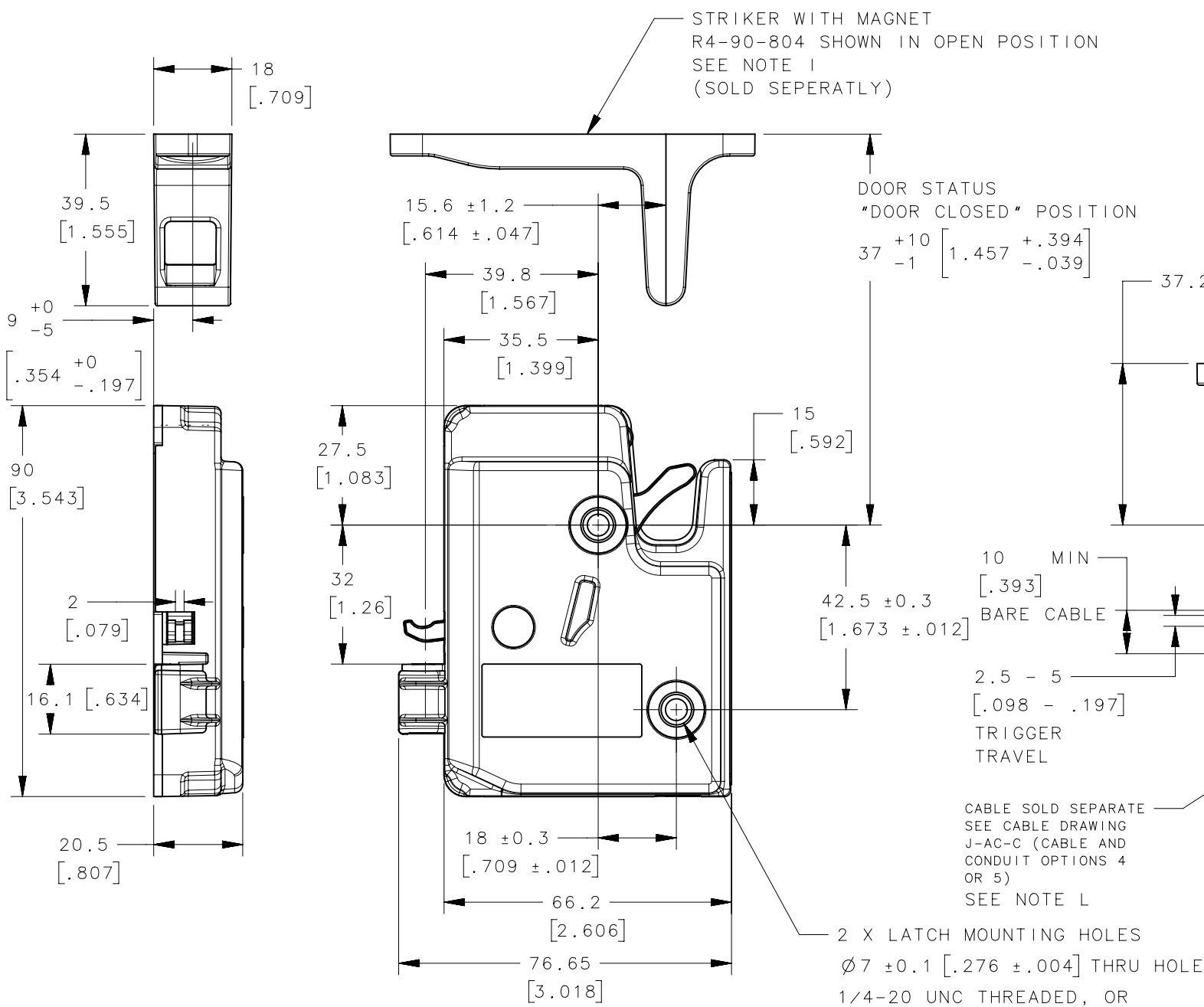


NOTE: DOOR STATUS OPTION NOT AVAILABLE ON STANDARD HOUSING MODELS.

