ONKENHOUT

NOTE:

A. MATERIAL AND FINISH:
   HOUSING, CAM, TRIGGER AND PINS: STEEL ZINC PLATED
   ELECTRONIC ACTUATOR: PLASTIC AND ACETALS AND METAL
   COMPONENTS.
B. ELECTRICAL SPECIFICATION:
   OPERATING VOLTAGE: 8 TO 26 VDC
   TYPICAL OPERATING CURRENT: LESS THAN 500 mA AT 12VDC
   PEAK/STALL OPERATING CURRENT: 1A MAX AT 12VDC STALL LIMITED TO 1.4 SECONDS
   STANDBY CURRENT LESS THAN 185 MICROAMP
   CONTROL SIGNAL HIGH (UNLOCK COMMAND): 6 TO 26VDC, 25 mA MAX
   CONTROL SIGNAL LOW (LOCK COMMAND): 0 TO 1VDC (OPEN)
   LATCH TRANSIT TIME TO RELEASE: 600 MILLISECONDS NO LOAD, 1 SECOND MAX.
   OPERATING TEMPERATURE RANGE -20C TO 60C
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 1 AMP MINIMUM 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
          PIN1: BROWN: GROUND (-)   PIN4: BLACK: SWITCH COMMON
          PIN2: RED: POWER (+12V TYPICAL)   PIN5: BLUE: SWITCH N.O. CONTACT
          PIN3: ORANGE: CONTROL SIGNAL (+12V TYPICAL) PIN6: GREY: SWITCH N.C. CONTACT
D. ELECTRICAL OPERATION:
   TO RELEASE OR TRIGGER THE LATCH : PROVIDE THE FOLLOWING CONTROL SIGNAL TO THE ORANGE
   WIRE OR CONNECTOR PIN 3
   -PROVIDE 6 TO 26VDC (CONTROL SIGNAL HIGH) FOR A MINIMUM OF 50 MILLISECONDS
