REVISIONS			
SYMBOL	**DESCRIPTION**	**DATE**	**APPROVAL**
–	Original Release	9/22/05	JWY

SHEET REVISION STATUS

SH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REV	-	-	-	-	-	-	-													
SH	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
REV																				

ORIGINATOR: T. J. Perry/QSS Group Inc. TJ Perry	**DATE** 9/22/05	**FSC: 5930**
APPROVED: TJ Perry / Commodity Specialist	9/22/05	Switch, Thermostatic, Bimetallic, SPST, High Power, Hermetic, Detail Specification for
CODE 562 APPROVAL: M.A. Proctor/Code 562/GSFC M. A. Proctor	9/22/05	
CODE 562 SUPERVISORY APPROVAL: D.D. Lakins/Code 562/GSFC Darryl D. Lakins	9/22/05	
ADDITIONAL APPROVAL:		**S-311-641/04**

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771

CAGE CODE: 25306

GSFC DETAIL SPECIFICATION

SWITCH, THERMOSTATIC, BIMETALLIC, SINGLE POLE, SINGLE THROW (SPST), HIGH POWER, HERMETICALLY SEALED

The requirements for procuring the thermostatic switches described herein shall consist of this specification and the current revision of GSFC S-311-641.

PART NUMBER EXAMPLE:

G311P641/04	272	TL	040	A	065	A	/	1
(A)	(B)	(C)	(D)	(E)	(F)	(G)		(H)

(A) GSFC PREFIX

(B) MOUNTING CONFIGURATION
- **271 = Bare Module (See Figure 1)**
- **272 = 3/8-24 Stud Mount (See Figure 2)**
- **273 = Flange Mount-Short (See Figure 3)**
- **274 = Flange Mount-Long (See Figure 4)**
- **275 = .190-32 Stud Mount (See Figure 5)**
- **276 = Tube Mount Adapter (See Figure 6)**

(C) EXTERIOR PLATING DESIGNATION
- **TL = Housing and terminals are Tin/Lead plated per SAE-AMS-P-81728.**
- **N = Electroless Nickel plated housing per MIL-C-26074. Terminals are Gold plated per SAE-AMS-2422.**

(D) Lower Operating Setpoint in °F

(E)
- **A = Open on Rising Temperature**
- **B = Close on Rising Temperature**

(F) Upper Operating Setpoint in °F

(G) Special Temperature Feature Code *

(H) Special Physical Feature Code. See Table 2. Consult factory for other configurations and features not shown.

*** See Table 1 for non-standard operating temperatures, differential and tolerances. The setpoint tolerances may also be specified by adding a suffix to the ordering code:**

/X/Y/Z where
- **X = Closing setpoint tolerance**
- **Y = Opening setpoint tolerance**
- **Z = Minimum differential between opening and closing setpoints**

Example: /3/2/6 represents:
±3°F on closing, ±2°F on opening and 6°F minimum differential.

REQUIREMENTS

Dimensions, configuration: see Figures 1 and on.

Switching action: Single Pole, Single Throw (SPST)

Storage temperature range: -85°F to +350°F (-65°C to +177°C)

Operating temperature range: -65°F to +300°F (-54°C to +148.9°C)

Contact rating: resistive load, 10.0 amperes at 28 VDC, 100,000 cycles
resistive load, 3.0 amperes at 55 VDC, 100,000 cycles
resistive load, 13 amperes at 115 VAC, 100,000 cycles
resistive load, 15 amperes at 115 VAC, 5,000 cycles
inductive load, .75 ampere at 75 VDC, 1,000,000 cycles

Contact resistance: 0.015 ohms maximum, per MIL-STD-202, Method 307

DWV: 1500 VAC, rms, 60 Hz for 1 minute, terminals to case, per MIL-STD-202, Method 301

Insulation Resistance: 1000 megohms minimum at 500 VDC, per MIL-STD-202, Method 302, Test Condition B

Creepage: controlled rate of temperature change, 1250 VDC, 4.5 ms maximum arc, 3 cyles

Vibration (Random): 20-2000 Hz, 15.4 grms, 12 minutes open and 12 minutes close, all 3 orthogonal axes, monitored for contact chatter <10 µsec

Shock: 750g peak, .5ms, ½ sine, 3 times, both directions, 3 orthogonal axes

Hermeticity: 1 X 10^{-8} atm cc/sec. maximum, per MIL-STD-202, Method 112, Condition C

CRBI (Contact Resistance Burn-In): 500 cycles, ≤20 milliohms each closure with missed cycle detection

PIND (Particle Impact Noise Detection): no noise, per MIL-STD-202, Method 217

Cleaning: 100% tested for cleanliness using micro-particle analysis (<1 mil particle limit)

DPA (Destructive Physical Analysis): Customer option. Performed per MIL-STD-1580, Rev. B

