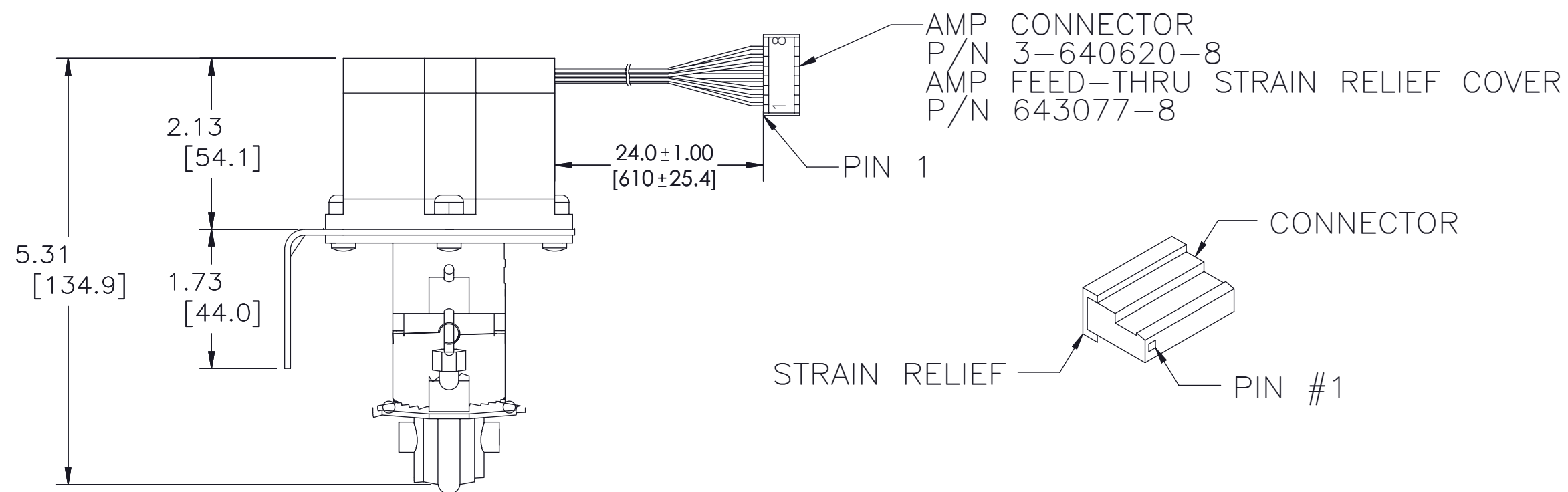
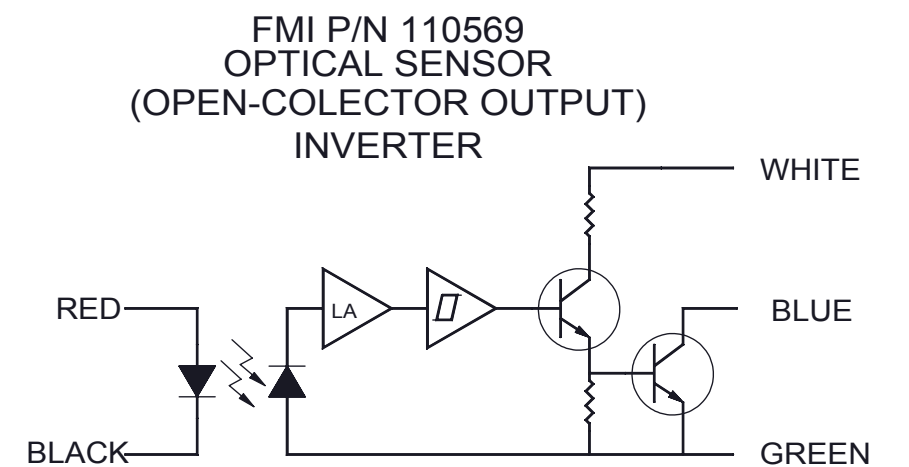
