



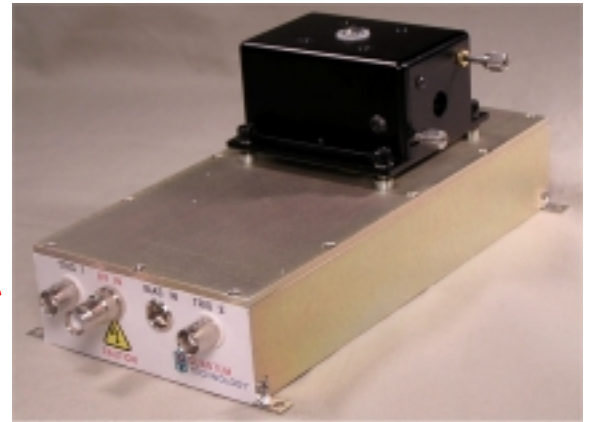
# QUANTUM TECHNOLOGY, INC.

108 Commerce St., Suite 102, Lake Mary, Florida, 32746-6212, USA  
FAX 407-333-9352 PHONE 407-333-9348 TOLL FREE 800-232-4291  
EMAIL: staff@QuantumTech.com WEB: www.QuantumTech.com

MODEL  
**STARFIRE Q-SW SYSTEM**  
**HV PULSER**  
DATA SHEET 7821

## STARFIRE HV PULSER

- ✓ 1-9 KV OUTPUT
- ✓ 4 NSEC RISETIMES
- ✓ PULSE-PICKING AND REGEN
- ✓ Q-SWITCH APPLICATIONS
- ✓ 10 KHz AND 20 KHz REP RATES
- ✓ INTEGRATED GIMBAL MOUNT
- ✓ FLEXIBLE MOUNTING



The Model STARFIRE Q-Switch systems solves most Q-switching system requirements. Consisting of a high speed proprietary switching technology mated with almost any type of Dry or Wet Pockels Cells from the QS (BBO) series, QC (KD\*P) cell or RT (RTP) series, this combination lives up to the most demanding expectations. Rise times of 2-3 nsec are typical although higher crystal capacitances and operating voltages will increase the rise and fall times. The unit is easily powered by an external 15V (or 24V in some cases) power for internal HV electronics or by a PowerMax- HV power supply.

### STARFIRE Specifications

<i>Output Voltage, Vpp</i>	1KV, 3KV, 5KV, 9KV option to 9 KV(-9DR, -5DM -PN option)
<i>Rise Time</i>	3ns with QS-3 and RT-3, 5 ns with QC-10 typ
<i>Fall Time</i>	3ns with QS-3 and RT-3, 5 ns with QC-10 typ
<i>Rep Rate</i>	0-10KHz
<i>Pulse Width, -9DR, -5DR</i>	<10ns-1us
<i>-3DM(-2), -5DM units</i>	* <150ns-0.5ms
<i>Jitter</i>	<0.5ns
<i>Ringing</i>	<5% typ
<i>Trigger Connector</i>	BNC
<i>HV Output Connector</i>	0.080 socket (with Q-SW mount) or SHV
<i>Input Power Connector</i>	Mini DIN Connector
<i>Pockels cell (Q-SW) mount</i>	Precision Pitch & Yaw Gimbal MTP-Mini
<i>Status LEDs</i>	Power, HV On and over current /HV