Acceptance Testing (100% of parts): Per Table I of GSFC S-311-641

Lot Acceptance testing: RGA (5000 ppm moisture maximum) and Group B

Standard Tolerance Limits

Specified Temperature Setpoint Range °F (°C)	Standard Setpoint Tolerance °F (°C)	Minimum Differential °F (°C)
-65 to 0 (-54 to -17.8)	±6 (±3.3)	5 (2.8)
+1 to +250 (-17.2 to +121.1)	±5 (±2.8)	5 (2.8)
+251 to +300 (121.7to +148.9)	±7 (±3.9)	7 (3.9)

Approved source(s):

Manufacturer	Cage Code	Vendor Similar Part Number
Honeywell DSES, Redmond, WA.	0FYP0	270 Series

Table 1 Special Temperature Feature Code

A **Setpoint tolerances are min-max. Specify minimum differential* (example: A/7).**

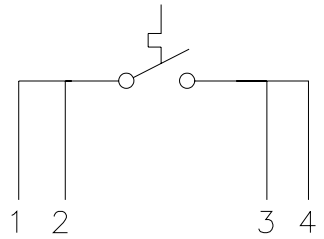
B **Opening setpoint is min or max. Specify closing tolerance and minimum differential* (example: B/5/7).**

C **Closing setpoint is min or max. Specify opening tolerance and minimum differential* (example: C/5/7).**

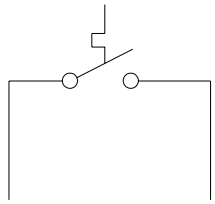
*** Minimum differential is 5°F on all special temperature feature codes.**

Table 2 Special Physical Feature Code

1 **Lead wire and overmold option. Wire per M22759/43-16-9 (16 AWG, White), 60 inch minimum. For flange configurations, wire is routed 90 degrees to flange direction unless otherwise specified. Overmold is Stycast 2850FT.**

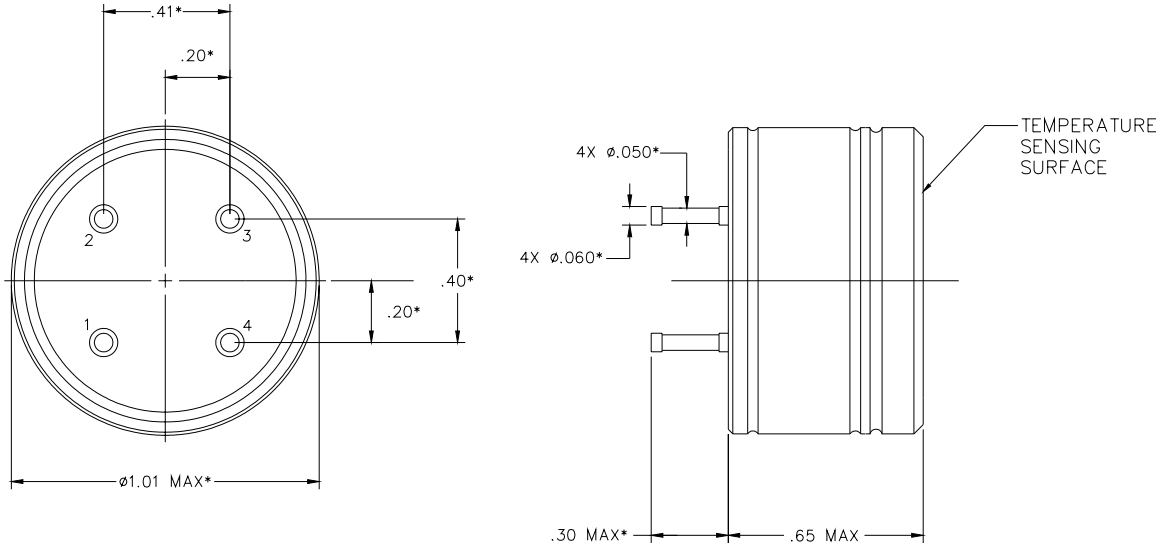


ELECTRICAL SCHEMATIC DIAGRAM
(TERMINAL CONFIGURATIONS)



ELECTRICAL SCHEMATIC DIAGRAM
(LEAD WIRE CONFIGURATIONS)

