

INSTALLATION GUIDE

Mounting & Sealing of Housing & Electrical Details

**COOLDOME™ ENCLOSURE SERIES**



**D2 COOLDOME™**

**D3 COOLDOME™**



**S-TYPE COOLDOME™**

# PRODUCT INSTALLATION PRECAUTIONS – WARNINGS – ADDITIONAL INFORMATION (RETAIN THIS DOCUMENT)

**IMPORTANT SAFEGUARDS**

- 1 **Read Instructions** - All the safety and operating instructions should be read before the unit is operated.
- 2 **Retain Instructions** -The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - All warnings on the unit and in the operating instructions should be adhered to.
4. **Follow Instructions** -All operating & user instructions should be followed.
5. **Electrical Connections** - Only a qualified electrician should make electrical connections.
6. **Attachments** - Do not use attachments not recommended by the product manufacturer as they may cause hazards
7. **Cable Runs** - All cable runs must be within permissible distance
8. **Mounting** -This unit must be properly and securely mounted to a supporting structure capable of sustaining the weight of the unit. Accordingly:
  - a. Installation should be made by a qualified installer.
  - b. Installation should be in compliance with local codes
  - c. Care should be exercised to select suitable hardware to install the unit, taking into account both the composition of the mounting surface and the weight of the unit. Be sure to periodically examine the unit and the supporting structure to make sure that the integrity of the installation is intact. Failure to comply with the foregoing could result in the unit separating from the support structure and falling, with resultant damages or injury to anyone or anything struck by the falling unit,

<b>CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE COMPONENTS TO WATER OR MOISTURE</b>	
	The lightning flash with an arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

**SERVICE**

If the unit ever needs repair service, customer should contact Dotworkz Systems +1 (619) 224-LIVE (5483) for return authorization & shipping instructions

**UNPACKING**

Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. **Be sure to save**

1. The shipping carton and packaging material. They are the safest material in which to make future shipments of the equipment.
2. These Installation and Operating Instructions.

- ✓ For technical questions or product returns – call Dotworkz Customer Service (866-575-4689) 7:30 AM to 4:30 PM (PST). The proper technician will contact you as soon as possible.
- The External Nut on All electrical wire feed Glands must be tightened to create a weather tight seal prior to putting D2 in service. Failure to create this seal may result in water incursion into enclosure. This may lead to electrical shock, product failure and damage to electrical systems installed within enclosure, including but not limited to damage to camera, heater and blower circuitry, cooling circuitry and other systems installed in unit.
- All screws on hinged lower must be tightened to create seal on enclosure. Failure to create this seal may result in water incursion into enclosure. This may lead to electrical shock, failure and damage to electrical systems installed within enclosure, including but not limited to damage to camera, heater and blower circuitry, cooling circuitry and other systems installed in unit.
- Do not over tighten any Screws, Stand Offs, or other fasteners on this unit. Failure to heed this warning will cause damage or failure of the D2 enclosure.
- Be sure to take extra care to Protect Lens of unit prior to and during installation, and during service. Suspension packaging box is a handy platform to protect lens and enclosure, while installing camera and accessory electronics before installation. Failure to protect lens will adversely affect product perform



## Electrical Conduit Guidelines

For optimal performance, your Dotworkz Enclosure is designed to be Air & Water Tight to eliminate any moisture, dust, and insect damage, safety, performance, reliability, and maintenance related issues.



Use of Electrical Conduit, ***without sealing the entry ports/ inside wire feeds*** within Camera Enclosure, ***will*** subject the inside of your enclosure to possibility of condensation driven moisture, dust, and insect contamination hazards.



Dotworkz has provided each enclosure with two Cable Gland Strain Relief seal ports that fully seal enclosure to an IP68 rating, Waterproof and Airtight Seal. To properly seal, only one round cable is used in each cable gland port. (Holes on enclosure are 7/8" diameter, ready for standard 1/2" I.D. NPT connector, or PG13 fittings.)

However, we realize our customers are retrofitting these connectors with electrical conduit fittings. We acknowledge this industry customization and installation practice, and would like to guide customers to properly install these products.

### Conduit Guidelines:

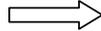
- 1) If wires, cabling, or conduit are coming at enclosure wire entry level, or above, always create a drip loop.
- 2) Please use only approved watertight electrical conduit and connectors, IP66 or better, with proper seals and fittings installed & fully seal.
- 3) **Then**, after all wire and cables are installed into enclosure, Seal wire entry ports inside of enclosure with any number of commercially available sealing putty's, Silicone Sealant, or similar products that are approved by applicable local and relevant electrical codes.



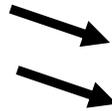
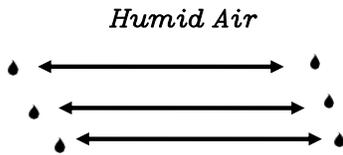
Dotworkz supplies two 1/2" diameter foam conduit plugs, that when installed, will assist in sealing off airflow in conduit feed thru, at cable entry inside of enclosure. Putty or Sealant can be used in conjunction with these plugs, to assure a full seal inside enclosure cable feed entry.

### FORCES AT WORK IN ANY UNSEALED, CONDUIT WIRE FEED ENCLOSURE SYSTEM

WARM/MOIST IN UNSEALED CONDUIT MOVES THRU CONDUIT FEEDS EXPAND & CONTRACT WHEN CONDUIT HEATS & COOLS WITH OUTSIDE TEMPERATURES



EXPANDING HEATED AIR IS PUSHED INTO ENCLOSURE THEN COOLS & CONDENSES, HUMID AIR CONDENSES ON SURFACES INSIDE ENCLOSURE



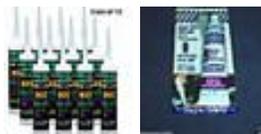
*Condensing to Water*



***SHOCK HAZARD!*** Failure to fully seal enclosure wire and cabling entry ports ***may lead to shock hazard, unsatisfactory product performance, a possibility of damage to electronics in the Dotworkz enclosure product, including camera damage, and damage to integrated electronics*** due to air driven moisture traveling thru the conduit, condensing and collecting in the enclosure creating a short circuit hazard.