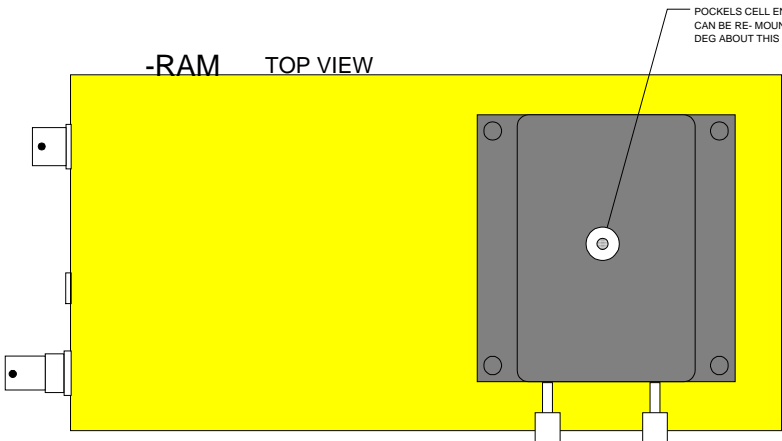
**Specifications:**

MODEL	Rise (ns) TYP	Fall (ns) TYP	Pulse width TYP	RepRate (KHz) TYP	INPUT POWER	OUT KV	DESCRIPTION
<b>Starfire 1DR-100K-15V</b>	<4-5ns	<4-5ns	8ns-300ns	0-100KHz @1KV	self contained HV, 15V input 4A	0-1KV -FL outputs, 10"	Hi rep rate, 0.35-1 KV driver with dual triggers, Size 4x8x1.5"
<b>Starfire 1DM-100K-15V</b>	<4-5ns	<4-5ns	150ns-1ms	100KHz @1KV 0-50KHz@ 1.5KV,	self contained HV, 15V input 4A	0-1KV -FL outputs, 10"	Hi rep rate, 0.35-1 KV driver with dual triggers, Size 4x8x1.5"
<b>Starfire 2DM-15V</b>	<4-5ns	<4-5ns	150ns-1ms	0-10,000 Hz 1-25,000 Hz @ 1.5KV,100KHz @1KV with 1KV option	self contained HV 15V input 4A	0-2KV -FL outputs, 0-1KV option	Hi rep rate, 0-2 KV driver with single trigger, Output PW=Input PW Size 4x8x1.5"
<b>Starfire 3DM-15V-LR</b>	<4-6 ns	<4-6 ns	150ns-0.5ms	0-500 Hz 1KHz typ max	self contained HV @ 15V input 1A	1-3KV -FL outputs	Low rep rate, 1-3 kv driver with dual triggers for Start & Stop edges, <b>-LR (low Rep rate option)</b> Size 4x8x1.5"
<b>Starfire 3DM-PN-10K-15</b>	<4-6 ns	<4-6 ns	150ns-0.5ms	0-10KHz 15KHz typ max	self contained HV @ 15V input 2A	3KVpp, +/-1.5 KV pk -FL outputs	0-3 KVpp driver with dual triggers for Start & Stop edges, Size 4x8x1.5"
<b>Starfire 5DR</b>	<4-6 ns	<4-6 ns	10-1000 ns	0-10 KHz 0-5 KHz	Power Max 6005 Power Max 5002	4.5KV	10KHz is air cooled -FC option, 15V for fan
<b>Starfire 5DM</b>	<4-6 ns	<4-6 ns	150ns-1ms	0-10 KHz 0-5 KHz	Power Max 6005 Power Max 5002	0-5KV	10KHz is air cooled -FC option, 15V for fan, (-N=neg out option), single SHV output connector
<b>Starfire 5DM-PN</b>	<4-6 ns w/QS series QSw	<4-6 ns w/QS series QSw	150ns -1ms	1-10 KHz depending on Power Supply	PowerMax-5002 set for 2.6KV adjustable	+/-2.6KV 5.2 KV pp -FL outputs	Output is double that of input HV DC in high rep rate applications
<b>Starfire 7DM-PN-LR-ST-15</b>	<4-5 ns w/QS series QSw	<4-5 ns w/QS series QSw	150ns -1ms	<b>-LR=0-3 KHz, -HR=0-15KHz</b> depending on int HV Power Supply	+15 V @2 A internal HV supply	+/-3.3KV 6.6 KV pp	Turn key system. Just supply power and Hook up. Double Triggers standard, Options Avail. <b>-ST=</b> single trigger, Output follows input, -FL Standard (Flying Leads)
<b>Starfire 5-2-PN</b>	<4-6 ns w/QS series QSw	<4-6 ns w/QS series QSw	150ns -1ms	0-10 KHz depending on Power Supply	PowerMax-5002 set for 5KV adjustable	+/-5KV 10 KV pp -FL outputs	Output is double that of input HV DC, for high rep rate applications
<b>Starfire 2DR-25K-TX-15V</b>	<3-5 ns w/RT series QSw	<3-5 ns w/RT series QSw	<10-300ns	0-25 KHz	+15 V @2 A internal HV supply	1.5KV	useful for RTP cells 25KHz is air cooled, with 1.5 KV RTP cells, -WC optional, size 4x1.5x8"
<b>Starfire 5DR-24</b>	<4-6 ns w/QS series QSw	<4-6 ns w/QS series QSw	<10-300ns	0-25KHz	24v @ 4A	0-5 KV	0-5KV , output configured with as 2 Sunfire-5-24 drivers combined together, size 4x3x8"

**Options & Nomenclature:**

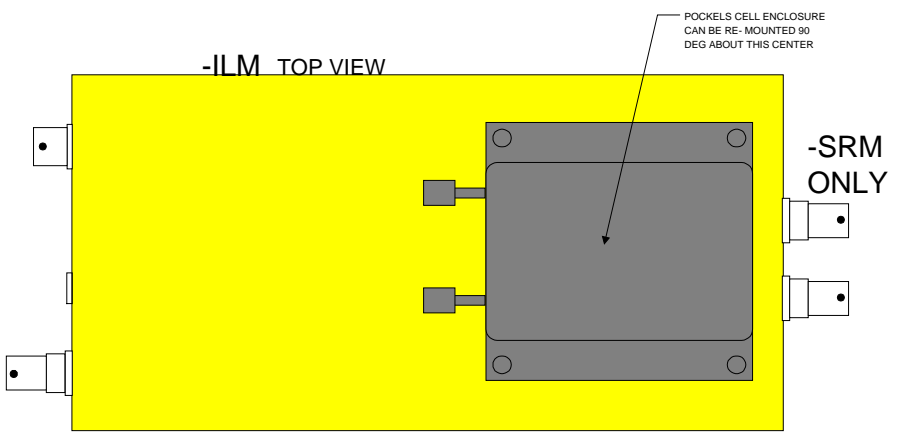
<b>Output Designations</b> - <b>DR:</b> 2 HV outputs that very quickly switch to ground - <b>DM:</b> Square pulse programmable output - <b>DM-PN:</b> Dual differential +/- Square Pulse programmable output - <b>DS:</b> Dual Step differential output faster rise and fall times	<b>Input DC power:</b> - <b>15V:</b> 15V when designated for self powered units - <b>24V:</b> 24V when designated for higher rep rate applications For flexibility and mounting considerations most units may use HVPS cabinets or PowerMax supplies use by 15 or 24V
<b>OPTIONAL: REP rate</b> - <b>LR-</b> Low Rep Rate 0-500Hz, min 1 KV pulsed output to max output	<b>Thermal Management:</b> - <b>FC:</b> Forced Air-Cooling miniature fans <b>Standard</b> - <b>CV:</b> Convection Air-Cooling Standard in <b>-LR option</b> - <b>WC:</b> Water Cooled for highest rep rate, most compact size
<b>Output Connections</b> - <b>SHV</b> connectors on REAR - <b>FL:</b> 10" HV Flying Leads on REAR - <b>PR:</b> 0.080 pin Jacks on REAR - <b>PT:</b> 0.080 pin Jacks on TOP	<b>Trigger Options</b> <b>Dual Triggers Standard, Start and Stop</b> - <b>ST option:</b> Single Trigger for easy pulse width control via pulse generator, output follows input pulse width - <b>DQ1 option: Precision Timing generation 1ns-2000ns</b>
<b>OPTIONAL: Extra long Hold Time -DM units only</b> - <b>1ms:</b> 1msec extra long pulse on - <b>DC:</b> DC pulse response option	<b>OPTIONAL: Pockels cell mounting</b> - <b>MTP-Mini:</b> PC Shielded gimbal mount comes with <b>-PR</b> or <b>-PT</b> connections