STANDARD HOUSING LATCH ASSEMBLY PART NUMBER				
PART NUMBER	MOUNTING HOLE STYLE	RECOMMENDED MINIMUM PANEL HOLE	OPTIONAL DOOR STATUS SIGNAL	VOLTAGE
R4-EM-81-230	1/4-20 THREADED	$\varnothing 7.2$ [.283]	NONE	24 VOLT
R4-EM-82-230	M6 THREADED	$\varnothing 6.9$ [.272]		
R4-EM-83-230	7MM THRU HOLE	$\varnothing 7.6$ [.300]		
R4-EM-81-330	1/4-20 THREADED	$\varnothing 7.2$ [.283]		12 VOLT
R4-EM-82-330	M6 THREADED	$\varnothing 6.9$ [.272]		
R4-EM-83-330	7MM THRU HOLE	$\varnothing 7.6$ [.300]		

THIRD ANGLE PROJECTION		 CONNECT • CREATE • INNOVATE
MILLIMETERS [IN]		
SURFACE AREA	TOLERANCES UNLESS OTHERWISE NOTED	DESCRIPTION
VOLUME	ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.	R4-EM 8 SERIES STANDARD HOUSING
PROPRIETARY ITEM	PER ASME Y14.5M-1994	SIZE A3 SYSTEM NX DWG NO. J-R4-EM-8-1
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 DJK/GGG	DATE 25JUN2013 SCALE 0.75:1 SHEET 2 of 3

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EXTENDED HOUSING LATCH ASSEMBLY PART NUMBERS				
PART NUMBER	MOUNTING HOLE STYLE	RECOMMENDED MINIMUM PANEL HOLE	OPTIONAL DOOR STATUS SIGNAL	VOLTAGE
R4-EM-816-230	1/4-20 THREADED	Ø 7.2 [.283]	NONE	24 VOLT
R4-EM-826-230	M6 THREADED	Ø 6.9 [.272]		
R4-EM-836-230	7MM THRU HOLE	Ø 7.6 [.300]		
R4-EM-816-240	1/4-20 THREADED	Ø 7.2 [.283]	DOOR STATUS OPTION	
R4-EM-826-240	M6 THREADED	Ø 6.9 [.272]	NONE	
R4-EM-836-240	7MM THRU HOLE	Ø 7.6 [.300]		
R4-EM-816-330	1/4-20 THREADED	Ø 7.2 [.283]		
R4-EM-826-330	M6 THREADED	Ø 6.9 [.272]	DOOR STATUS OPTION	12 VOLT
R4-EM-836-330	7MM THRU HOLE	Ø 7.6 [.300]		
R4-EM-816-340	1/4-20 THREADED	Ø 7.2 [.283]		
R4-EM-826-340	M6 THREADED	Ø 6.9 [.272]	DOOR STATUS OPTION	
R4-EM-836-340	7MM THRU HOLE	Ø 7.6 [.300]		

THIRD ANGLE PROJECTION		 CONNECT • CREATE • INNOVATE	
MILLIMETERS [IN]			
SURFACE AREA	TOLERANCES UNLESS OTHERWISE NOTED	DESCRIPTION	
VOLUME	ALL DIMENSIONS WITHOUT TOLERANCES ARE FOR REFERENCE ONLY.	R4-EM 8 SERIES EXTENDED HOUSING	
PROPRIETARY ITEM	PER ASME Y14.5M-1994	SIZE A3	SYSTEM NX
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 DJK/GGG	DATE 25JUN2013	DWG NO. J-R4-EM-8-1
		SCALE 0.75:1	SHEET 3 OF 3