   -THE CONTROL SIGNAL CAN REMAIN HIGH INDEFINITELY BUT MUST BE LOW TO RE-TRIGGER LATCH
    ALTERNATE OPERATING MODE: TRIGGER ON POWER UP
    -CONNECT CONTROL WIRE (ORANGE) TO POWER WIRE(RED).
    -CONNECT POWER AND GROUND, LATCH WILL TRIGGER UPON POWER UP.
    -POWER MUST BE AVAILABLE FOR A MINIMUM OF 1 SECOND.
    -POWER CAN REMAIN ON INDEFINITELY WITHOUT RE-TRIGGERING.
    -POWER MUST BE REMOVED TO RE-TRIGGER LATCH.
E. LATCH CLOSED POSITION FEEDBACK SWITCH:
   -NORMALLY OPEN CONTACT (BLUE WIRE) PROVIDES SWITCH CLOSURE WHEN LATCH CAM IS CLOSED
   -NORMALLY CLOSED CONTACT (GREY WIRE) PROVIDES SWITCH OPEN WHEN LATCH CAM IS CLOSED
   -SWITCH COMMON (BLACK WIRE)
   -SWITCH RATING: 3A AT 12 VDC MAX
⚠ WARNING SWITCH CIRCUIT IS NOT FUSED OR ELECTRICALLY PROTECTED! USE APPROPRIATE EXTERNAL 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!
F. OPTIONAL 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: 24 AWG STYLE 1007
   WIRE LENGTH: SEE TABLE FOR AVAILABLE LENGTHS
G. MATE CONNECTOR (NOT SUPPLIED)
   MANUFACTURER: MOLEX, SERIES: MICROFIT 3.0
   -CONNECTOR PLUG 6 POSITION 3MM VERTICAL DUAL MOLEX P/N: 43020-0601
