

TW Specialty LLC
5010 Bayouside Drive Chauvin, La. 70344
Cell: 985-860-0353
Email: pumpstrokecounters@gmail.com
Web Site: pumpstrokecounters.com

Pump Stroke Counters

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SECTION 1: INFORMATION

1.A GENERAL SPECIFICATIONS

PC BOARD:

Embedded CPU [PIC12F683] ESD Protected
Humiseal 1b31 protected
Large 1" x 2 ½" LCD Displays
Auto Power On/Off
Auto Shutdown (Sleep Mode-after 5 minutes of no stroke unit will sleep)
Push Button Reset Pump Strokes
Auto Clear SPM
Independent Pump Circuits
20ua Draw (Sleep Mode)
SPM (6 - 500)
Count (0 - 9999) "rolls over to 0"
Input (Switch Dry Contact) or (TTL)
Operating Temperature (-10°C ~ 60°C)
No calibration needed for standard counters (barrel counters have calibration)

POWER:

Long Life Lithium/Duracell Batteries (4-AA 5700-1 and 2, 5700-3 4-D)
Option DC (9-30vdc) for 12dc systems (truck rigs, pressure testing skids)

ENCLOSURE:

Stainless Steel Case (Nema 4x, IP65) by design.
Standard 3-pin Plug (1&2 Pump) (3 Pump 4 pin)
O-Ring sealed switch boots
Durable ¼" Lexan Window
Durable gasket seal

IS RATING:

Built to intrinsically Safe Design (Class 1, Division 1, Group A, B, C and D)
Switch Voltage <7vdc, Switch Current .7ma
ECCN #EAR99, Schedule B #9029.10.8000
HS 84139190

Each pump section monitors the total strokes and strokes per minute (SPM).
Each counter section has 1 micro controller, pic12f683 and 2 LCD display drivers PCF8577cp for each pump displayed. Compare this to other digital types that may have up to 20 or more parts needed to perform the same functions.

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After 5 minutes of inactivity the pump section will go to standby. The count is held in memory, even during standby. As soon as the counter detects a stroke the LCD's will power up and the count and strokes per minute will resume. The rate display is updated with every stroke. This saves battery life. Our rate meter uses 4 AA lithium/Duracell batteries 5700-1 and 2 and 5700-3 uses 4 D cells and allows you to replace them in the field saving you expensive replacement battery pack cost and down time.

1.B PRECAUTIONS

NOTE:

All 5700 series units should be in a clean **SAFE** area to replace batteries. Make sure the gasket is in the correct position and flush before screwing faceplate down. Use lithium batteries for longer run time. **Features are the same for all counters.**

SECTION 2: UNIT DESCRIPTIONS

2.A 5700BPM-1 and 5700-2BPM



6.250 x 4.375



6.250 x 6.250

Box Mounting Dimensions

The stroke/barrel meter is two meters in one. Each side of the meter is independent from the other. Each half has a stroke counter and barrels per minute counter. The user can press the SPM/BPM button to switch between meters and view the data from the pump. The unit has 4 internal AA batteries for power. This meter is easy to set and use.

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2.B 5700-1RC

The 5700-1RC is a 1 pump meter that displays rate/minute and total strokes. The unit can be calibrated from 1:100 ratio. The unit uses a magnetic pickup to sense a small magnet on the shaft of either the drive motor or a sheave on a belt driven pump. To determine fluid, you can zero the unit and pump the volume output desired either liters, gallons or barrels.

Once the fluid has been pumped the total strokes will represent that amount of fluid. So if it takes 25 strokes to pump 1 gallon, you can determine fluid by division of total strokes.

This setup is used on pumps where the only movable part is a shaft or pulley.

2.C 5700-1

The 5700-1 is the same size as the BPM model but only monitors strokes and rate per minute.



2.D 5700-2

Model 5700-2 monitors up to 2 pumps and displays total strokes and rate per minute for each pump. The test button will test the unit @ 60 SPM. The zero button is used to zero total stroke count for each pump.