Electrical Putty & Putty Tapes



Silicone Sealants



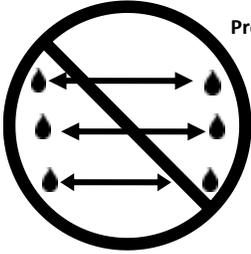
Foam Sealants (use very sparingly)

Dotworkz does not endorse, nor has it evaluated any of these products. Test products first, and follow all manufacturers' instructions. Follow all applicable electrical and building codes and installation guidelines. End user assumes liability for applicability of these products and their effectiveness and incurred liability in using these products.

## VENT STOPPER PLUGS for Conduit



### Foam Conduit Feed Plugs for 1/2" I.D. (PG-13) Conduit



Prevents Humid Air exchange from venting thru electrical conduit into Dotworkz sealed enclosures,

Thus eliminating condensation issues within Dotworkz sealed enclosures.

### QUICK INSTALLATION GUIDE



1) Pull wires to final installed length.



4) Push plug into conduit mouth with finger tips till it flush with outside of fitting



2) Open Vent Stop Plug and install over wire.



5) Repeat steps 1-4 for any other conduit feeds as needed.



3) Pinch Plug to compress over wire, and insert into conduit feed mouth.



6) To assure an airtight seal, caulk around wires and cables, coating entire plug surface with sealant.

**COOLDOME™ Wiring**



Dotworkz CD Series Operate using DC low voltage only, and creates ample currents when cooler is engaged. 18 gg wire is Not recommended for cooler wiring.

Follow relevant Cable Gauge Guidelines provide in this document applicable to your product model.

CD's are *Dedicated* 12 VDC or 24 VDC models Only. Use Step Down Power supply Included in CD Package to power from high voltage line supply.

**Dotworkz Humidity Removal Canister**



Dotworkz Provides a Humidity Removal Canister ***must be installed into COOLDOME*** prior to entering enclosure into service.

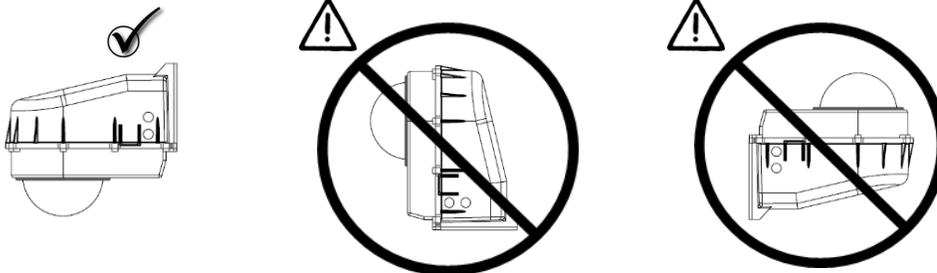
Active Cooler within COOLDOME lowers temperature to at or near dew point within COOLDOME, so trapped air must be dried out to eliminate condensation issues. The sealed air is efficiently dried out by this desiccant canister, which provides a color coded saturation state window.

It must be removed from its foil envelope, and can be installed on shelf next to cooler, or above camera on camera mounting plate. See installation section for service info on this product.

**Dotworkz D-Series Mounting Guidelines**

Dotworkz D-Series Seals & drip edges are engineered for horizontal installation Only: Dome bubble faces down.

Vertical and dome-up installations are not advised, and will be prone to moisture incursion within housing, and will void warranty.



**COOLDOME™ Accessories & Mount Options**

(some brackets only compatible with D-Series, consult Dotworkz Sales Representative for Details)

Your COOLDOME is wall mount ready, but can be Installed with a number of Dotworkz Optional Mounts (sold separately)

**KT-CDR2** Outdoor CD Power Pole Mount Kit



**NM-CDPS** NEMA for CD Power Supply



**BR-PSA1**



**BR-APM1**



**BR-MPM1**



**BR-MPM1-AC**



**BR-CNR1**



**BR-ECB1**



BR-MPM1  
With common  
Pipe anchor for  
pendant mounting

## Proper Cable Management to Enclosure

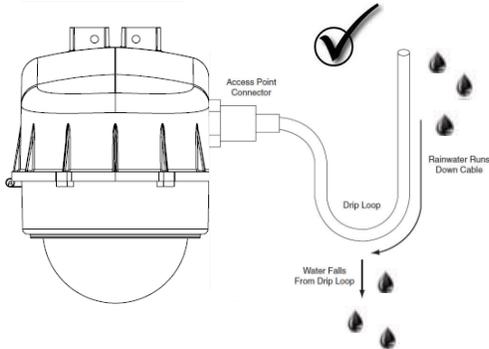
### Avoid common Installation Mistakes



Only Use Qualified Installation or Service Technician for Installing & Servicing Dotworkz Enclosures.  
Power Must be disconnected and kept off while installing or Servicing Enclosure.  
Follow All Local and Applicable Electrical Codes and Standards for Installation of Electrical components.

All Cable Ports, wire feeds, or Conduit **must be fully sealed** to eliminate moisture within Enclosure.  
All Dotworkz Enclosures are required to be fully sealed before placing into service, to protect integrated products, to eliminate any moisture driven shock hazard, to perform optimally as designed.