Figure 1:
271 = Bare Module



*TOL: .XX ±.03
.XXX ±.010

*** TYPICAL FOR ALL CONFIGURATIONS**

Figure 2:
272 = 3/8-24 Stud Mount

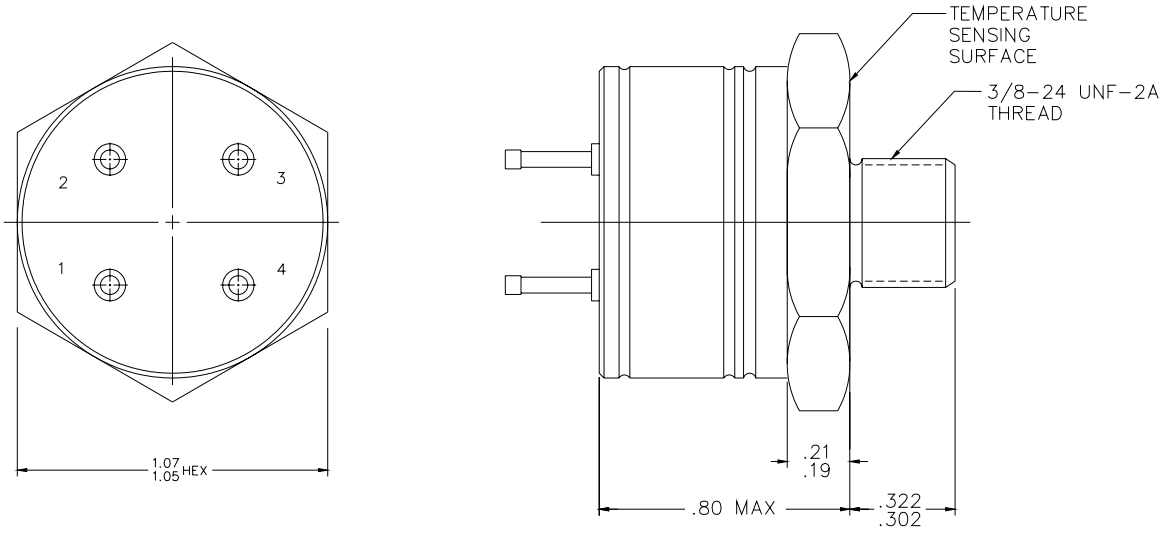


Figure 3:
273 = Flange Mount – Short