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6.250 x 6.250
Box Mounting Dimensions

2.E 5700-3

Model 5700-3 monitors up to 3 pumps and displays total strokes and rate per minute for each pump. The test button will test the unit @ 60 SPM. The zero button is used to zero total stroke count for each pump.



6.250 x 9.125
Box Mounting Dimensions

SECTION 3: UNIT INSTALLATION

3.A GENERAL

See cutout dimensions for the model you wish to install. Use stainless steel bolts 1/4" to mount the unit. The unit should be mounted where the driller can clearly see and reach the unit for use. The cable should be ran in accordance with MMS regulations. All stroke counters use dry contact or pulse +5v dc high/ low switch. Two wires are used for the signal from the switch. 5700-2, 3 counters use 3 and 4 wire with a common ground. Do not over tighten the mounting bolts due to it may damage the lexan glass. Hand tighten only. The box has welded nuts so you can mount from behind the console if desired.

Pin A-Black = Ground
Pin B-White = pump 1
Pin C-Green = pump 2

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Pin D-Red = pump 3



5700-1 & 2



5700-3



1/4" mounting nut.

SECTION 4: UNIT OPERATION

4.A GENERAL

All stroke counters work the same with the option of 5700BPM-1 and 2. To zero the total strokes press the ZERO button. The TEST button will test the unit displays and function at 60 spm.

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4.B 5700BPM-1 and 5700BPM-2

Calibration:

Standard counters do not need to be calibrated. But the Barrels per minute counters have to be set to the number of stroke for the pump to move 1 barrel of fluid. To calibrate the barrels per minutes strokes follow the steps below. Calculate the strokes/barrel or gals normally for a triplex pump. ***Total strokes = 1 / (cylinder volume x 3)***

1. Press the SPM/BMP button till the top display shows BP and release the button.
2. Press and hold the ZERO buttons and press the SPM/BMP and CAL will show on the top display and release both buttons.
3. Use the UP and DOWN buttons to increase and decrease the stroke count on the bottom display for the number of strokes needed to move 1 barrel of fluid. When you have the value displayed on the bottom display release all buttons and wait till the both display clear to 0000. Repeat for each meter/pump.

NOTE: To enter calibration the top display must show BP. You must wait till the unit exits out of calibration for the unit to work properly. The normal screen will show again then the unit will be ready for use. The minimum stroke setting is 8.0/fluid amount "EI Liter, barrels or gallons". For stroke/Fluid under < 8 strokes, input strokes X 10 and ignore the decimal point. Example for 2.5 strokes/gallon, input 25.0 instead of 2.5.

Maximum stroke spm is 500 version i. A-h maximum spm count is 200.

Operation:

The only two controls on the meter are ZERO and SPM/BPM.

ZERO – This button is used to zero the values in the display totals of each meter type. This button is also used to enter calibration and decrease the stroke value during calibration. Press and hold.

SPM/BPM – This button is used to switch between meter types. This button is also used to increase the stroke value during calibration.

NOTE: Slow spm to 60 and under to switch between stroke and BPM modes.

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SECTION 5: UNIT MAINTENANCE

5.A GENERAL

The only maintenance is general cleaning and changing the batteries when needed. The unit can be cleaned with a damp rag and water. To change the batteries make sure the unit is cleaned and dry. In a safe area only where no water can get into the unit once opened, replace the batteries and make sure the gasket is in place and aligned correctly before closing.

When cleaning the unit, make sure the cap is on the connection on the back of the box.