   -RECOMMENDED CONTACTS (6 REQUIRED): MOLEX, MALE CRIMP TERMINAL (PIN) MOLEX P/N 43031-0007
   -RECOMMENDED WIRE GAGE: 24 AWG
H. MOUNTING:
   -MOUNT THE LATCH SECURELY USING TWO (2) SCREWS IN THE MOUNTING HOLES PROVIDED (SCREWS NOT PROVIDED)
   -MOUNTING HOLES ARE AVAILABLE WITH 1/4-20 UNC THREAD, M6 x 1 THREAD OR ∅7.0 THRU HOLE
   -MAXIMUM ALLOWABLE TORQUE ON THREADED MOUNTING SCREWS IS 650 N.cm (57.5 in. lbs)
I. MECHANICAL OPERATION
   THE LATCH IS PROVIDED WITH A MECHANICAL TRIGGER TO RELEASE THE LATCH.
   THE MAXIMUM TRAVEL OF THE TRIGGER IS SHOWN IN DETAIL A. 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
          LONGTERM 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 PART NUMBER R4-EM-52
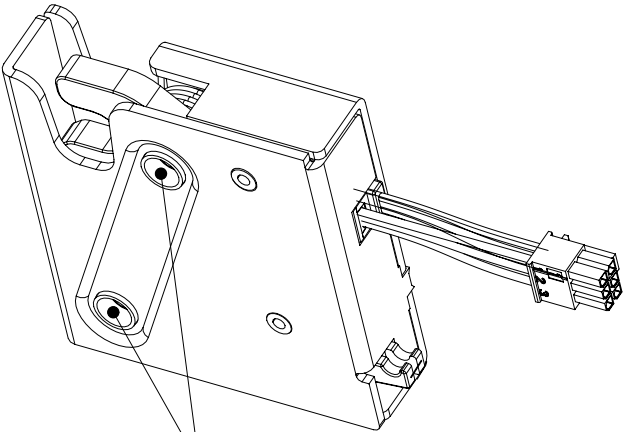   SEE CUSTOMER DRAWING J-R4-EM-52 FOR MORE INFORMATION
J. STRIKER BOLT ASSEMBLY SOLD SEPARATELY
   STRIKER BOLT PART NUMBER: R4-90-121-10, REFER TO CUSTOMER DRAWING J-R4-90-121 FOR ADDITIONAL INFORMATION
K. PACKAGED IN INDIVIDUAL BOXES OR ADD -1 TO PART NUMBER FOR BULK PACKAGING
   EXAMPLE: R4-EM-11-161
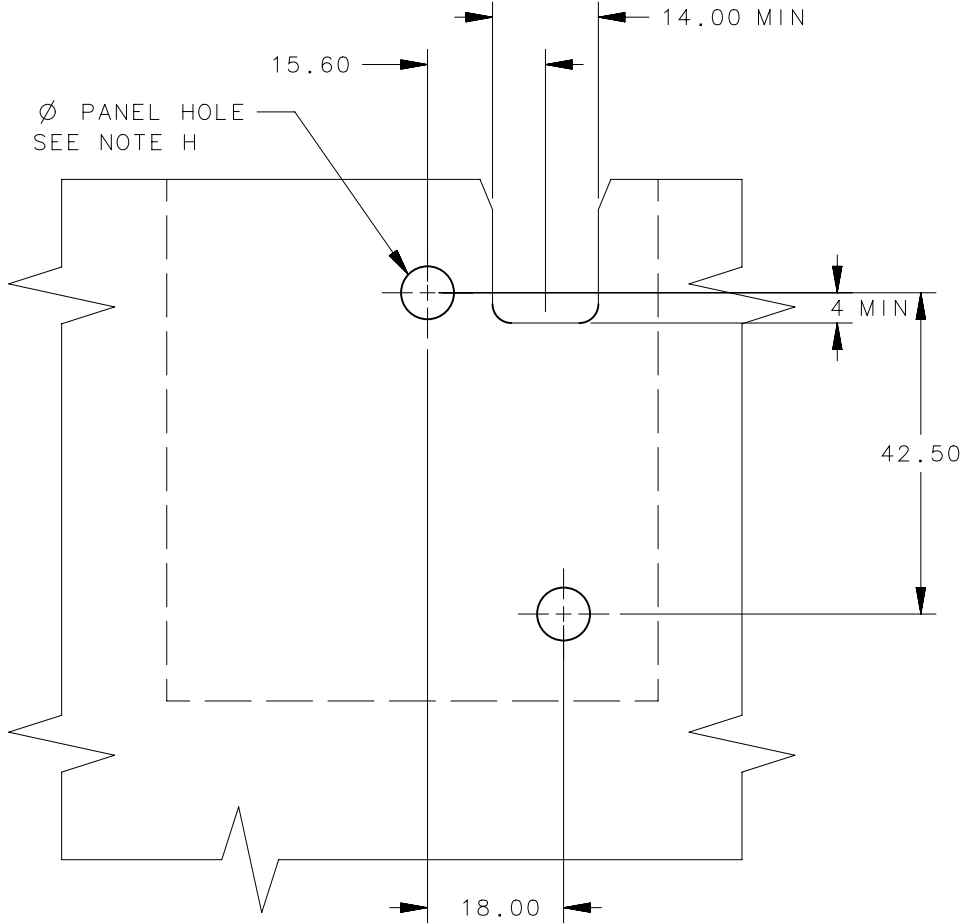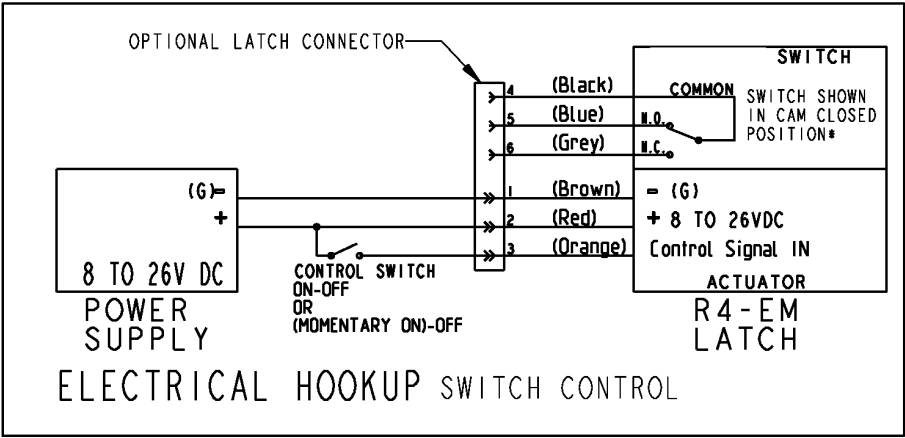   R4-EM-11-161-1