REV.	DESCRIPTION	DATE	BY



**-RAM TOP VIEW**  
STARFIRE 5 KV HV PULSERS

POCKELS CELL ENCLOSURE  
CAN BE RE-MOUNTED 90  
DEG ABOUT THIS CENTER

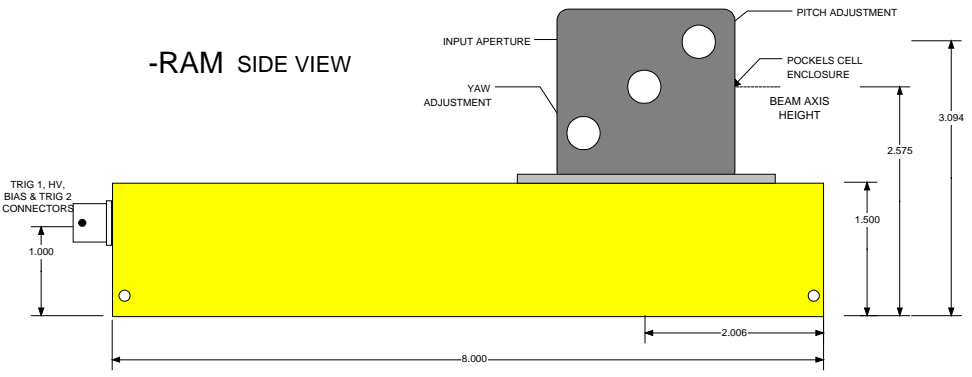


**-ILM TOP VIEW**  
STARFIRE HV PULSER -INLINE MOUNT(-ILM) OPTION

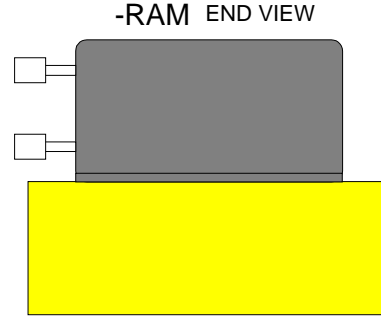
POCKELS CELL ENCLOSURE  
CAN BE RE-MOUNTED 90  
DEG ABOUT THIS CENTER

**-SRM ONLY**

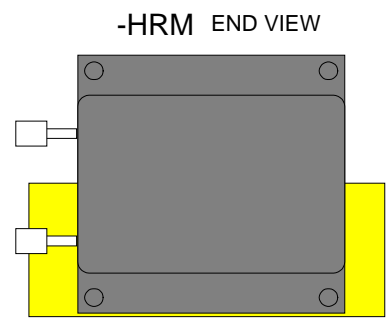
**-RAM SIDE VIEW**



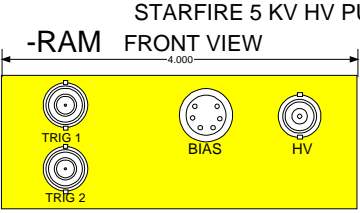
**-RAM SIDE VIEW**  
STARFIRE 5 KV HV PULSERS SIDE VIEW