### DRIP LOOPS



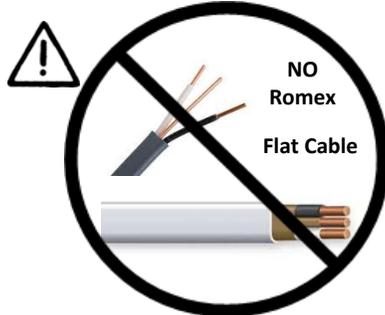
**Always Create a Drip Loop** for all Cables or Conduit Entering Dotworkz D2 Housing from level or Above D2 Conduit, Power, Data, & Antennae To avoid gravity driven moisture entry into Enclosure

### Cable Gland Strain Relief Port Seals

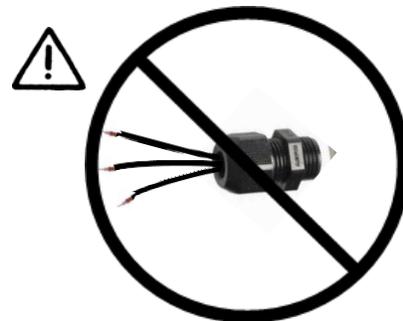
To properly seal, Dotworkz Cable Gland Strain Relief Ports will only accept **One single round cable per port**



- \* SJOOW
- \* Cat5/ Cat6
- \* Coaxial



Use Round Cable Only with provide Cable Gland Port Seal



Dotworkz Standard Cable Gland Port Seals are designed for **ONE** single round cable only per port

*Cable can be multi-conductor in single round cable bundle such as Cat5/ 6e (burial rated), or Conductor cable SJOOW (water rated)*

### Conduit

If Conduit is used in Lieu of Cable Gland Port Seals provided,  
Then Use Only Liquid Tight Conduit & fittings properly sealed.



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**Internal Wire feeds must be fully sealed** prior to placing Enclosure into Service.  
See Conduit Guidelines section of this manual.

## Tools Recommended for Enclosure & Camera Mounting

Hand Tools



Drill & Bits



Pole Strapping Tools



- #1 & #2 Phillips head screw driver
- #1 Flat Blade screw driver or smaller
- 3/8 Socket wrench, nut driver, or adjustable wrench
- 5/16 Socket wrench, nut driver, or adjustable wrench
- 7/16 Socket wrench, nut driver, or adjustable wrench
- 7/32 Socket wrench, nut driver, or adjustable wrench
- 11/32 Socket wrench, nut driver, or adjustable wrench
- Wire stripping tool
- Caulk Gun & Silicone Sealant



### For Wall Mounting

- Drill and Bits for user supplied fasteners for wall mounting enclosure

### For Pole Mounting

- Strapping / Banding Tools for user supplied Stainless Steel Pole Straps

### For other needed Mounting Styles:

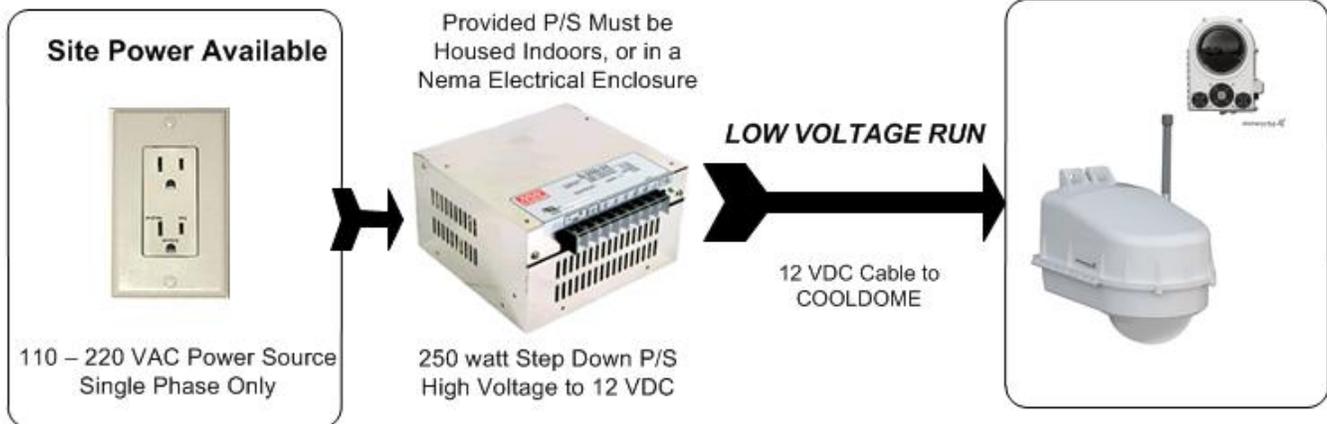
\*\*See Dotworkz for Available Optional Mounting Brackets for a wide selection of Enclosure Mounting Styles @ [www.dotworkz.com](http://www.dotworkz.com), or ask your favorite distributor or Sales Associate, or call Dotworkz Support (866) 575-4689

**Dotworkz D2 COOLDOME accepts four (4) 3/8" Bolts** or Lag Screws to Wall Mount

See Mounting Template at back of this manual for hole pattern.

(Customer provides enclosure mounting hardware)

## COOLDOME Input Power Configuration: D2-CD-12VDC



Turn Off Power or leave power disconnected during Installation of All Wiring.  
Follow all local and relevant electrical codes & standards.

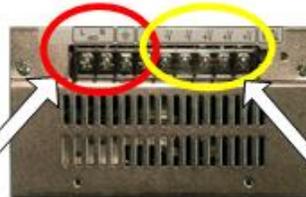
Test all Wiring and confirm correct voltages before wiring up & powering up D2 COOLDOME.

Select Input Voltage before Hooking up Power Supply 110 VAC or 220 VAC

Rear of Power Supply with Input Voltage Selector



Front of Power Supply with terminal strip



### High Voltage A/C Input, Single Phase, USA Wiring Color Code

Color	Symbol	Description
Black	L	Line Conductor, AKA Live, Hot
White	N	Neutral Conductor
Green	G	Ground Conductor, Safety Ground

### Low Voltage 12 VDC Output Terminals

Color	Symbol	Description
Red	+, V+	Positive VDC
Black	-, V-	Negative VDC

LOW VOLTAGE RUN: Wire Gauge Chart

## Low Voltage Line Drop Wire Gauge Tables

See 12 VDC & 24 VDC Low Voltage Wire Gage Selector – Appendix Chart

# COOLDOME Input Power Configuration: D2-CD-12VDC

## External Power Supply

The output of the S-250-12 external power supply, can be adjusted up and down 10%. It is recommended to keep the voltage at the D2 adjusted to at least 11.5 vdc, but no more than 13.5 vdc. By running the enclosure higher than 13.5 vdc may cause premature fan failure. It is best to check and tune the voltage at the Cool Dome with a voltage meter at the time of installation, and use the adjustment screw, located on the S-250-12, to the right side of the terminal screws, to raise or lower the output voltage.