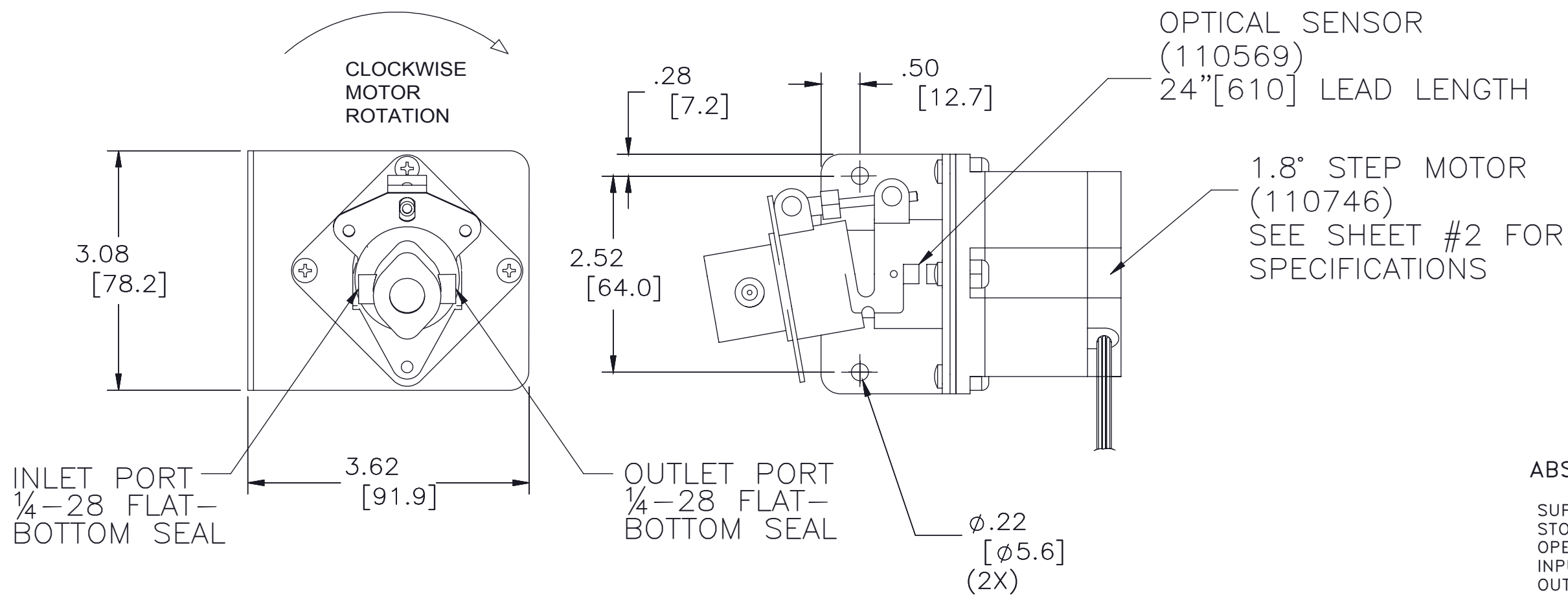
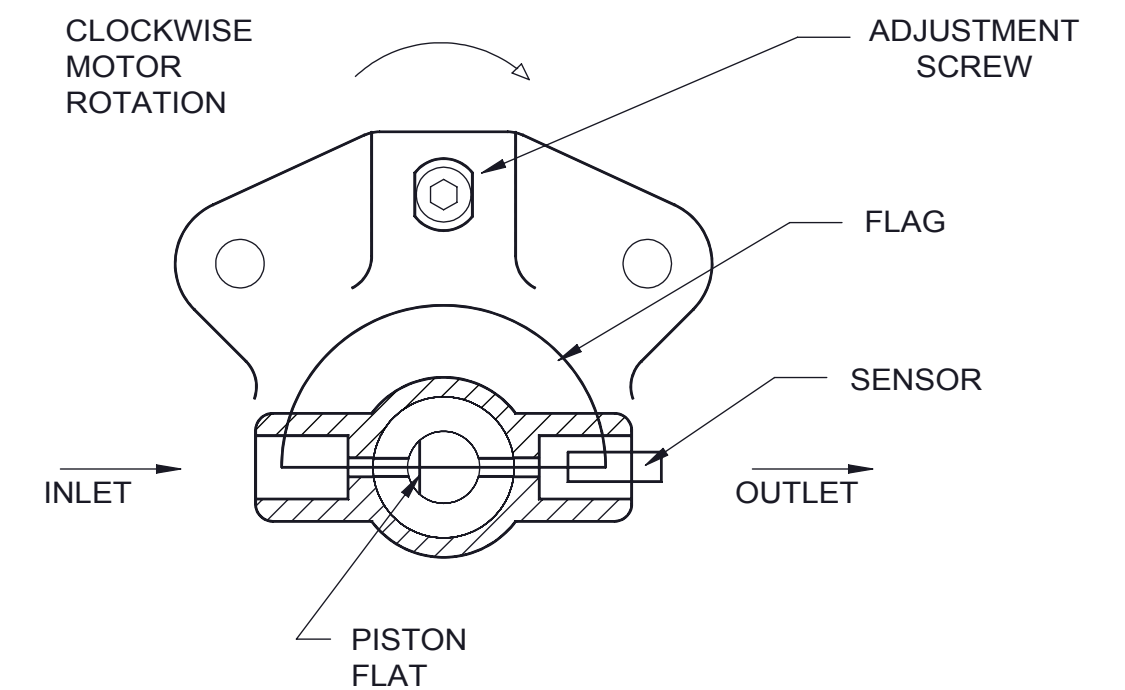