**-RAM END VIEW**  
STARFIRE HV PULSER (-RAM) MOUNT  
END VIEW

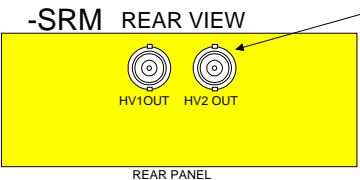


**-HRM END VIEW**  
STARFIRE HV PULSER END VIEW  
OPTIONAL SIDE MOUNT(-HRM)  
MOUNTING CONFIG



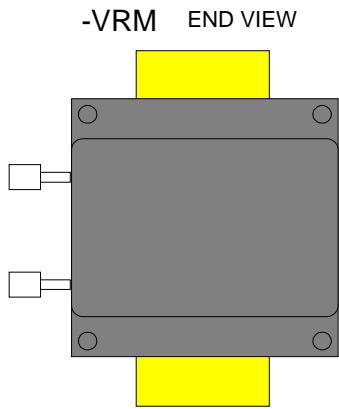
**-RAM FRONT VIEW**  
FRONT PANEL

4" X 8" BASE PLATE



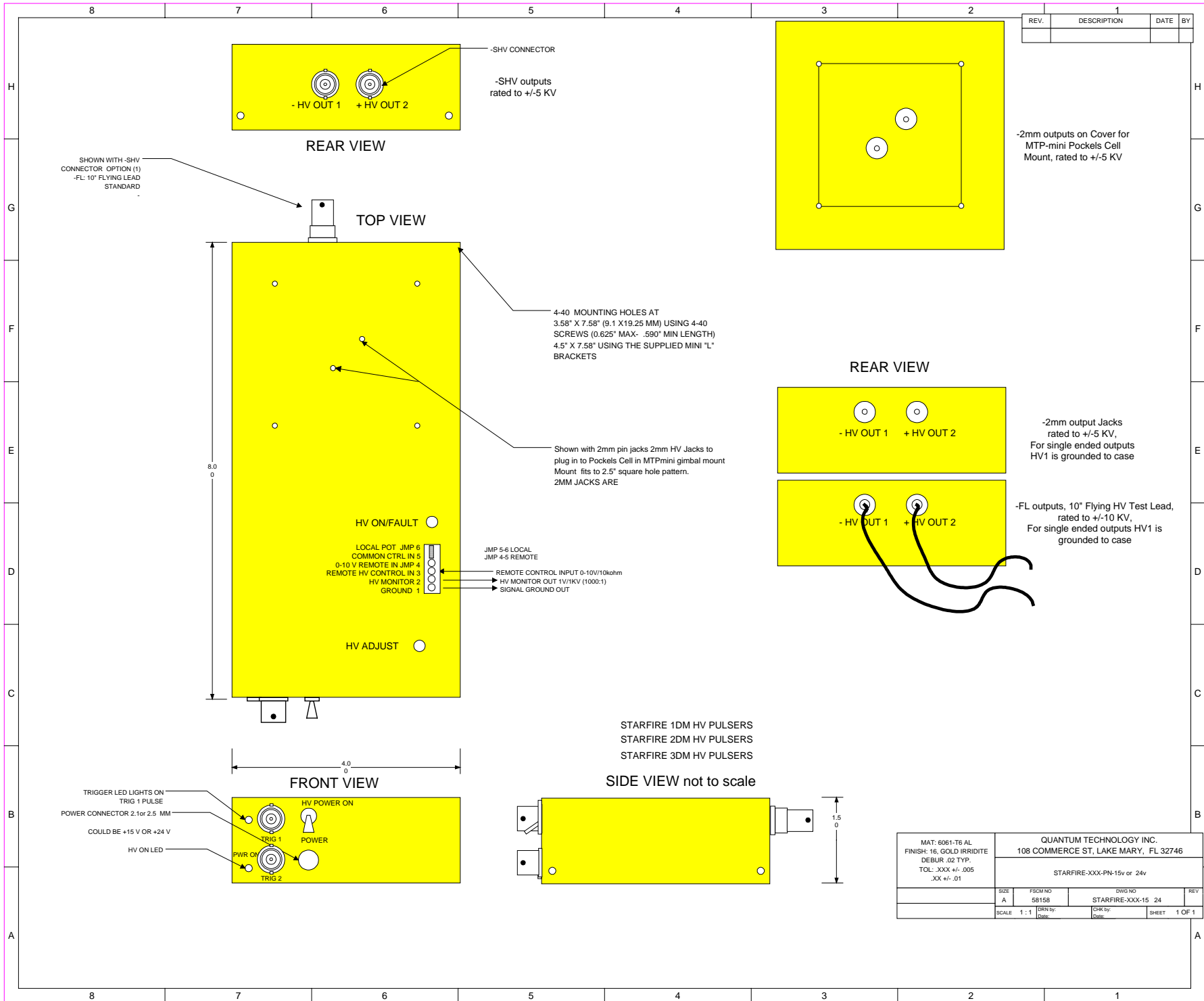
**-SRM REAR VIEW**  
REAR PANEL

- SHV CONNECTOR (2)  
FOR STARFIRE SDR
- SHV CONNECTOR (1)  
FOR STARFIRE 5
- FL FLYING LEAD  
(10" HV TEST LEADS)

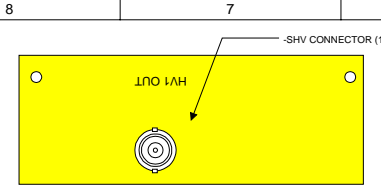


**-VRM END VIEW**  
STARFIRE HV PULSER  
OPTIONAL VERTICAL SIDE MOUNT  
(-VRM) MOUNTING CONFIG

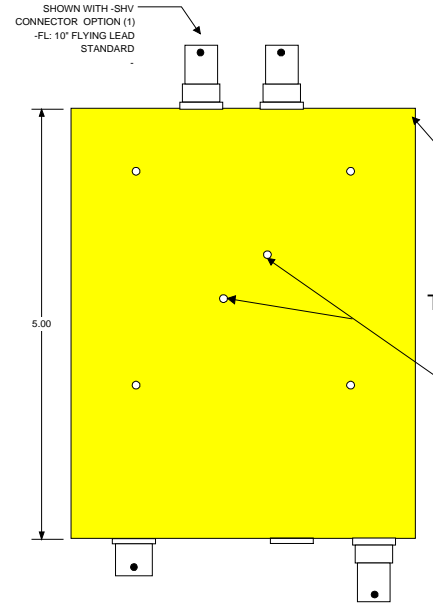
MAT: 6061-T6 AL FINISH: 16, GOLD IRRIDITE DEBUR .02 TYP. TOL: .XXX +/- .005 .XX +/- .01		QUANTUM TECHNOLOGY INC. 108 COMMERCE ST, LAKE MARY, FL 32746	
STARFIRE 5 HV PULSER			
SIZE A	FSCM NO 58158	DWG NO SUNFIRE HV PULSER	REV
SCALE 1 : 1	DRN by Date:	CHK by Date:	SHEET 1 OF 5



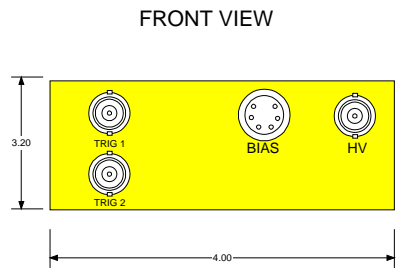
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DEBUR .02 TYP. TOL: .XXX +/- .005 .XX +/- .01		STARFIRE-XXX-PN-15v or 24v	
S/E A	FSCM NO 58158	DNF NO STARFIRE-XXX-15 24	REV
SCALE 1 : 1	DRN by Date:	CRK by Date:	SHEET 1 OF 1



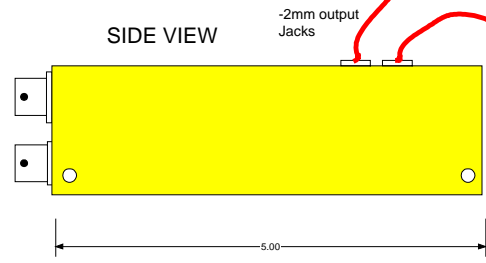
REAR VIEW



TOP VIEW



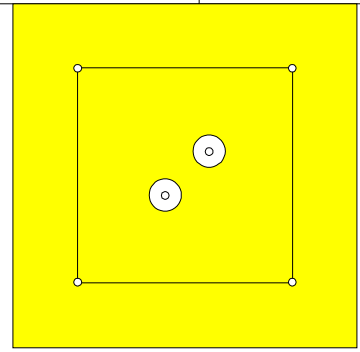
FRONT VIEW



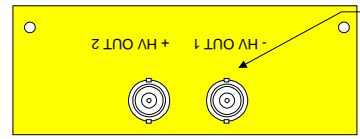
SIDE VIEW

MTP-mini gimbal mount can be attached to hold cell in various configurations with 2MM JACKS are there to connect to mount in HRM, ILM, RAM, VRM and HSM configurations. Mount fits to 2.5" square hole pattern.