For all outdoor wiring, always use an outdoor rated wiring, or wiring in weather rated conduit, out from power supply, into the Cool Dome. Follow all local and applicable wiring and safety standards.

**Please keep DIC wire runs short, to reduce low voltage line drop.** Also, the suggested wiring gauge table is provided on previous page to further prevent low voltage line drop, and to guide you in selecting the proper wire gauge for the dc run from the power supply to the cool dome

It is always advisable to use a drip loop on all wiring going directly into the D2 enclosure, to reduce the risk of water entering and damaging internal components. All fittings and seals must be firmly tightened and sealed, before placing the D2 in service.

Inside the D2 we have provided a convenient Screw cage clamp style terminal blocks to wire the 12 vdc positive (V+), and the 12 vdc Negative (V-) terminal. Please strip the insulation off the last 3/8" of the wires and fasten wiring securely to terminal, using a small blade screwdriver to tighten the caging mechanism on the terminal blocks.

*Please be especially attentive to wire using the Proper Polarity, so as not to damage the internal components, or damage your camera within.*

## **LOW VOLTAGE RUN: Voltage Drop Table (shown on prior page)**

Where we conservatively try to keep the voltage drop under 1.2 vdc over the low voltage direct current run. These multipliers are approximate, and voltage drop (Vd) is maximum at full 12 amp load at 12 vdc. This voltage drop is under fully loaded condition, when the cooling unit is engaged, and camera and all accessories are on. Voltage drop will be much less, if the current is not at full load.

### **Power Supply Specifications**

Input Voltage: 90-132VAC/ 176-264VAC Selected by Switch  
Frequency Range: 47- 63 HZ  
Input Current @ Full Load(Typ.): 4A @115VAC, 2A @230VAC  
Recommended Min. Circuit Breaker for 110VAC In: 10 A (type C)  
Int. Electrical Working Temp\*: -20 ~ +70C  
Ext. Power Supply Output: 18A @ 12VDC up to 50C  
Derate 0.5A/ deg. C over 50C

### **COOLDOME Specifications**

Current Draw by COOLDOME @ 12VDC:  
Active Cooler OFF: 0.4A/ Active Cooler Peak On: 10.5A  
Active Cooler On Typ.: 9.0A/ (Cam. Draw Not Incl.)  
MTBF: 238.9Khrs min. MIL-HDBK-217F(25C)



### **Reusable Desiccant Canister**

The reusable desiccant canister contains forty grams of silica gel. This will prevent moisture buildup inside the Cool Dome. Make sure to remove the canister from its foil envelope packaging before the Cool Dome is put to use.

There is a small window on the canister (white circle). Ensure that the crystals are blue. Occasionally, especially in humid environments, the canister may need to be serviced. If so, the crystals in the window turns pink, indicating the silica gel is saturated with moisture and can be reactivated by being placed in an oven at 300 °F for three hours or until the crystals turn blue again. The gel can be reactivated virtually an infinite number of times.

## Low Voltage Wire Gage Selector Charts- Per Conductor Pair, Per Cooler (D3 COOLDOME uses Dual Coolers – Requires Two Pair)

**12 amps**

12 Volts D/C Voltage Drop For D2 & ST COOLDOME™

Wire Gauge in AWG (below)	feet						
Distance (ft)>>	1.0	10.0	20.0	30.0	40.0	50.0	100.0
4.0	0.006	0.062	0.124	0.186	0.248	0.310	0.620
6.0	0.010	0.098	0.196	0.294	0.392	0.490	0.980
AWG 8.0	0.016	0.156	0.312	0.468	0.624	0.780	1.560
10.0	0.025	0.248	0.496	0.744	0.992	1.240	2.480
12.0	0.040	0.400	0.800	1.200	1.600	2.000	4.000
14.0	0.063	0.628	1.256	1.884	2.512	3.140	6.280

multiplier  
vdc drop/ft

drop (vdc)/ distance (ft)

Acceptable line drop for Wire Gauge and Distance
  Excessive line drop for Wire Gauge

Above includes 10 amps max. current draw on Static Cooled Enclosure, with 2 amps for max. camera pwr  
Fused circuitry will allow up to 15 amps @ 12 vdc.

Tables above allow for 10% or less voltage line drop

**8 amps**

24 Volts D/C Voltage Drop For D2 & ST COOLDOME™

Wire Gauge in AWG (below)	feet						
Distance (ft)>>	1.0	10.0	20.0	30.0	40.0	50.0	100.0
4.0	0.004	0.042	0.084	0.126	0.168	0.210	0.420
6.0	0.007	0.066	0.132	0.198	0.264	0.330	0.660
AWG 8.0	0.011	0.105	0.210	0.315	0.420	0.525	1.050
10.0	0.017	0.167	0.334	0.501	0.668	0.835	1.670
12.0	0.027	0.265	0.530	0.795	1.060	1.325	2.650
14.0	0.042	0.422	0.844	1.266	1.688	2.110	4.220

multiplier  
vdc drop/ft

drop (vdc)/ distance (ft)

Acceptable line drop for Wire Gauge and Distance
  Excessive line drop for Wire Gauge and Dist

Above includes 6.5 amps max. current draw on Cooled D2, with 1.5 amps for max. camera & accessory draw.  
Fused circuitry will allow up to 15 amps @ 24 vdc.