NOTE: MOUNTING HOLES ARE
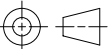RECESSED 1.3 MM ON THIS SIDE

OPTIONAL LATCH CONNECTOR
SWITCH
SWITCH SHOWN IN CAM CLOSED POSITION
(Black) COMMON
(Blue)   N.O.
(Grey)   N.C.
(G)
+
8 TO 26V DC
POWER SUPPLY
CONTROL SWITCH
ON-OFF
OR
(MOMENTARY ON)-OFF
(Brown) = (G)
(Red)   = + 8 TO 26VDC
(Orange) = Control Signal IN
ACTUATOR
R4-EM LATCH
ELECTRICAL HOOKUP SWITCH CONTROL

PIN6 — PIN3
PIN5 — PIN2
PIN4 — PIN1
PIN 1 INDICATOR
LATCH CONNECTOR

∅ PANEL HOLE
SEE NOTE H

14.00 MIN
15.60
4 MIN
42.50
18.00

PANEL PREPARATION

ONKENHOUT

NOTE:

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   HOUSING, CAM, TRIGGER AND PINS: STEEL ZINC PLATED
   ELECTRONIC ACTUATOR: PLASTIC AND ACETALS AND METAL
   COMPONENTS.
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⚠ CAUTION! LATCH CAN BE DAMAGED IF WIRED INCORRECTLY, OR IF IMPROPER VOLTAGE IS APPLIED!
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        PIN1: BROWN: GROUND (-)   PIN4: BLACK: SWITCH COMMON
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        PIN3: ORANGE: CONTROL SIGNAL (+12V TYPICAL)   PIN6: GREY: SWITCH N.C. CONTACT
D. ELECTRICAL OPERATION:
   TO UNLOCK OR RELEASE THE LATCH:
   PROVIDE THE FOLLOWING CONTROL SIGNAL TO THE ORANGE WIRE OR CONNECTOR PIN 3
   -PROVIDE 6 TO 26VDC (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 1 SECOND 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 0 TO 1VDC (CONTROL SIGNAL LOW). 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 CLOSE AND WILL LOCK
E. LATCH CLOSED POSITION FEEDBACK SWITCH:
   -NORMALLY OPEN CONTACT (BLUE WIRE) PROVIDES SWITCH CLOSURE WHEN LATCH CAM IS CLOSED