# FMI STANDARD STH PUMP SPECIFICATIONS

## PUMP HEAD SHOWN FOR REFERENCE ONLY



STH PISTON FLAT - SENSOR / FLAG  
RELATIONSHIP TO INLET AND OUTLET PORTS



ABSOLUTE MAXIMUM RATINGS ( $\bar{A}$  =25°C UNLESS OTHERWISE NOTED)

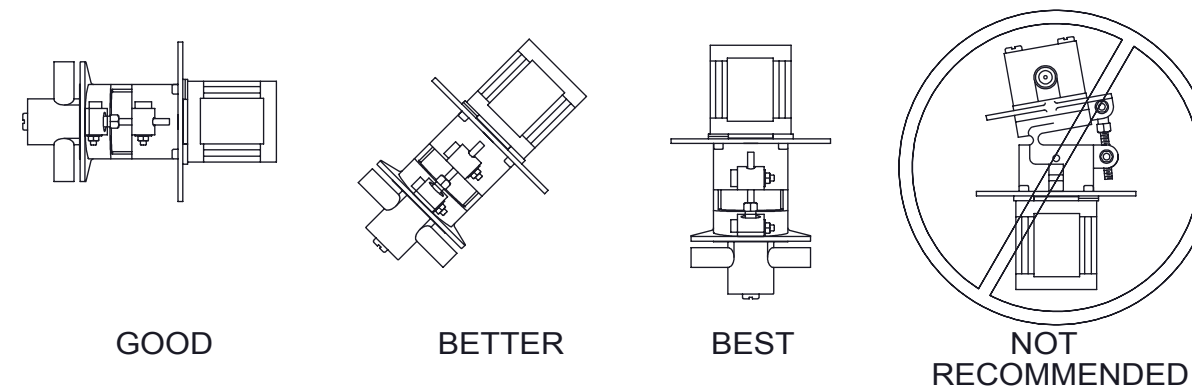
SUPPLY VOLTAGE, $V_c$ (NOT TO EXCEED 3SEC.)	.....10V
STORAGE TEMPERATURE RANGE	.....-40°C TO +80°C
OPERATING TEMPERATURE RANGE	.....-40°C TO +70°C
INPUT DIODE POWER DISSIPATION	.....100mw (1)
OUTPUT POWER DISSIPATION	.....200mw (2)
TOTAL DEVICE POWER DISSIPATION	.....300mw (3)
VOLTAGE AT OUTPUT LEAD (OPEN COLLECTOR OUTPUT)	.....35V
DIODE FORWARD D.C. CURRENT	.....40mA
DIODE REVERSE D.C. VOLTAGE	.....2V