Tables above allow for 10% or less voltage line drop

A handy website for custom Voltage drop on D/C current, an online calculator, is:

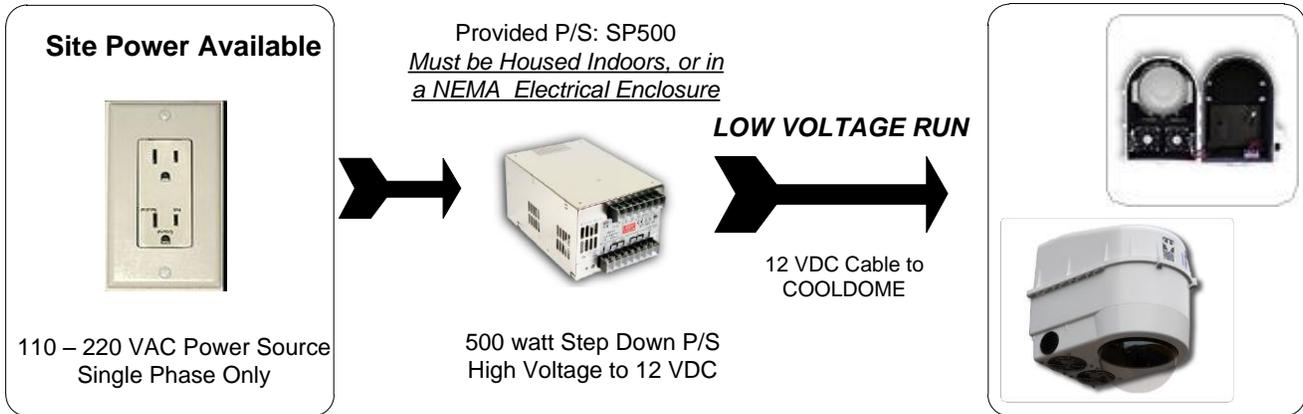
<http://nooutage.com/vdrop.htm>

or another great calculator site is:

[http://www.altronix.com/app\\_notes/calc.php](http://www.altronix.com/app_notes/calc.php)

# COOLDOME Input Power Configuration: D3-CD-12VDC

Turn Off Power or leave power disconnected during Installation of All Wiring.  
 Follow all local and relevant electrical codes & standards.  
 Test all Wiring and confirm correct voltages before wiring up & powering up COOLDOME.



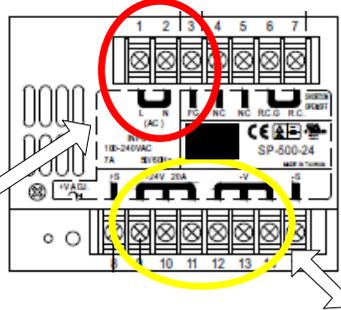
## Wiring from Step Down P/S to D3 CD

The D3 CD has two Coolers that run independently.

To reduce low voltage current load, it is best to run two pairs- individually –

So each 12VDC paired wiring runs load of one cooler

Front of Power Supply with terminal strip



Round, Water rated cable bundle, such as **SJOOW - 4 conductor** makes for an easy install and seal into provided cable ports

### High Voltage A/C Input. Single Phase. USA Wiring Color Code

Color	Symbol	Terminal	Description
Black	L	1	Line Conductor, AKA Live, Hot
White	N	2	Neutral Conductor
Green	FG	3	FG, Field Ground, Chassis Ground

### Low Voltage 12 VDC Output Terminals

Color	Symbol	Terminals	Description
Red	+, V+	9,10,11	Positive VDC
Black	-, V-	12,13,14	Negative VDC

## LOW VOLTAGE RUN: Wire Gauge Chart for D3-CD-12VDC: each cooler wired on independent 12VDC wire pairs

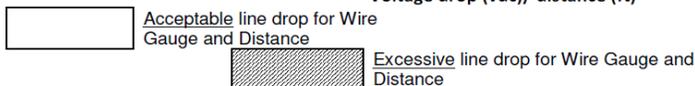
12 Volts D/C Voltage Drop for Dotworkz!    Cool Dome

Wire gauge In AWG (below)

Distance (ft)>>	1.0 ft	10.0	20.0	30.0	40.0	50.0	100.0
4.0	0.006	0.062	0.124	0.186	0.248	0.310	0.620
6.0	0.010	0.098	0.196	0.294	0.392	0.490	0.980
AWG 8.0	0.016	0.156	0.312	0.468	0.624	0.780	1.560
10.0	0.025	0.248	0.496	0.744	0.992	1.240	2.480
12.0	0.040	0.400	0.800	1.200	1.600	2.000	4.000
14.0	0.063	0.628	1.256	1.884	2.512	3.140	6.280

Gauge Multiplier  
 Vdc drop/ft

Voltage drop (vdc)/ distance (ft)



## COOLDOME Input Power Configuration: D3-CD-12VDC

**Warning!!!** COOLDOME Enclosure runs on 12 VDC only! If high voltage is applied directly to COOLDOME enclosure, you will damage housing, void warranty, and create electrocution hazard that can be harmful or fatal. **Do not start wiring until you have fully read and understand these installation instructions.**

### External Power Supply: Model SP-500

The step down power supply provided with each D3 COOLDOME must be mounted outside of the D3 enclosure. *This power supply is must be mounted indoors or in an environmentally protective enclosure.* The power supply can be powered by 95-264 VAC, single phase source voltage. It is self-ranging, so no switch adjustment is needed if you power it from a 110 VAC source, or 220 VAC source voltage (single phase). *Optional outdoor rated, sealed power supplies are available sold separately.*

The output of the SP-500 is rated up to 40 amps peak output @ 12VDC. Output 12 VDC can be tuned up or down 10% to optimize regulated output, via a small nylon adjustment to left of 12V output terminals on face of power supply . It is recommended to tune the voltage at power supply between 12.0 VDC – 13.5 VDC in unloaded condition. A higher voltage setting may create premature fan failure, and settings above 15VDC may cause costly failure to main cooling components. Use voltage meter to confirm all voltages before connecting COOLDOME to power supply. Firmly tighten all screw terminal connections and check there are no stray wire strands that can create short between wires and terminals.

### Wiring Guidelines:

Dotworkz recommends wiring the low voltage 12VDC outputs so that there are two pairs of wires from the SP-500 P/S outputs, to power each cooler independently, to reduce the need for very heavy wire gages on low voltage wiring run, thus eliminating voltage drop issues. Dotworkz recommends to keep all low voltage wiring runs, as short as possible, by installing step down power supply near to COOLDOME.