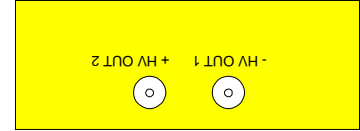
- STARFIRE 1DM HV PULSERS
- STARFIRE 2DM HV PULSERS
- STARFIRE 3DM HV PULSERS
- STARFIRE 5DM-PN HV PULSERS +/- 2.5KV
- 0-5 KVpp differential
- STARFIRE 5DM HV PULSERS 0-5 KV unipolar



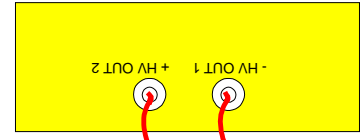
-2mm outputs on Cover for MTP-mini Pockels Cell Mount, rated to +/- 5 KV



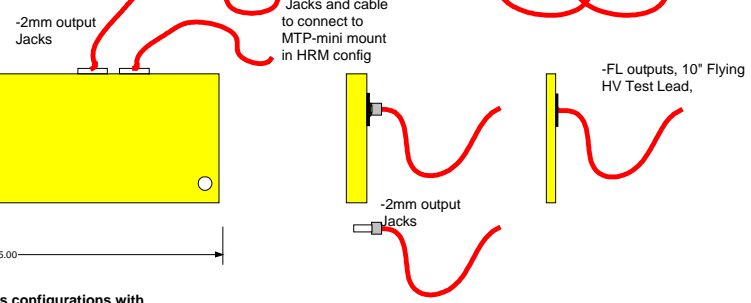
REAR VIEW



-2mm output Jacks rated to +/- 5 KV. For single ended outputs HV1 is grounded to case



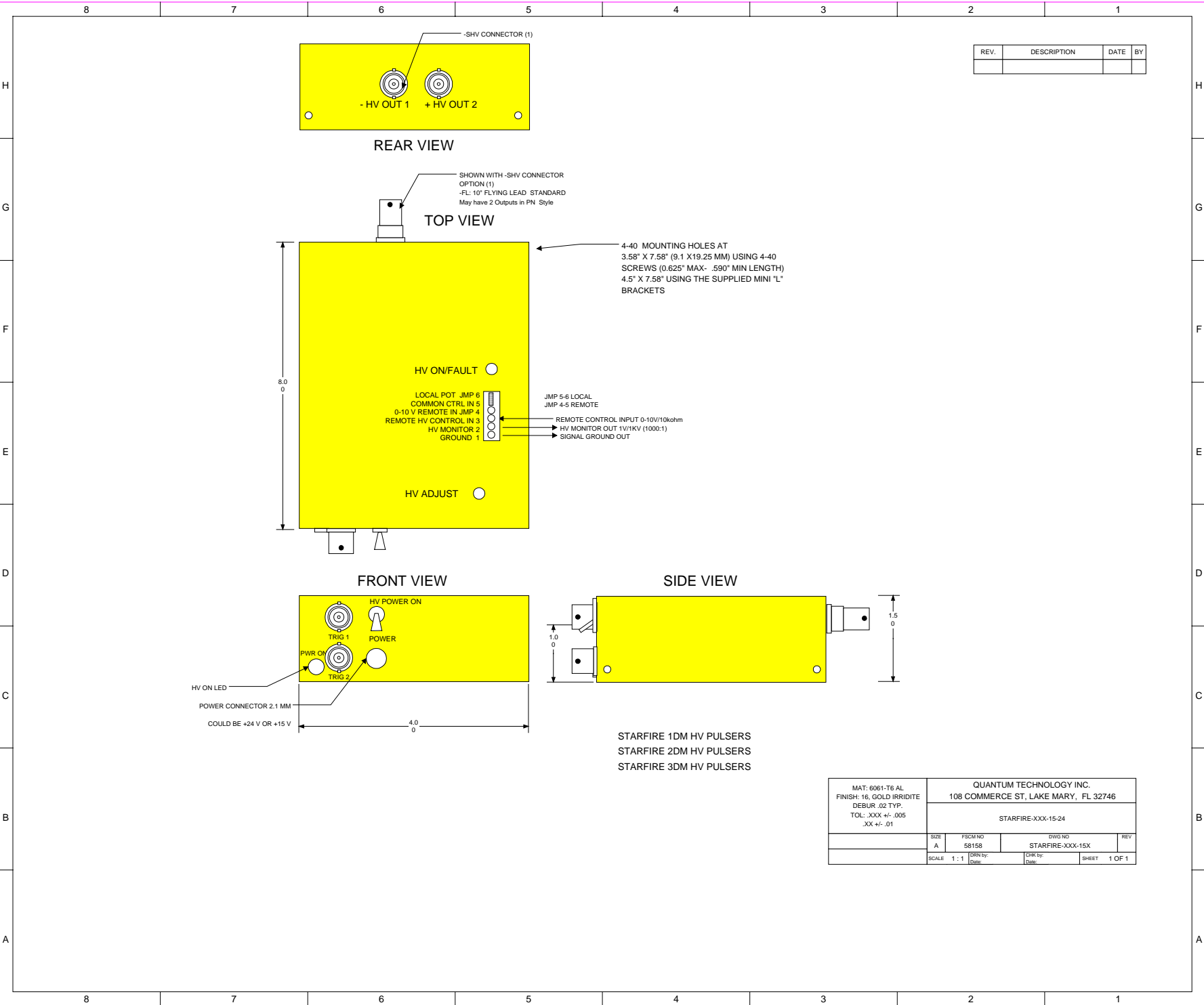
-FL outputs, 10" Flying HV Test Lead, rated to +/- 10 KV. For single ended outputs HV1 is grounded to case