OPTO SENSOR 110569

FUNCTION	WIRE COLOR
EMITTER CATHODE	BLACK
EMITTER ANODE	RED
DETECTOR GROUND POWER SUPPLY GROUND	GREEN
DETECTOR SIGNAL	BLUE
POWER +5VDC	WHITE

## IMPORTANT

RECOMMENDED FMI PUMP MOUNTING FOR MAXIMUM PERFORMANCE



For maximum pump performance, mount the pump with motor at 12 o'clock and pump head at 6 o'clock position. This orientation will allow air bubbles that enter the pumping chamber to directly exit thru buoyant assist. Discharge lines should be inclined upward from pump head.

NOTE:  
DIMENSIONS ARE IN INCHES [MILLIMETERS]  
TOLERANCES UNLESS OTHERWISE SPECIFIED:  
.XX = ±.02 [.51]  
.XXX = ±.010 [.254]

## FMI STANDARD STH PUMP



**Fluid Metering Inc.**  
5 Aerial Way, Suite 500  
Syosset, NY 11791

TITLE  
STH 23-FRAME OEM LOW  
FLOW DISPENSER PUMP  
(STANDARD)

DWG NO 600019	REV E	SHT NO 1 of 2
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# FMI P/N 110746, 23 - FRAME STEP MOTOR

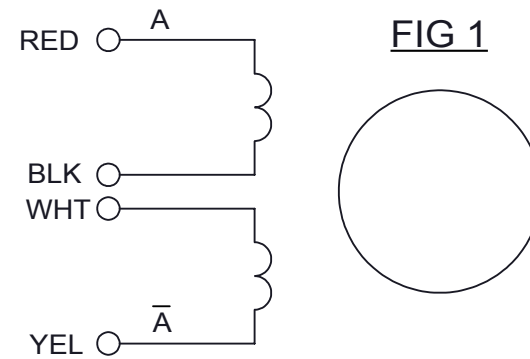
ITEMS	SPECIFICATIONS	NOTES
RATED VOLTAGE	2.6V	1
RATED CURRENT	2.3A/PHASE	1
SHAFT ROTATION	BI-DIRECTIONAL	3
STEP ANGLE	1.8 DEG	
STEP ACCURACY (POSITIONAL)	±5.0 MAX	
MAX. STATIC TORQUE	gcm min @	4
	7.5 kgcm min @ 2.3 A / phase	4
PULLOUT TORQUE	gcm MIN @ PPS	5
	gcm MIN @ PPS	5
WINDING RESISTANCE	1.13 OHMS ±10%	
WINDING INDUCTANCE	2.32mH ±20%	7
INSULATION RESISTANCE	100 MOHM MIN	8
DIELECTRIC STRENGTH	500 VAC	9
TEMPERATURE RISE	80 DEG C MAX	6
CLASS OF INSULATION	B	
RADIAL PLAY	0,02mm MAX, (450g LOAD)	
END PLAY (TENSION)	0,025mm MAX (3.6 Kg LOAD)	
END PLAY (COMPRESSION)	0,05mm MAX (3.6 Kg LOAD)	
ROTOR INERTIA	280 g-cm <sup>2</sup> NOMINAL	
WEIGHT	680 g REF.	