Dotworkz recommends using 12gg copper wire, or thicker, even on shortest wire runs of 20 ft or less, wired between coolers and step down power supply (per cooler). SJOOW 12-4 type cable provides a stranded 4 conductor round bundle ideal for under 20 ft low voltage cabling, when using our stock cable gland ports, creating a good waterproof seal around cabling to enclosure.

*Follow wire gage recommendation on table provided found on prior page, for proper wire gage minimums* based on distance between step down power, and COOLDOME. Voltage drop is based on fully loaded “cooler engaged” conditions (and camera powered, allowing up to 3 amps) at typical ambient temperatures of 100F.

Inside D3 CD at rear of upper on enclosure will be two pairs of color coded screw terminal blocks to conveniently and securely attach low voltage wiring. Always check voltage to assure 12VDC is properly wired into enclosure, and observe proper polarity.

Each of the Coolers on the D3 are set up for independent operation, and therefore will switch on and off at slightly different set points, when properly powered and wired. This adds fail safe redundancy to system, as well as electrical efficiency; as second cooler only engages only at higher thermal loads.

### Fully Seal Enclosure

D3 COOLDOME is engineered to operate in **fully sealed conditions only**. Failure to fully seal wire ports and all seals will allow unsatisfactory cooling, and condensation to form within enclosure.

Always completely seal wire ports when completing wiring installation, especially when using conduit; even within inside wire feeds. See Conduit guideline section in this manual for proper conduit installation.

Always create a Drip Loop on wiring that comes from overhead the enclosure, to reduce the risk of water entering enclosure at wire seal ports.

Only use one round cable per provided wire port seal / cable gland. Attempting to run multiple separate wires thru one cable gland will create air and water leaks, and will not seal properly. Use of flat cable or zip cord will not allow cable gland ports to seal properly, creating leaks and product damage.

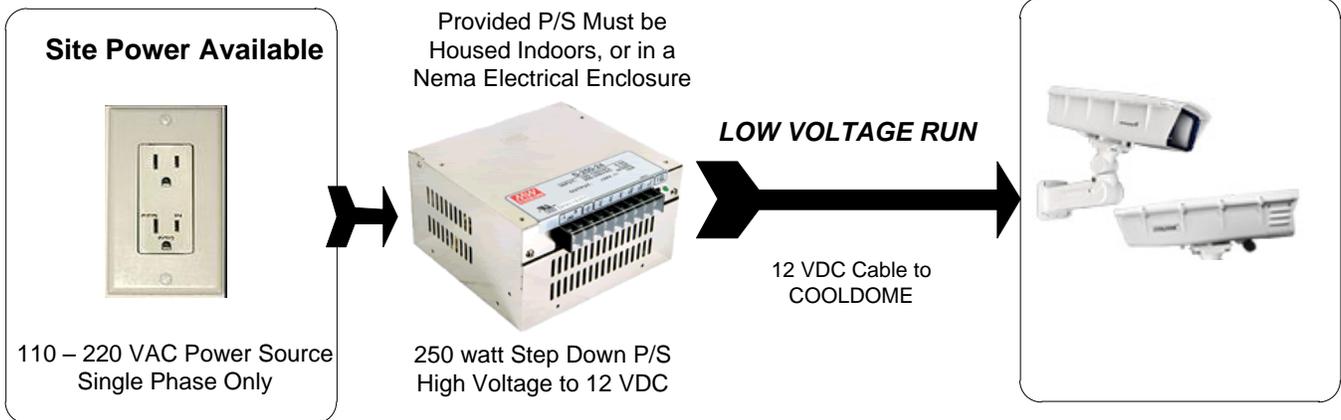
### Humidity Control Pack

A Humidity control pack is provided to eliminate humidity in trapped air within COOLDOME. Each COOLDOME product includes a canister that contains 40 grams of silica gel. This will prevent moisture buildup inside of the CD housing.

Make sure to remove canister from its sealed foil packaging, and secure into enclosure prior to enclosure use. Double stick tape, Velcro tape, large zip ties, or fine wire are common ways to secure the canister. Secure canister above camera- on top of camera bracket, or where space provides. Be sure not to obscure holes on canister so as to allow it to operate effectively.

There is a small window on the canister (see white circle on image). Ensure that the crystals are blue. Occasionally, especially in humid environments, the canister may need to be serviced. If so, the crystals in the window turn pink when silica gel is saturated with moisture. The tin canister can be reactivated by being placed in an oven at 300F for three hours, or until crystals turn blue again. The gel can be reactivated virtually and infinite number of times.

# COOLDOME™ Input Power Configuration: ST-CD-12VDC



Turn Off Power or leave power disconnected during Installation of All Wiring.  
Follow all local and relevant electrical codes & standards.

Test all Wiring and confirm correct voltages before wiring up & powering up ST COOLDOME.

Select Input Voltage before  
Hooking up Power Supply  
110 VAC or 220 VAC

Rear of Power Supply with  
Input Voltage Selector



Front of Power Supply with  
terminal strip



### High Voltage A/C Input. Single Phase. USA Wiring Color Code

Color	Symbol	Description
Black	L	Line Conductor, AKA Live, Hot
White	N	Neutral Conductor
Green	G	Ground Conductor, Safety Ground

### Low Voltage 12 VDC Output Terminals

Color	Symbol	Description
Red	+ , V+	Positive VDC
Black	- , V-	Negative VDC

## LOW VOLTAGE RUN: Wire Gauge Chart for ST & D2 CD – 400 BTU Cooler

12 Volts D/C Voltage Drop for Dotworkz D2 Cool Dome

Wire gauge  
In AWG (below)

Distance (ft)>>	1.0 ft	10.0	20.0	30.0	40.0	50.0	100.0
4.0	0.006	0.062	0.124	0.186	0.248	0.310	0.620
6.0	0.010	0.098	0.196	0.294	0.392	0.490	0.980
AWG 8.0	0.016	0.156	0.312	0.468	0.624	0.780	1.560
10.0	0.025	0.248	0.496	0.744	0.992	1.240	2.480
12.0	0.040	0.400	0.800	1.200	1.600	2.000	4.000
14.0	0.063	0.628	1.256	1.884	2.512	3.140	6.280

Gauge Multiplier  
Vdc drop/ft

Voltage drop (vdc)/ distance (ft)



Acceptable line drop for Wire Gauge and Distance



Excessive line drop for Wire Gauge and Distance

Above includes 9 amps @ 12 vdc for D2 Cool Dome typical current draw, with 3 amps for max. camera & accessory draw. 12 amps max.