5.B LOW BATTERY INDICATION

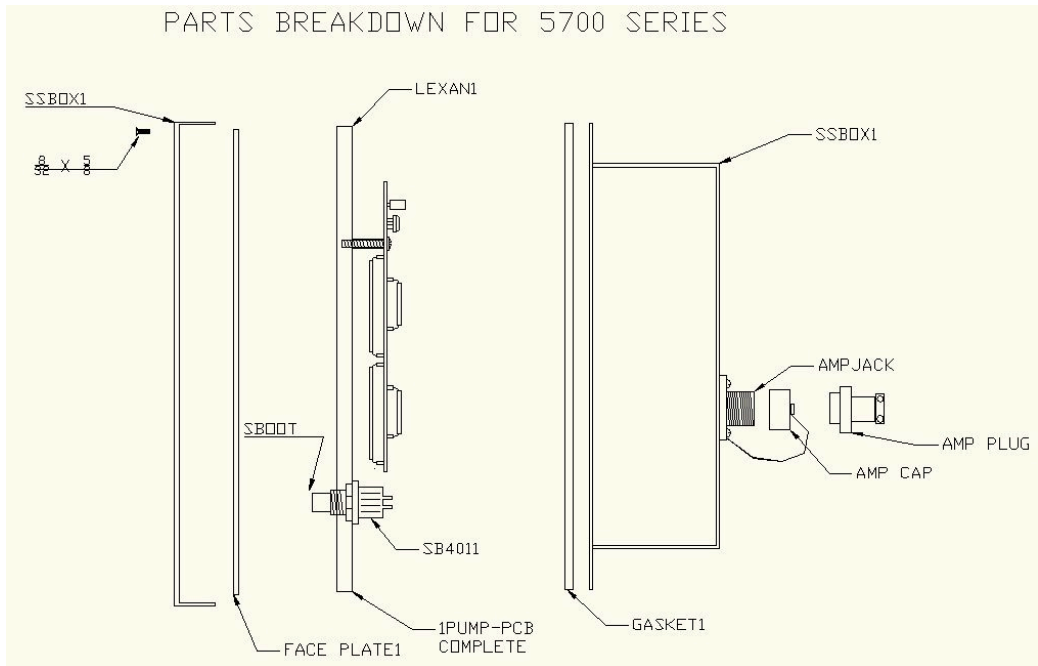
Dim LCD displays or blinking display batteries should be changed. Lithium or Duracell batteries are recommended. Remove batteries in safe area only. Be sure to tighten screws firmly all around and gasket is in correct position or water may enter unit.

5.C 5700 SERIES PARTS BREAKDOWN

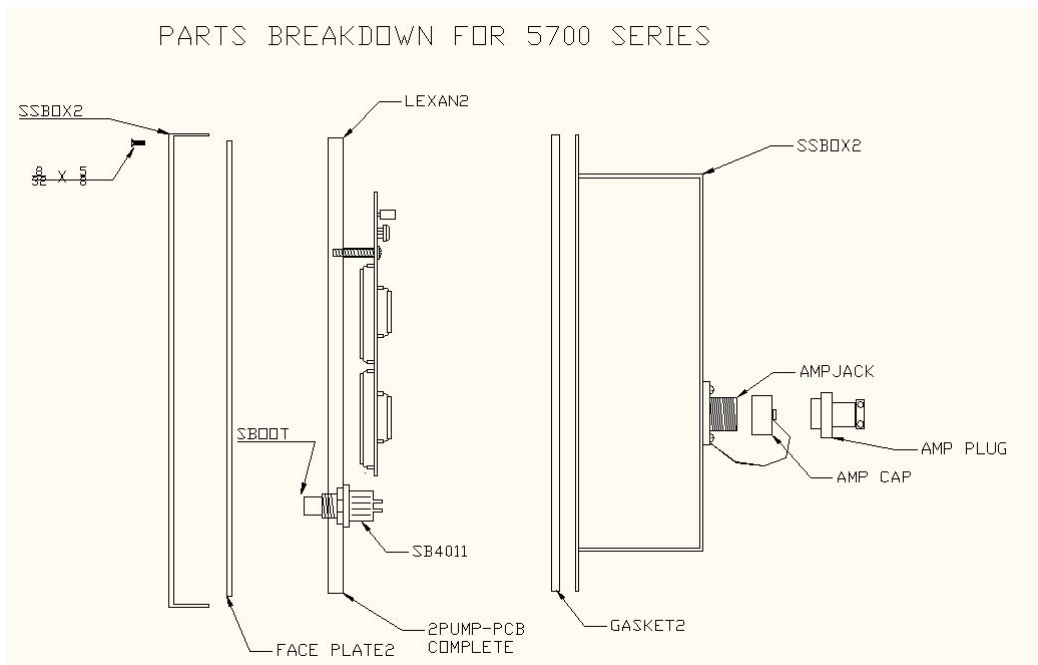
Parts are shown from side view. Complete assembly only sold to international customers. Parts that are sold separately are; switch, boot box, faceplate and lexan.