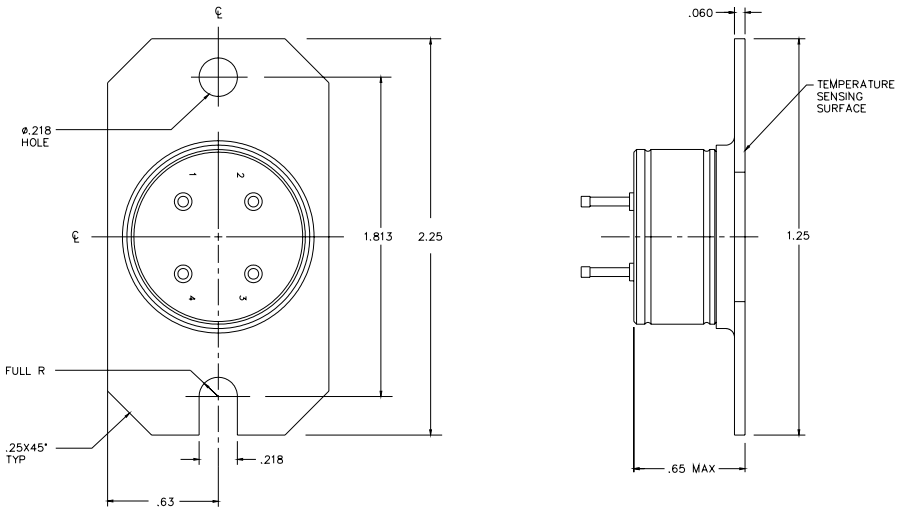


Figure 4:
274 = Flange Mount – Long

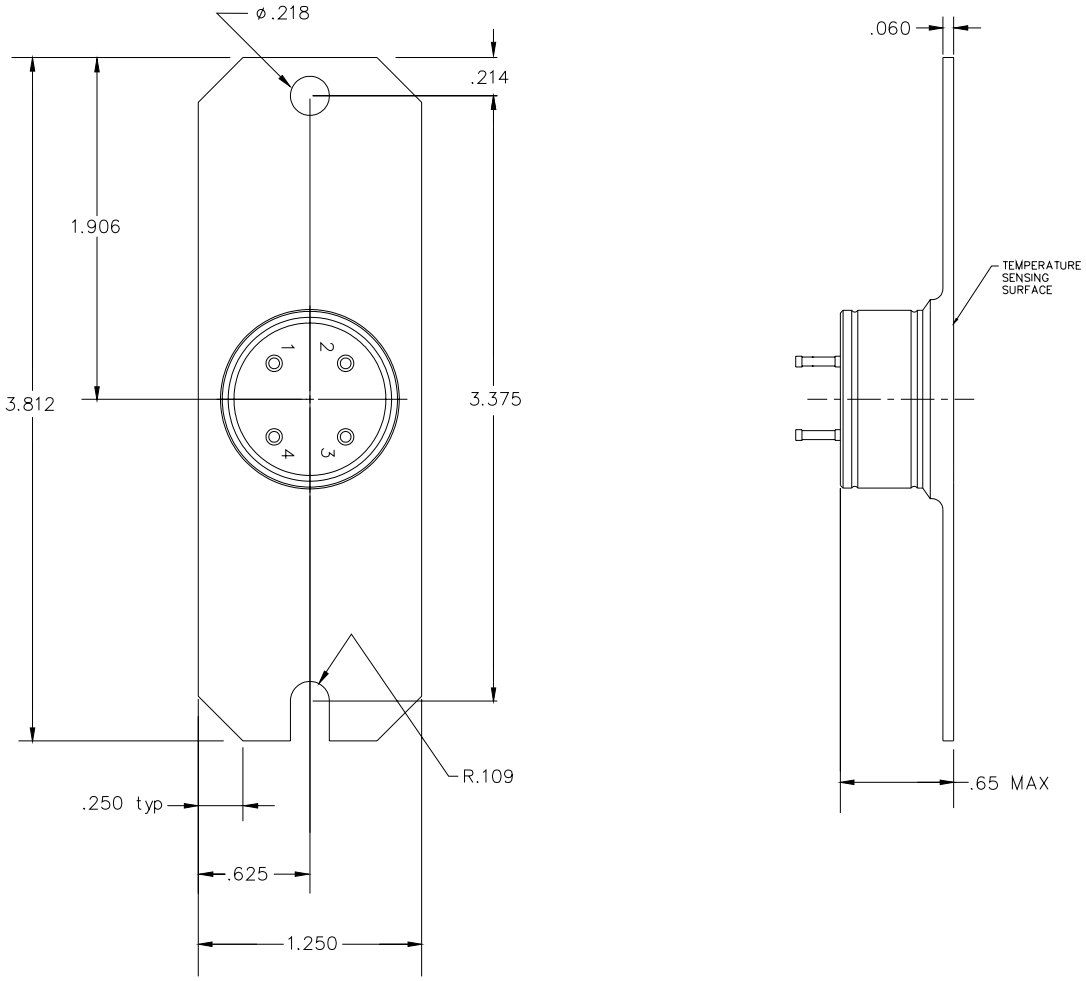


Figure 5:
275 = .190-32 Stud Mount

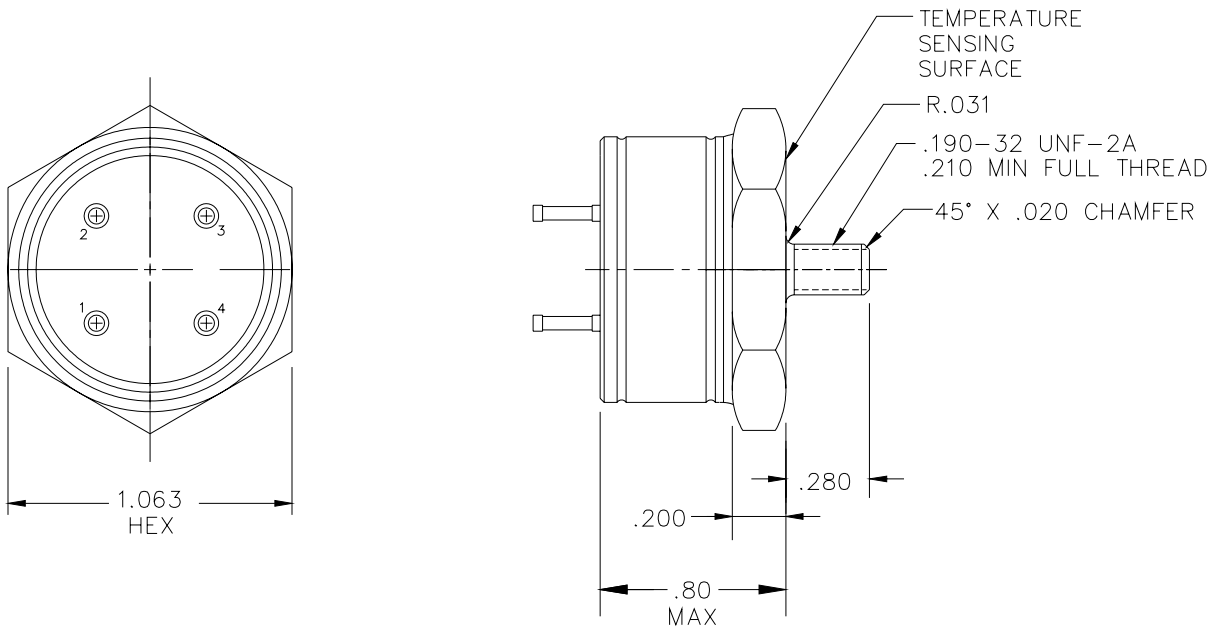


Figure 6:
276 = Tube Mount Adapter