-FL outputs, 10" Flying HV Test Lead,

-2mm output jacks

MAT: 6061-T6 AL FINISH: 16, GOLD IRRIDITE DEBUR. 02 TYP. TOL: .XXX +/- .005 .XX +/- .01		QUANTUM TECHNOLOGY INC. 108 COMMERCE ST, LAKE MARY, FL 32746	
STARFIRE-XXX NON POWERED VERSIONS USING POWERMAX SUPPLYS OR OTHER EXTERNAL SUPPLY		SIZE A	REV 5
SCALE 1:1	DRN by Date:	CHK by Date:	SHEET 2 OF 5

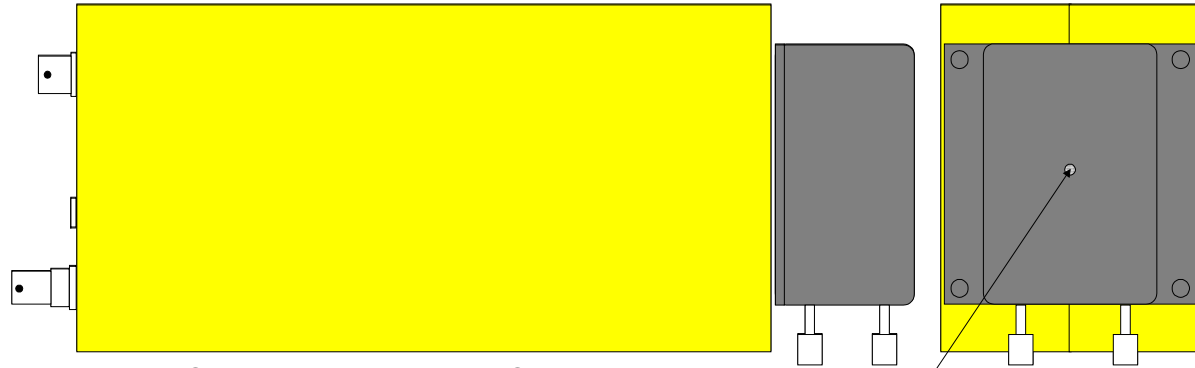


REV.	DESCRIPTION	DATE	BY

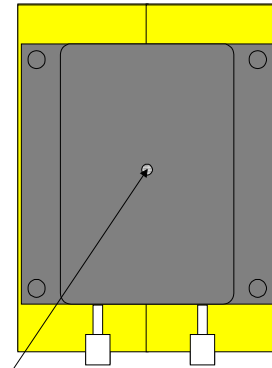
MAT: 6061-T6 AL FINISH: 16, GOLD IRRIDITE DEBUR. 02 TYP. TOL: .XXX +/- .005 .XX +/- .01		QUANTUM TECHNOLOGY INC. 108 COMMERCE ST, LAKE MARY, FL 32746	
STARFIRE-XXX-15-24			
SIZE A	FSCM NO 58158	DWG NO STARFIRE-XXX-15X	REV
SCALE 1:1	DRN by Dwg.	CHK by Dwg.	SHEET 1 OF 1