   -NORMALLY CLOSED CONTACT (GREY WIRE) PROVIDES SWITCH OPEN WHEN LATCH CAM IS CLOSED
   -SWITCH COMMON (BLACK WIRE)
   SWITCH RATING: 3A AT 12 VDC MAX
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   WIRE LENGTH: SEE TABLE FOR AVAILABLE LENGTHS
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   -CONNECTOR PLUG 6 POSITION 3MM VERTICAL DUAL MOLEX P/N: 43020-0601
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   -RECOMMENDED WIRE GAGE: 24 AWG
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   -MOUNT THE LATCH SECURELY USING TWO (2) SCREWS IN THE MOUNTING HOLES PROVIDED (SCREWS NOT PROVIDED)
   -MOUNTING HOLES ARE AVAILABLE WITH 1/4-20 UNC THREAD, M6 x 1 THREAD OR Ø7.0 THRU HOLE
   -MAXIMUM ALLOWABLE TORQUE ON THREADED MOUNTING SCREWS IS 650 N.cm (57.5 in. lbs)
I. MECHANICAL OPERATION:
   THE LATCH IS PROVIDED WITH A MECHANICAL TRIGGER TO RELEASE THE LATCH.
   THE MAXIMUM TRAVEL OF THE TRIGGER IS SHOWN IN DETAIL A. THE TRIGGER MOVES THROUGH ITS FULL TRAVEL DURING
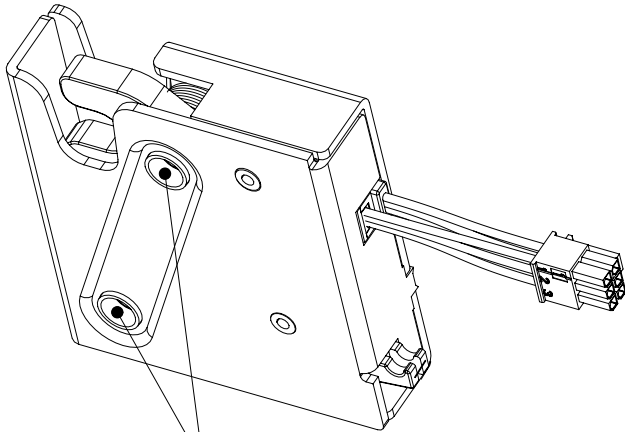   ELECTRICAL OPERATION OF THE LATCH.
⚠ CAUTION IT IS IMPORTANT TO NOT OBSTRUCT THE MOTION OF THE TRIGGER DURING ELECTRICAL OPERATION TO PREVENT
        LONGTERM DAMAGE TO THE ELECTRICAL COMPONENTS IN THE LATCH.
        TWO HOLES PROVIDED CAN BE USED TO MOUNT MECHANICAL OVERRIDE LINKAGE RETAINING BRACKETS. 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 PART NUMBER R4-EM-52
        SEE CUSTOMER DRAWING J-R4-EM-52 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-21-161
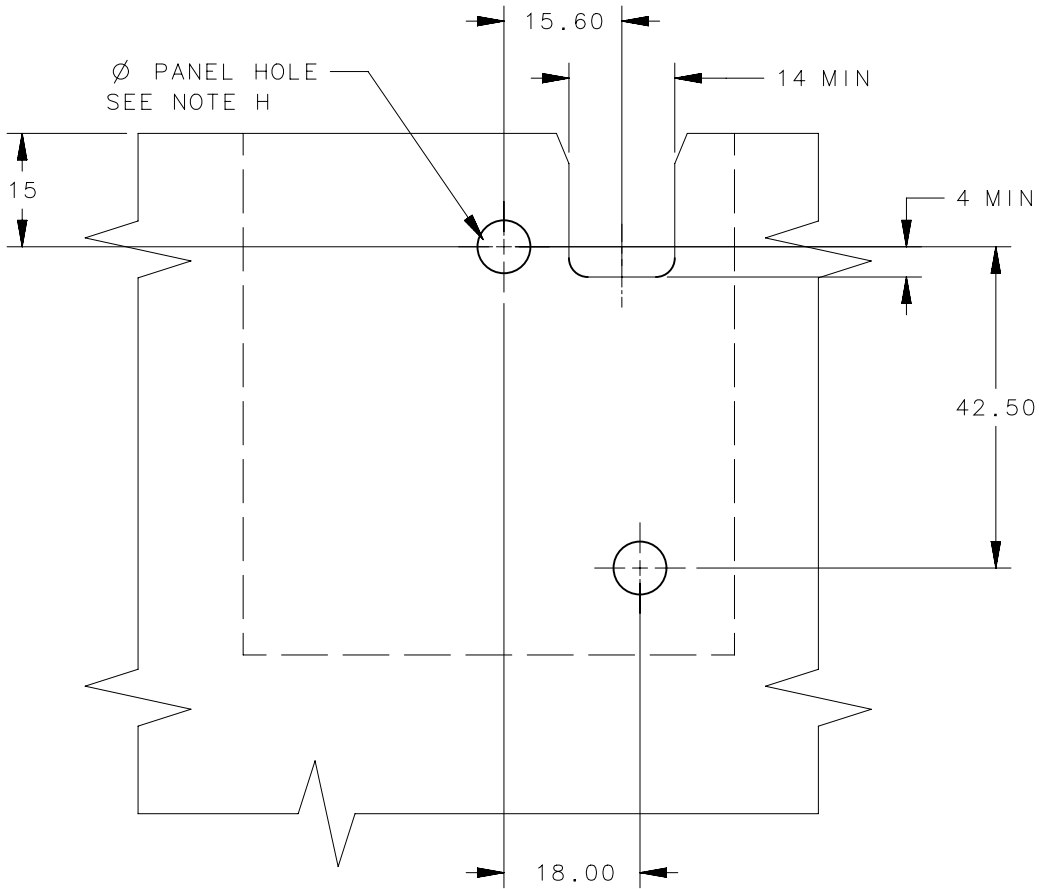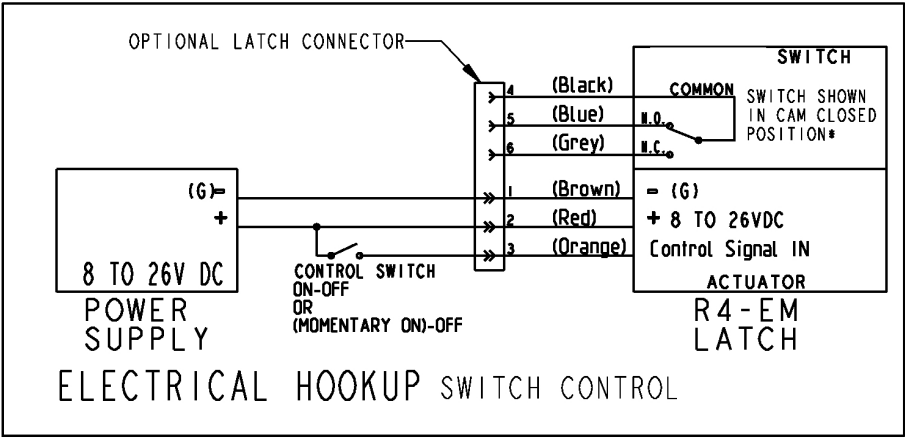   R4-EM-21-161-1