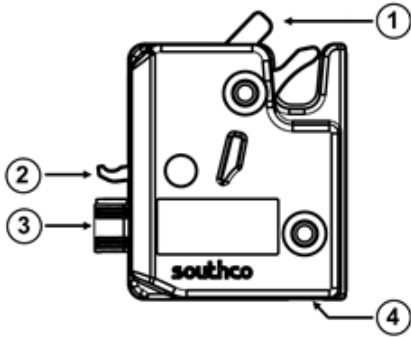
# R4-EM 8-Series Latch Operating Instructions

## Package Contents

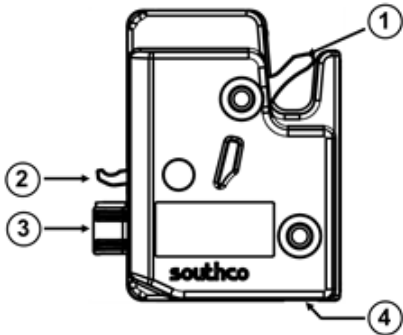
- R4-EM 8-Series Latch
- Operating Instructions

## 8-Series Latch

### Standard Housing



### Extended Housing Option



1. cam (shown in open position)
2. mechanical trigger
3. integrated cable mounting bracket
4. latch connector

## Features

- extended housing option
- latch and optional door status
- minimal power draw
- integrated latch connector
- mechanical override with integrated cable mounting bracket

## Electrical Specifications

	12VDC version	24VDC version
<b>Operating voltage</b>	12VDC ± 10%	24VDC ± 10%
<b>Operating current (typ)</b>	< 200mA at 12VDC	< 100mA at 24VDC
<b>Operating current (peak/stall)</b>	1A max at 12VDC	300mA max at 24VDC
<b>Transit time to release</b>	800msec (typ), 1.5sec (max)	
<b>Recommended latch status switch current</b>	1A max	
<b>Recommended door status switch current</b>	0.4A max	

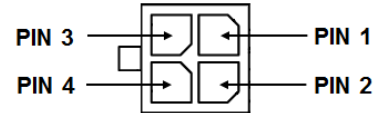
**⚠ WARNING:** No stall protection is provided in latch. Use appropriate circuit protection.

**⚠ WARNING:** Latch and door switches are not fused or electrically protected. Use appropriate external circuit protection. A short circuit can damage latch and may pose an electrical fire hazard.

## Mounting and Installation

Refer to Southco trade drawing J-R4-EM-8-1 for mounting and installation details.

## Connector Pinout



pin	standard housing	extended housing (w/o door status option)	extended housing (w/ door status option)
1	VCC	VCC	VCC
2	GND	GND	GND
3	no connect	no connect	door status switch output
4	latch status switch signal	latch status switch signal	latch status switch output

## Releasing the Latch

To release the latch, provide power for a **minimum** of 1.5 seconds. The latch will release immediately.

Power can remain 'on' indefinitely as long as the cam is in the open position. If the cam is moved to the 'closed' position, then the latch will automatically release.

**⚠ WARNING:** The cam and mechanical trigger must not be obstructed when operating the latch, otherwise damage to the latch could occur.

## Closing the Latch

To close the latch, be sure power is removed, then close the cam.

The mechanical trigger must be allowed to return to its fully locked state.

## Latch Status Switch Output

The latch switch output provides the status of the latch by monitoring the position of the cam and mechanical trigger, as shown below.

trigger position	cam open	cam closed
locked	n/a	open circuit
unlocked	short to GND	short to GND

## Door Status Switch Output (Optional)

(only available with extended housing option)

The door status switch output provides the status of the door when used with a magnetic striker on the door. The switch will respond by opening and closing when brought into proximity with the striker while opening or closing the door, respectively.

The door status switch output will be open circuit when the door is open.

The door status switch output will be shorted to GND when the door is closed.

Refer to Southco drawing J-R4-EM-8-1 for a list of separately sold strikers.

## Mechanical Trigger

The mechanical trigger can be used to release the latch without providing power to it.

Refer to Southco drawing J-R4-EM-8-1 for additional details on available mechanical trigger cable options and assembly.