REV.	DESCRIPTION	DATE	BY

-HRM TOP VIEW



-HRM END VIEW

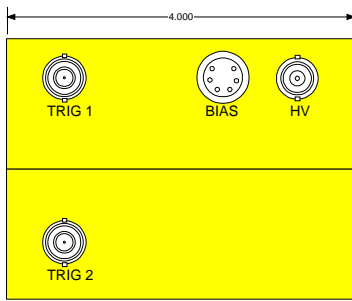


STARFIRE-9DR HV PULSER  
STARFIRE-5-2 HV PULSER

STARFIRE-9DR HV PULSER  
STARFIRE-5-2 HV PULSER

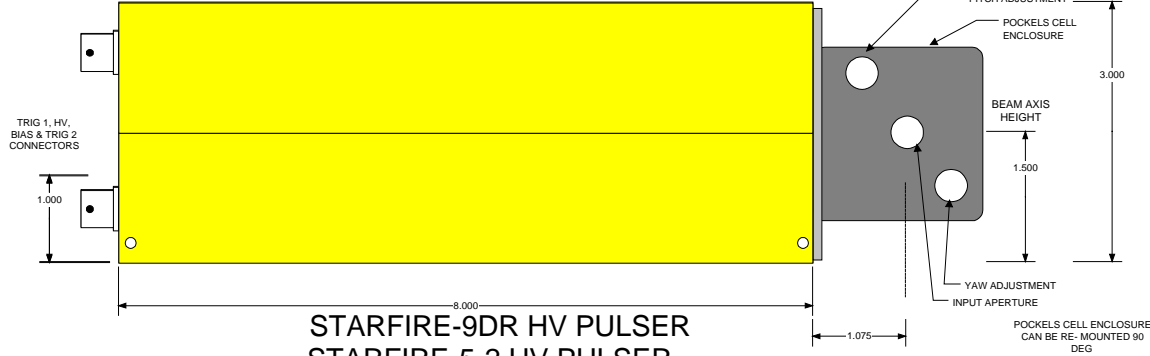
POCKELS CELL ENCLOSURE  
CAN BE RE-MOUNTED 90  
DEG ABOUT THIS CENTER

-HRM FRONT VIEW



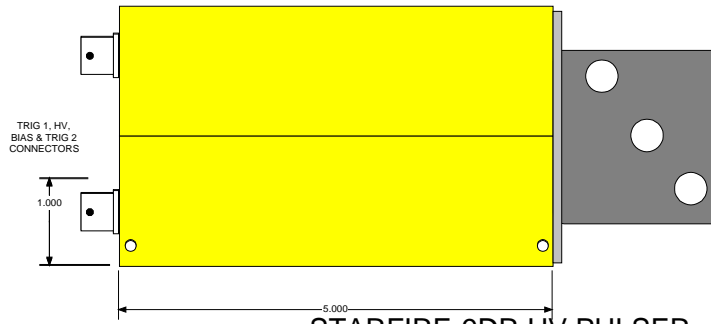
STARFIRE-9DR HV PULSER

-HRM SIDE VIEW



STARFIRE-9DR HV PULSER  
STARFIRE-5-2 HV PULSER

-HRM SIDE VIEW



STARFIRE 5-2 PULSER

STARFIRE-9DR HV PULSER  
STARFIRE-5-2 HV PULSER

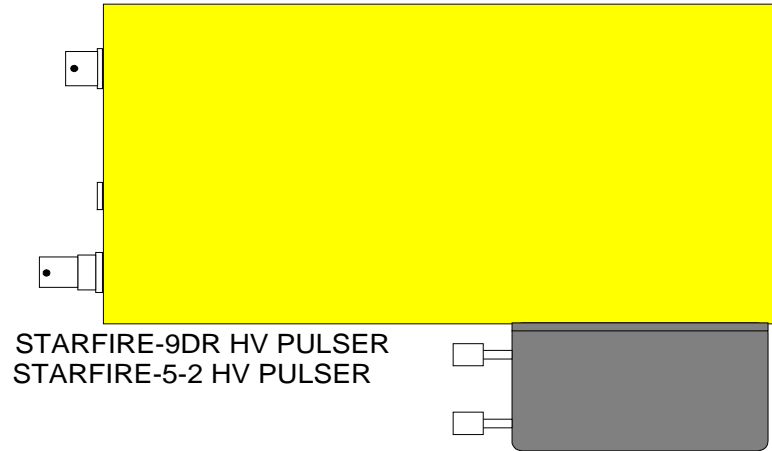
MAT: 6061-T6 AL FINISH: 16, GOLD IRRIDIOTE DEBUR .02 TYP. TOL: .XXX +/- .005 .XX +/- .01		QUANTUM TECHNOLOGY INC. 108 COMMERCE ST, LAKE MARY, FL 32746	
STARFIRE-5-2 HV PULSER, 9KV DIFFERENTIAL			
SIZE A	PSCM NO 58158	DWG NO STARFIRE-5-2 HV PULSER	REV
SCALE 1 - 1	DRN by Date	CHK by Date	SHEET 3 OF 5