UNIPOLAR/BIPOLAR HALF COIL		BI-POLAR SERIES		* BI-POLAR PARALLEL	
CURRENT	2.30A	CURRENT	1.63A	CURRENT	3.25A
RESISTANCE	1.13 Ω	RESISTANCE	2.26 Ω	RESISTANCE	0.57 Ω
VOLTAGE	2.6V	VOLTAGE	3.68V	VOLTAGE	1.84V
POWER	5.98W	POWER	5.98W	POWER	5.98W
INDUCTANCE	2.32mH	INDUCTANCE	9.28mH	INDUCTANCE	2.32mH
INDUCTANCE/RESISTANCE CONSTANT	2.05mSEC	INDUCTANCE/RESISTANCE CONSTANT	4.11mSEC	INDUCTANCE/RESISTANCE CONSTANT	4.11mSEC
HOLDING TORQUE	7500.00 g-cm	HOLDING TORQUE	10,606.60 g-cm	HOLDING TORQUE	10,606.60 g-cm

\*FOR BEST RESULTS  
USE BI-POLAR PARALLEL

**NOTES:**

1. AT 0 PPS.
2. LEAD WIRES : AWG#22 UL-3266 INSULATION.
3. ROTATION OF SHAFT TO BE CLOCK WISE FACING MOUNTING END WHEN CONNECTED AS FIG. 1 AND SEQUENCED AS FIG. 2.
4. AT RATED CURRENT BOTH PHASES ON.
5. SPECIFICATIONS APPLY TO DRIVER ( ) V<sub>CC</sub> = V WHEN EXCITED PER FIG. 2.
6. DETERMINED BY MEANS OF RESISTANCE METHOD WITH "A" PHASE AND "B" PHASE ENERGIZED SIMULTANEOUSLY AT RATED VOLTAGE.
7. MEASURED AT 1 KHz 1 Vrms.
8. WITH 500V DC APPLIED BETWEEN WINDING AND CASE.
9. THERE SHALL BE NO BREAKDOWN WHEN 500V AC 50/60 Hz IS APPLIED FOR 1 MINUTE BETWEEN WINDING AND CASE.
10. ALL SPECIFICATIONS APPLY BEFORE TEMPERATURE RISE AT ROOM TEMPERATURE ONLY.
11. AMBIENT TEMPERATURE RANGE -20°C ~ +50°C.



PIN NO.	COLOR
1	YEL
2	BLK
3	BLU
4	ORG
5	WHT
6	RED
7	BRN
8	GRN

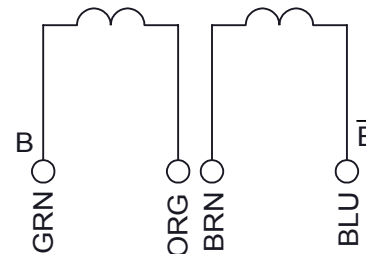



FIG 2

CONNECTION	PIN	LEAD COLOR	DRIVER CONNECTION
4 LEAD BI-POLAR SERIES	6	RED	A
	1	YELLOW	A̅
	8	GREEN	B
	3	BLUE	B̅
	2 & 5	BLACK & WHITE	COMMON
	4 & 7	ORANGE & BROWN	COMMON
4 LEAD BI-POLAR PARALLEL	6 & 5	RED & WHITE	A
	1 & 2	YELLOW & BLACK	A̅
	7 & 8	BROWN & GREEN	B
	3 & 4	BLUE & ORANGE	B̅
6 LEAD UNIPOLAR	6	RED	A
	1	YELLOW	B
	8	GREEN	C
	3	BLUE	D
	2 & 5	BLACK & WHITE	+V
	4 & 7	ORANGE & BROWN	-V

L/W COLOR \ STEP	RED	GRN	YEL	BLUE	BLK WHT ORG BRN
1	-	-	0	0	+
2	0	-	-	0	
3	0	0	-	-	
4	-	0	0	-	

## FMI STANDARD STH PUMP

	<b>Fluid Metering Inc.</b> 5 Aerial Way, Suite 500 Syosset, NY 11791	
TITLE <b>STH 23-FRAME OEM LOW FLOW DISPENSER PUMP (STANDARD)</b>		
DWG NO 600019	REV E	SHT NO 2 Of 2