## COOLDOME™ Input Power Configuration: ST-CD-12VDC

**Warning!!!: COOLDOME Enclosure runs on 12 VDC only! If high voltage is applied directly to COOLDOME™ enclosure, you will damage housing, void warranty, and create electrocution hazard that can be harmful or fatal. Do not start wiring until you have fully read and understand these installation instructions.**

### External Power Supply

The output of the S-250-12 external power supply, can be adjusted up and down 10%. It is recommended to keep the voltage at the S-Type adjusted to at least 11.5 vdc, but no more than 13.5 vdc. By running the enclosure higher than 13.5 vdc may cause premature fan failure. It is best to check and tune the voltage at the COOLDOME™ with a voltage meter at the time of installation, and use the adjustment screw, located on the S-250-12, to the right side of the terminal screws, to raise or lower the output voltage.

For all outdoor wiring, always use an outdoor rated wiring, or wiring in weather rated conduit, out from power supply, into the COOLDOME™. Follow all local and applicable wiring and safety standards.

**Please keep D/C wire runs short, to reduce low voltage line drop.** Also, the suggested wiring gauge table is provided on previous page to further prevent low voltage line drop, and to guide you in selecting the proper wire gauge for the dc run from the power supply to the ST-CD.

It is always advisable to use a drip loop on all wiring going directly into the ST enclosure, to reduce the risk of water entering and damaging internal components. All fittings and seals must be firmly tightened and sealed, before placing the ST-CD in service.

Inside the ST-CD we have provided a convenient Screw cage clamp style terminal blocks to wire the 12 vdc positive (V+), and the 12 vdc Negative (V-) terminal. Please strip the insulation off the last 3/8" of the wires and fasten wiring securely to terminal, using a small blade screwdriver to tighten the caging mechanism on the terminal blocks.

*Please be especially attentive to wire using the Proper Polarity, so as not to damage the internal components, or damage your camera within.*

### **LOW VOLTAGE RUN: Voltage Drop Table (shown on prior page)**

Where we conservatively try to keep the voltage drop under 1.2 vdc over the low voltage direct current run. These multipliers are approximate, and voltage drop (Vd) is maximum at full 12 amp load at 12 vdc. This voltage drop is under fully loaded condition, when the cooling unit is engaged, and camera and all accessories are on. Voltage drop will be much less, if the current is not at full load.

#### **Power Supply Specifications**

Input Voltage: 90-132VAC/ 176-264VAC Selected by Switch  
Frequency Range: 47- 63 HZ  
Input Current @ Full Load(Typ.): 4A @115VAC, 2A @230VAC  
Recommended Min. Circuit Breaker for 110VAC In: 10 A (type C)  
Int. Electrical. Working Temp\*: -20 ~ +70C  
Ext. Power Supply Output: 18A @ 12VDC up to 50C  
Derate 0.5A/ deg. C over 50C

#### **COOLDOME™ Specifications**

Current Draw by COOLDOME @ 12VDC:  
Active Cooler OFF: 0.4A/ Active Cooler Peak On: 10.5A  
Active Cooler On Typ.: 9.0A/ (Cam. Draw Not Incl.)  
MTBF: 238.9Khrs min. MIL-HDBK-217F(25C)