Order parts by label shown.

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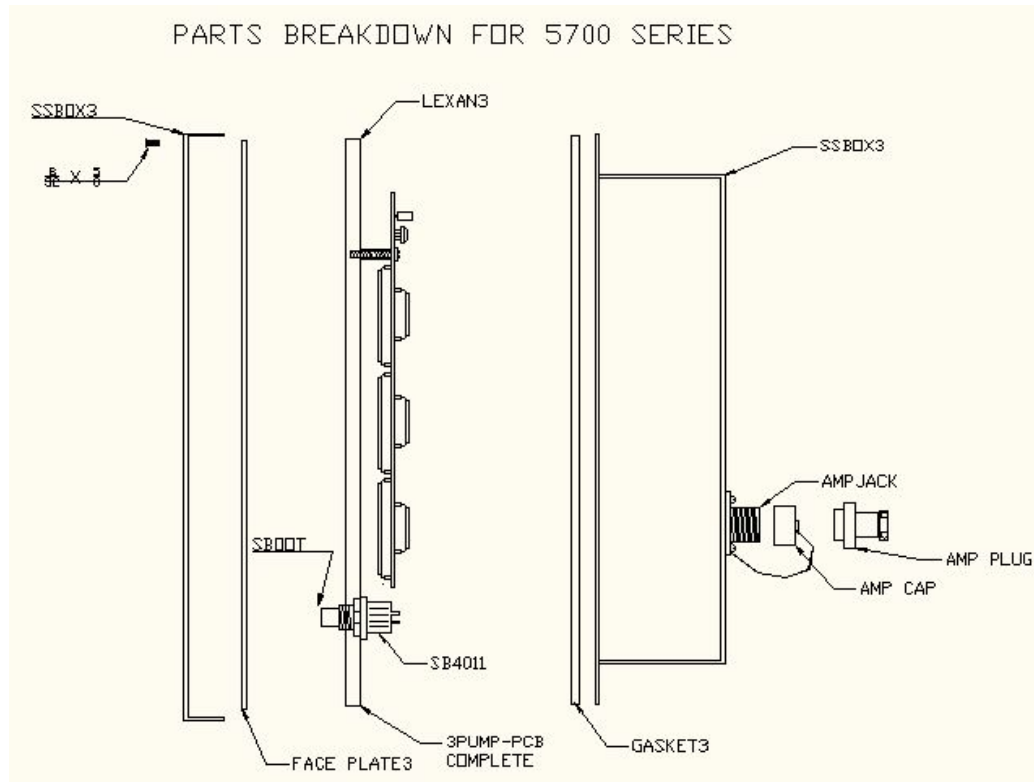


5700-1



5700-2

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5700-3

SECTION 6: WARRANTY

Units are covered for period of 1 year from the date of purchase and or shipment. Parts or replacement of “Normal use of unit” include defective parts and workmanship.