# STARFIRE 5-2 PULSER

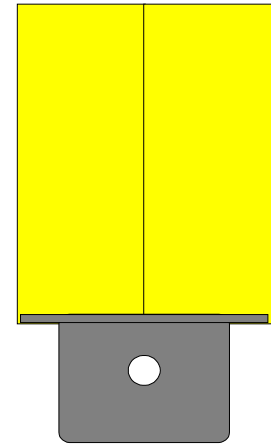
FRONT VIEW

REV.	DESCRIPTION	DATE	BY

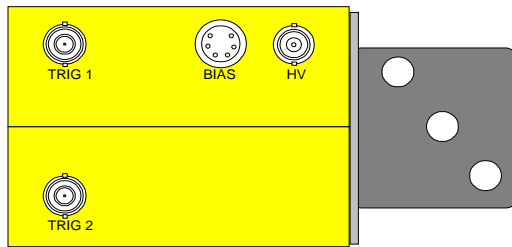
-HSM TOP VIEW



-HSM END VIEW

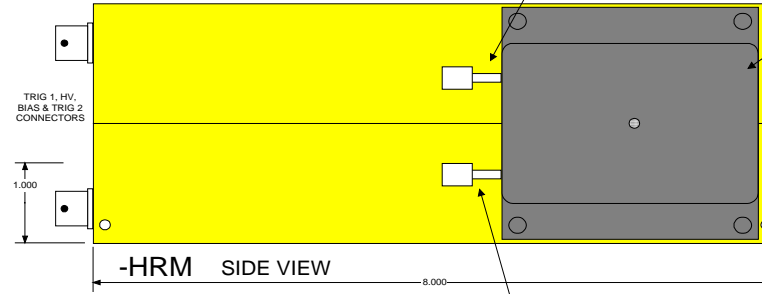


-HSM FRONT VIEW



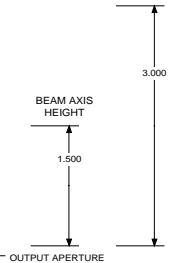
STARFIRE-9DR HV PULSER

-HSM SIDE VIEW



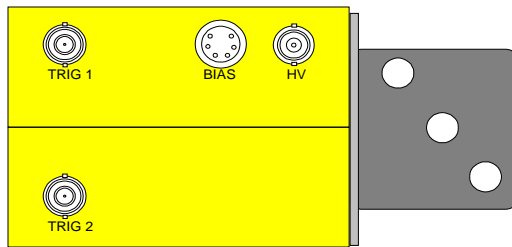
-HRM SIDE VIEW

STARFIRE-9DR HV PULSER  
STARFIRE-5-2 HV PULSER

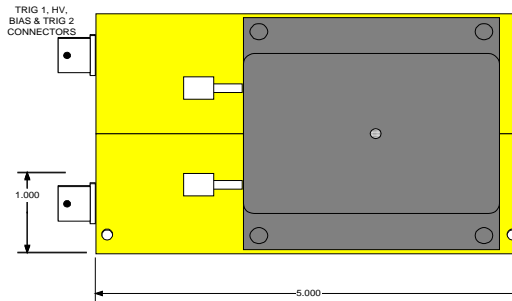


POCKELS CELL ENCLOSURE  
CAN BE RE-MOUNTED 90  
DEG

-HSM



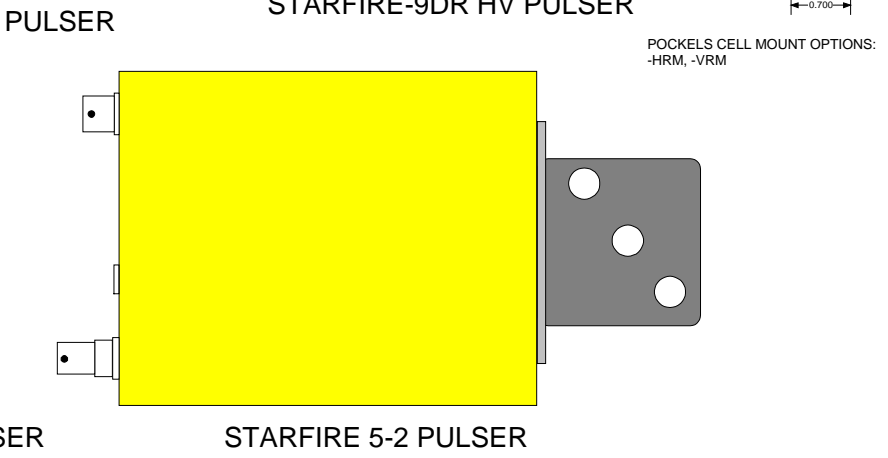
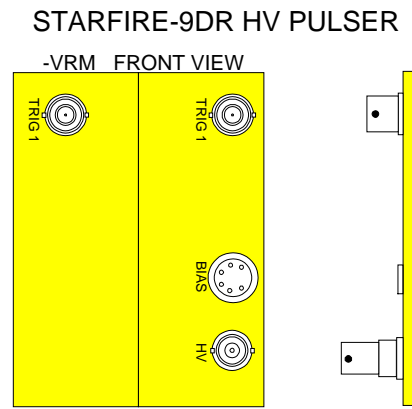
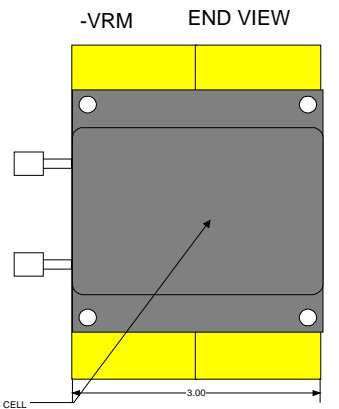
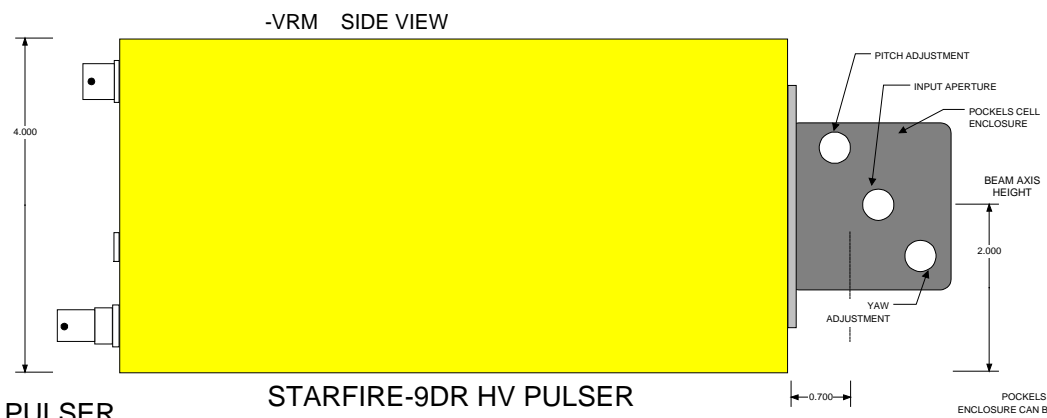
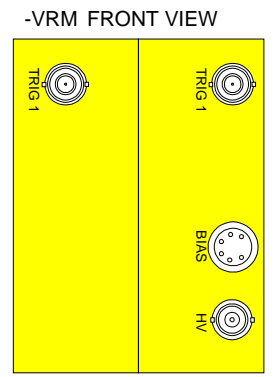
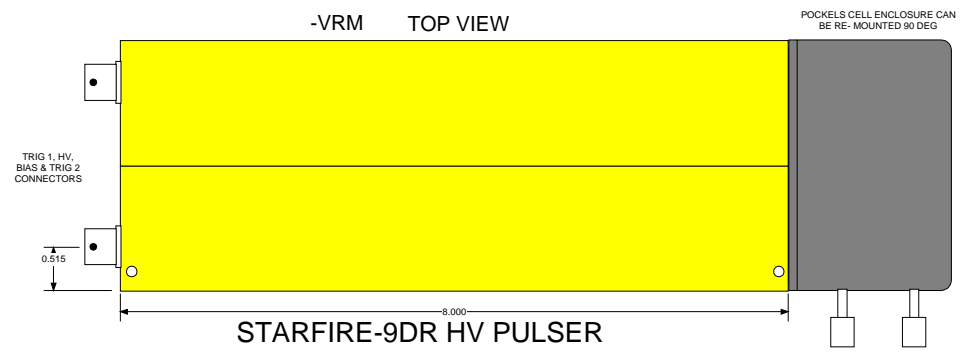
STARFIRE 5-2 PULSER



STARFIRE-5-2 HV PULSER  
STARFIRE-9DR HV PULSER

MAT: 6061-T6 AL FINISH: 16, GOLD IRRIDITE DEBUR .02 TYP. TOL .XXX +/- .005 .XX +/- .01		QUANTUM TECHNOLOGY INC. 108 COMMERCE ST, LAKE MARY, FL 32746	
STARFIRE-5-2 HV PULSER, -9DR 9KV DIFFERENTIAL			
SIZE A	FSCM NO 58158	DWG NO STARFIRE-5-2 HV PULSER	REV
SCALE 1:1	DRN BY Date:	CHK BY Date:	SHEET 4 OF 5

REV.	DESCRIPTION	DATE	BY



MAT: 6061-T6 AL FINISH: 16, GOLD IRRIDITE DEBUR: 02 TYP TOL: .XX +/- .005 .XX +/- .01		QUANTUM TECHNOLOGY INC. 108 COMMERCE ST, LAKE MARY, FL 32746	
SIZE A	FIGM NO 58158	DWG NO STARFIRE-9DR HV PULSER	REV 1
SCALE 1 : 1	DRN by Date:	CHR by Date:	SHEET 5 OF 5