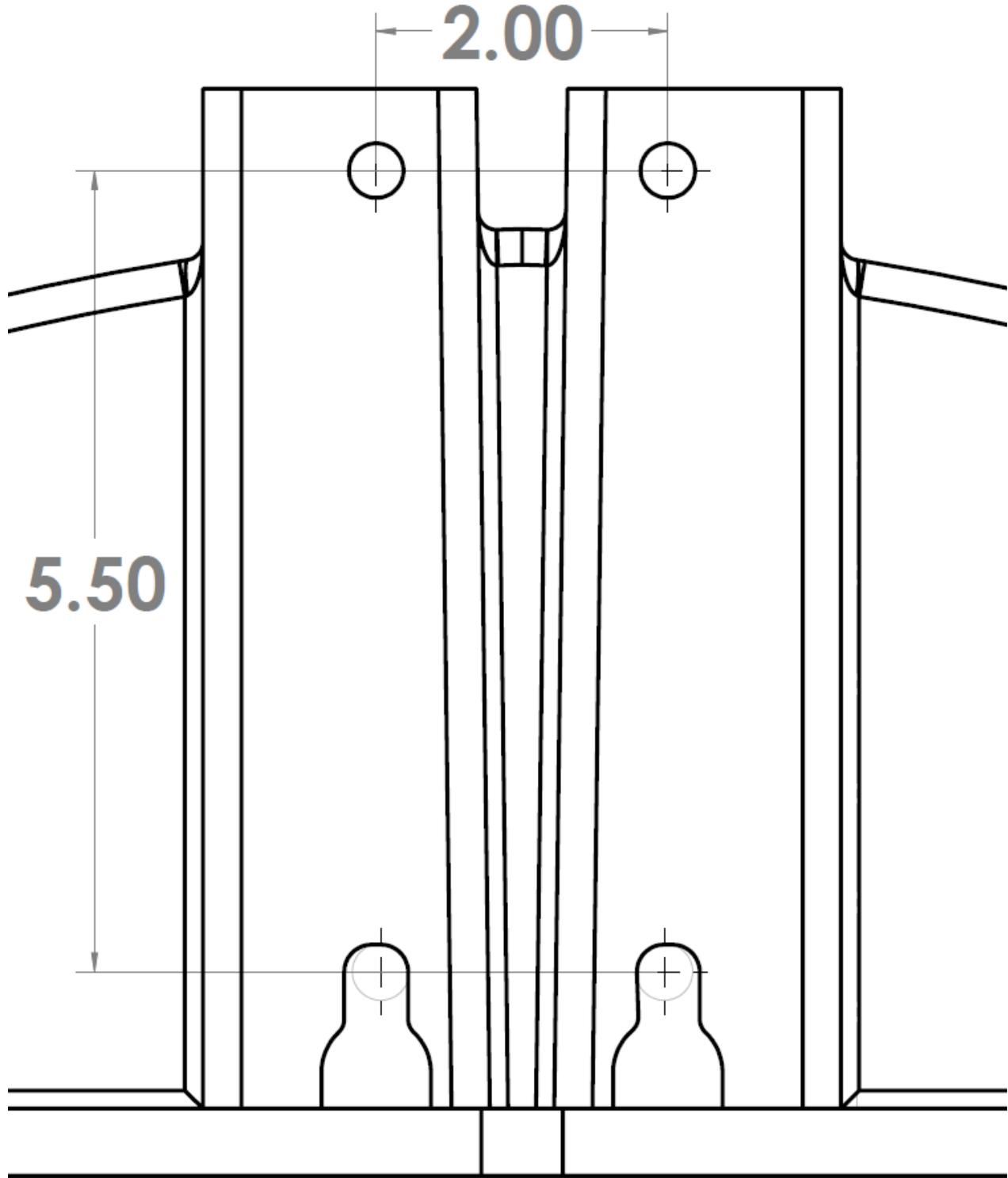


#### **Reusable Desiccant Canister**

The reusable desiccant canister contains forty grams of silica gel. This will prevent moisture buildup inside the COOLDOME™. Make sure to remove the canister from its foil envelope packaging before the COOLDOME™ is put to use.

There is a small window on the canister (white circle). Ensure that the crystals are blue. Occasionally, especially in humid environments, the canister may need to be serviced. If so, the crystals in the window turns pink, indicating the silica gel is saturated with moisture and can be reactivated by being placed in an oven at 300 °F for three hours or until the crystals turn blue again. The gel can be reactivated virtually an infinite number of times.

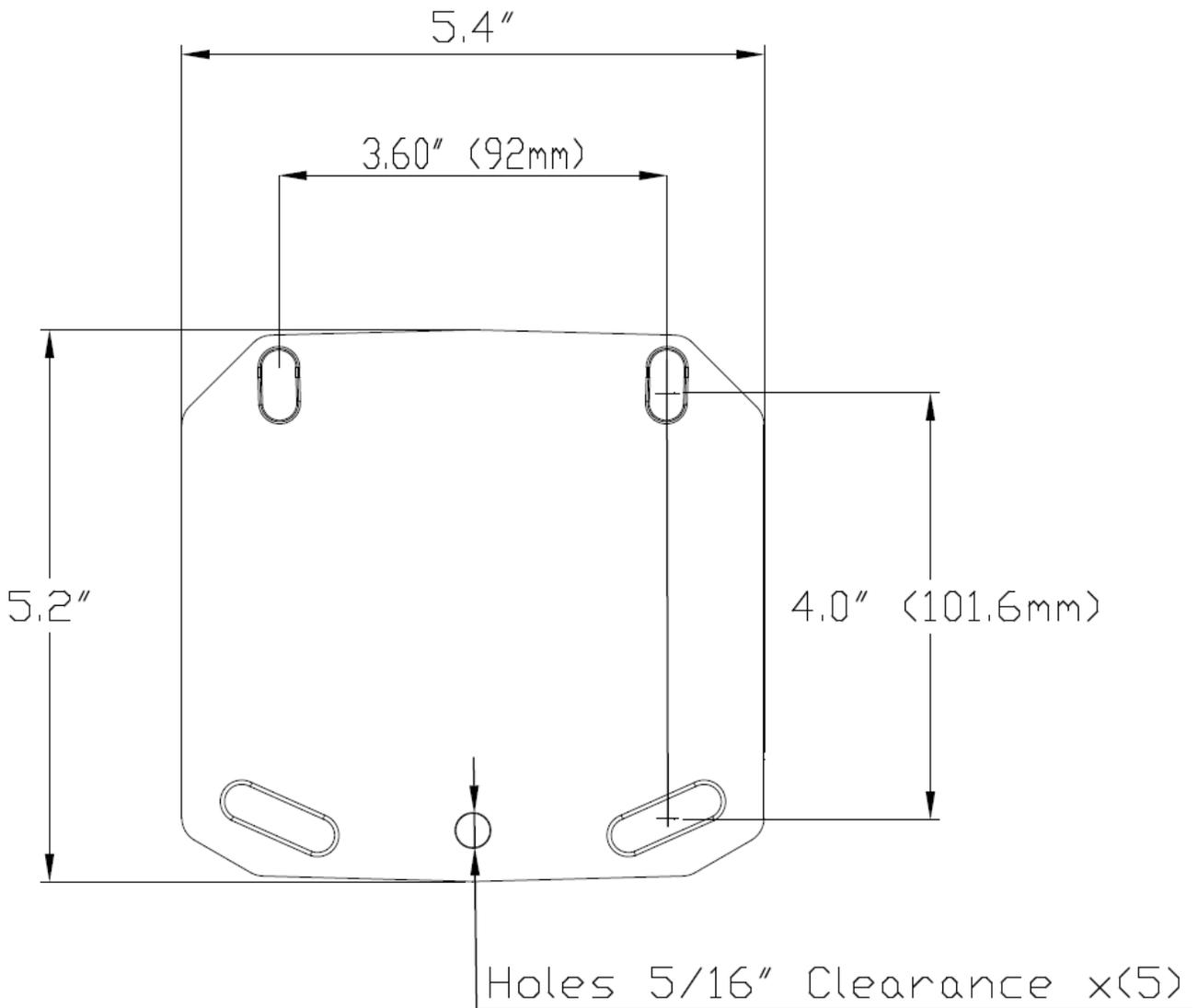
## D2 & D3 Mounting Detail



**3/8" Dia. Bolt Clearance Holes/ Key slots (4)**  
**All dimension in inches**

# S-Type Strong-Arm Mount

## Wall Mounting Pattern



*Not to Scale*