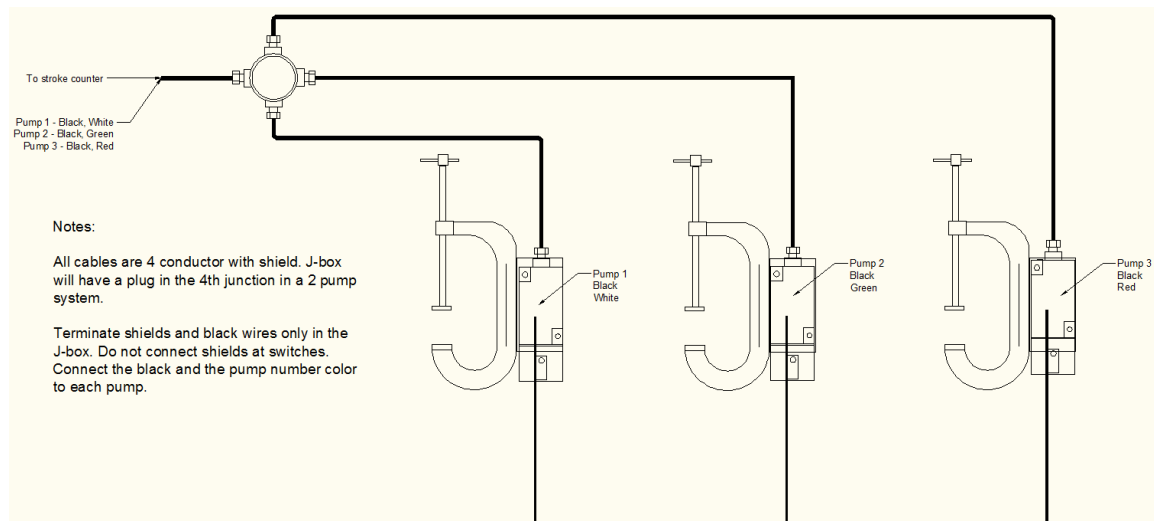
Warranty does not cover tampering, misuse or PC board damage. If the unit is found to be damaged by improper handling, installation or negligence repairs and or replacement will not be covered. TW Specialty LLS is the only authorized repair center.

All repairs should be shipped to; TW Specialty LLC, 5010 Bayouside Drive, Chauvin la, 70344. Units should be cleaned and free from oil and dirt

TW Specialty LLC shall not be liable for any damage or loss of property, or injury to persons resulting from the use of TW Specialty LLC products. By using TW Specialty LLC products you agree to these terms and conditions.