NOTE: MOUNTING HOLES ARE
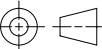RECESSED 1.3 MM ON THIS SIDE

OPTIONAL LATCH CONNECTOR

SWITCH
SWITCH SHOWN
IN CAM CLOSED
POSITION

COMMON
(Black)
(Blue) N.O.
(Grey) N.C.

(G) = (G)
+ 8 TO 26VDC
Control Signal IN
(Brown)
(Red)
(Orange)

ACTUATOR
R4-EM
LATCH

8 TO 26V DC
POWER
SUPPLY

CONTROL SWITCH
ON-OFF
OR
(MOMENTARY ON)-OFF

ELECTRICAL HOOKUP SWITCH CONTROL

PIN6 — PIN3
PIN5 — PIN2
PIN4 — PIN1

PIN 1 INDICATOR
LATCH CONNECTOR

PANEL PREPARATION

15.60
14 MIN
4 MIN
15
Ø PANEL HOLE
SEE NOTE H
42.50
18.00

southco®

R4-EM ROTARY LATCH

DATE	DRAWN	CHKD	SCALE
22JAN2009	MJS	GG	.5:1

DRAWING NUMBER

TD-R4-EM-1-J

REV	DATE	DRAWN/CHKD	DESCRIPTION							
C	28JUL2011	MJS/WB	ADDED TR R4-117							

THIRD ANGLE PROJECTION

A4 PAPER SIZE
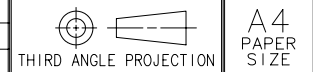
SOUTHCO PERFORMANCE GUIDELINES

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 IS RECOMMENDED THAT THE USER REQUEST A PRODUCT SAMPLE FOR TESTING TO DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE PURPOSE INTENDED AND USER'S PARTICULAR APPLICATION.

DIRECTION 1
TENSILE FORCES
APPLIED ON CAM

LATCH CAM

MECHANICAL OVERRIDE TRIGGER

DIRECTION 2
FORCE REQUIRED
TO OPERATE
LATCH MANUALLY
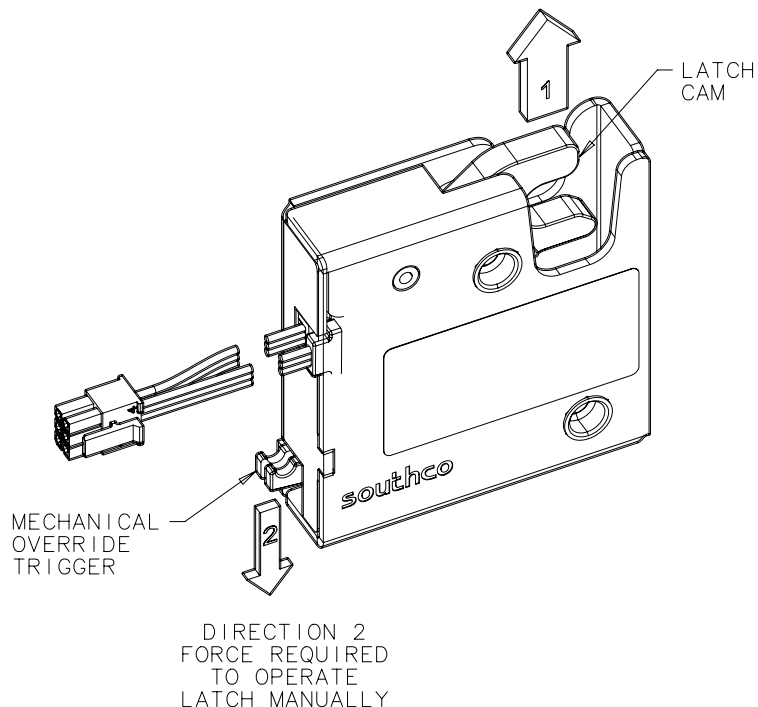
TENSILE FORCE ON CAM	CYCLE LIFE
44 N (10 lb.)	100,000

Performance values for R4-EM-1X-XXX
See J-R4-EM-11-151 and J-R4-EM-11-161 for latch dimensions.

1. Testing performed using part number R4-EM-11-161.

2. TENSILE FORCES (Direction 1) are applied at the nominal lateral position (zero misalignment).

3. MAXIMUM TENSILE FORCE (Direction 1) on the cam that the latch can release (open) electronically one time: 1557 N (350 lbf).

4. AVERAGE ULTIMATE TENSILE LOAD (Direction 1) on the cam before latch can fracture: 6770 N (1522 lbf).

5. AVERAGE ULTIMATE TENSILE LOAD (Direction 1) when used with Southco Striker Bolt R4-90-121-10: 4890 N (1100 lb.).

6. TENSILE FORCE (Direction 2) required on the mechanical override trigger to operate (open) the latch manually with a 100 N (22 lbf) tensile force on the cam: 4 N (0.9 lbf).

REF: TR R4-93
     TR R4-4867
     TR R4-117 (SUPERCEDES TEST #12 IN TR R4-93)