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6.A WIRING DIAGRAM

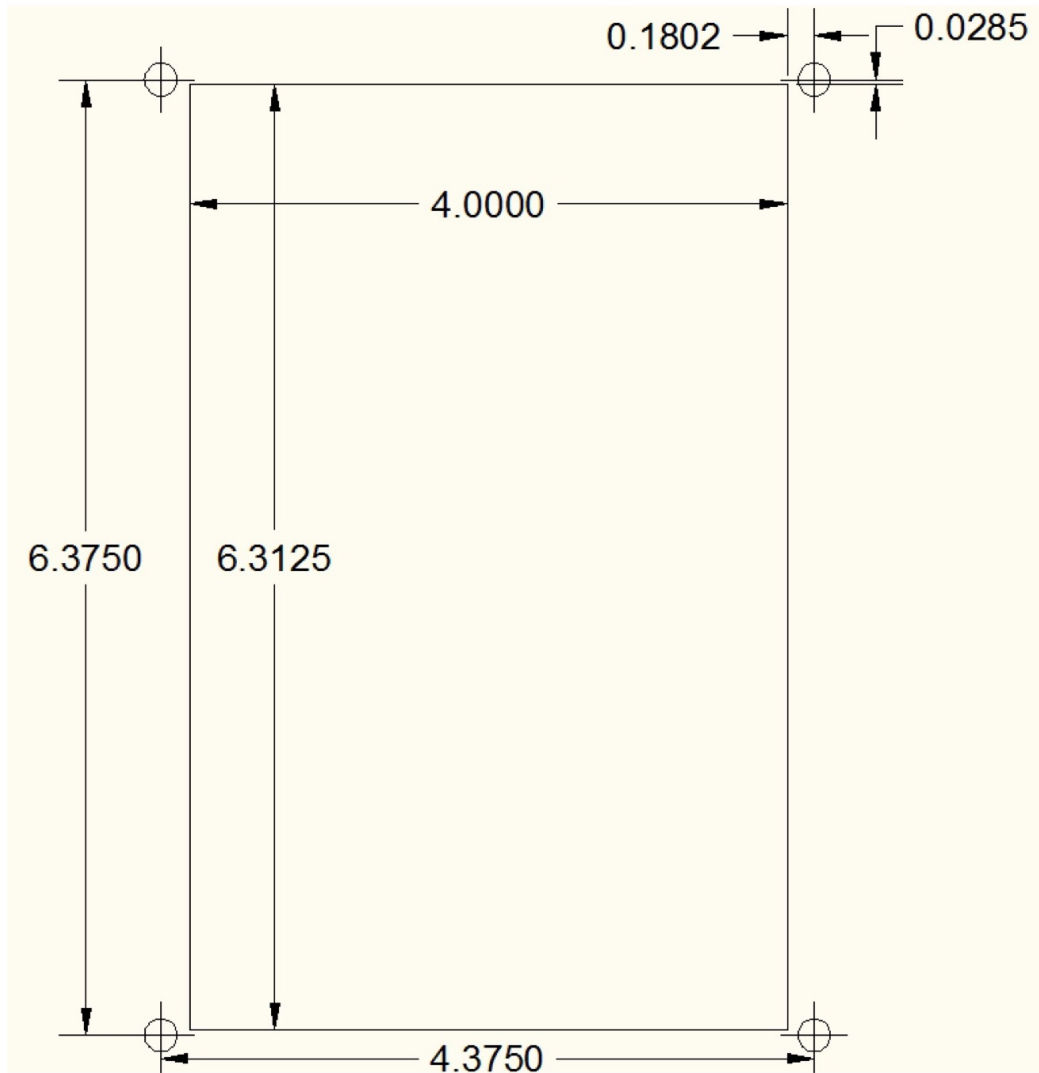


Diagram

Pin A-Black = Ground
Pin B-White = pump 1
Pin C-Green = pump 2
Pin D-Red = pump 3

Wires connect to either the top or bottom set of terminals holding the switch as shown in the diagram. Induction type sensors red wires can be connected to either pump wires. Polarity is no concern for either switch type.

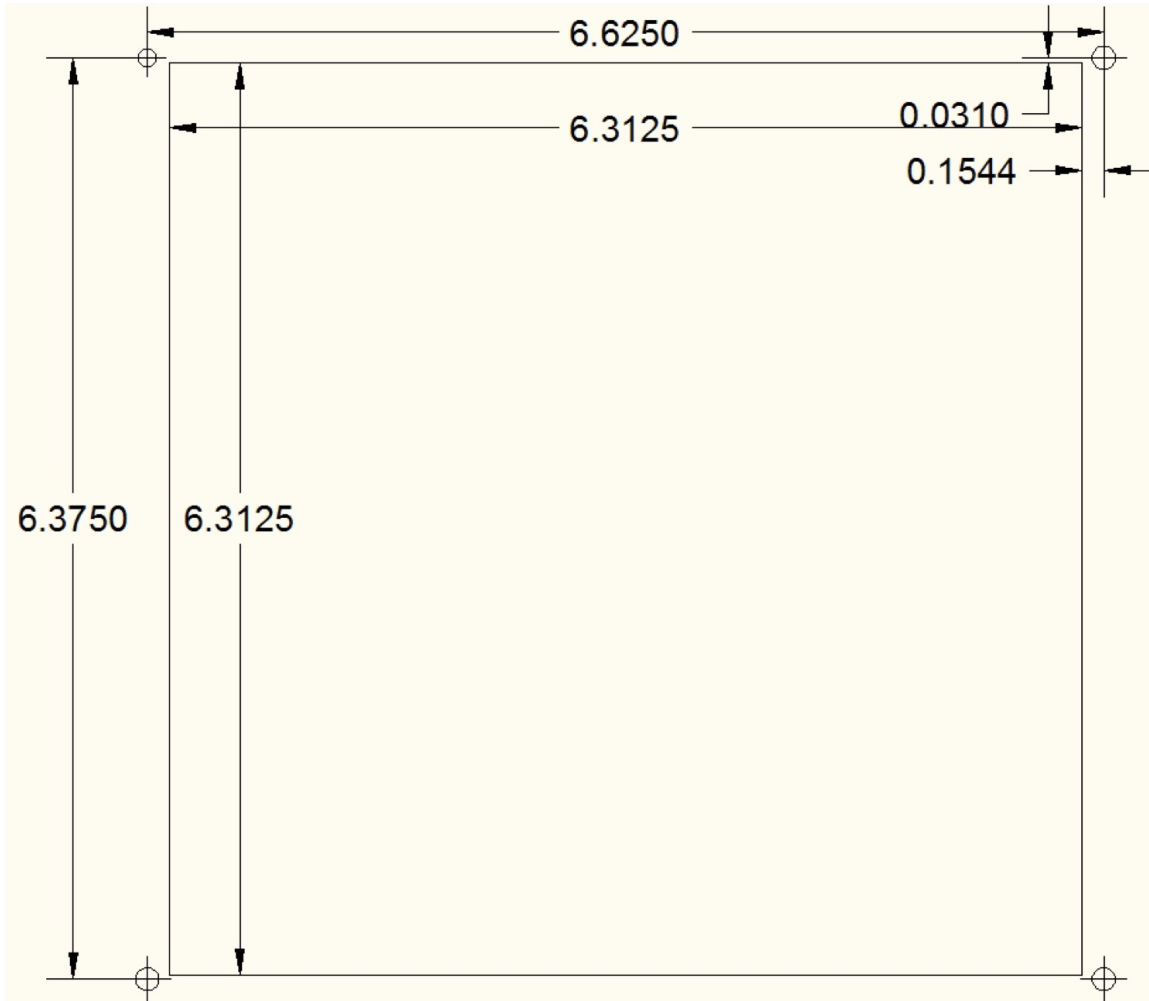
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Box Mounting Dimensions

5700-1 series boxes.

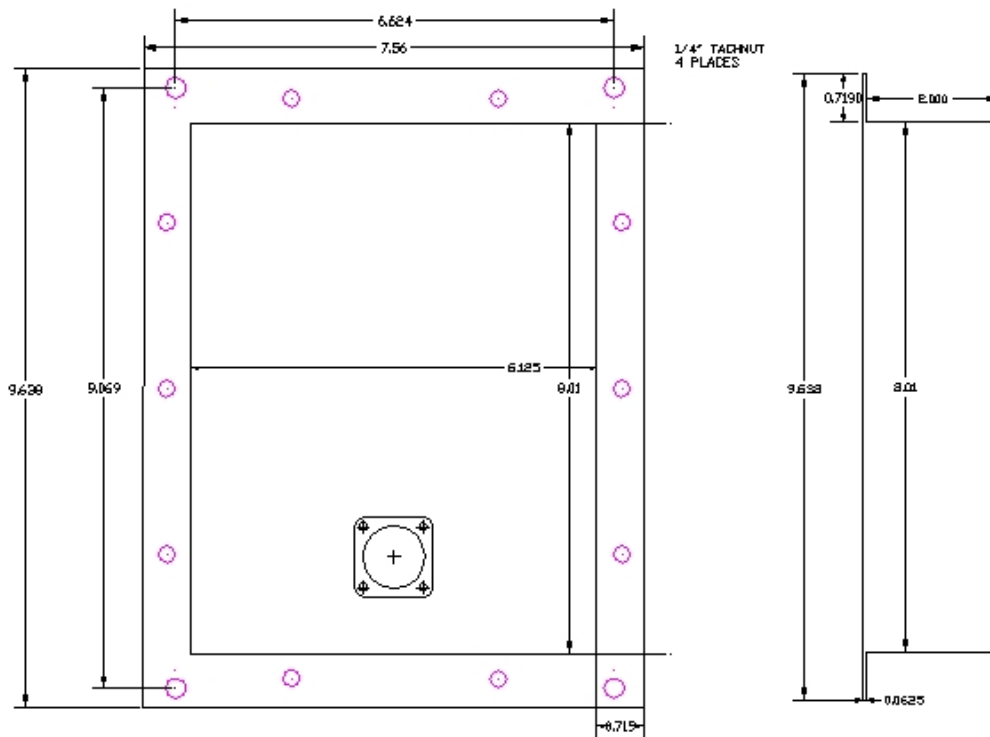
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Box Mounting Dimensions

5700-2 series boxes.

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5700-3

I have help videos on my YouTube channel on switch installation and other help topics. If you need help, give me a call.

Tim Williams