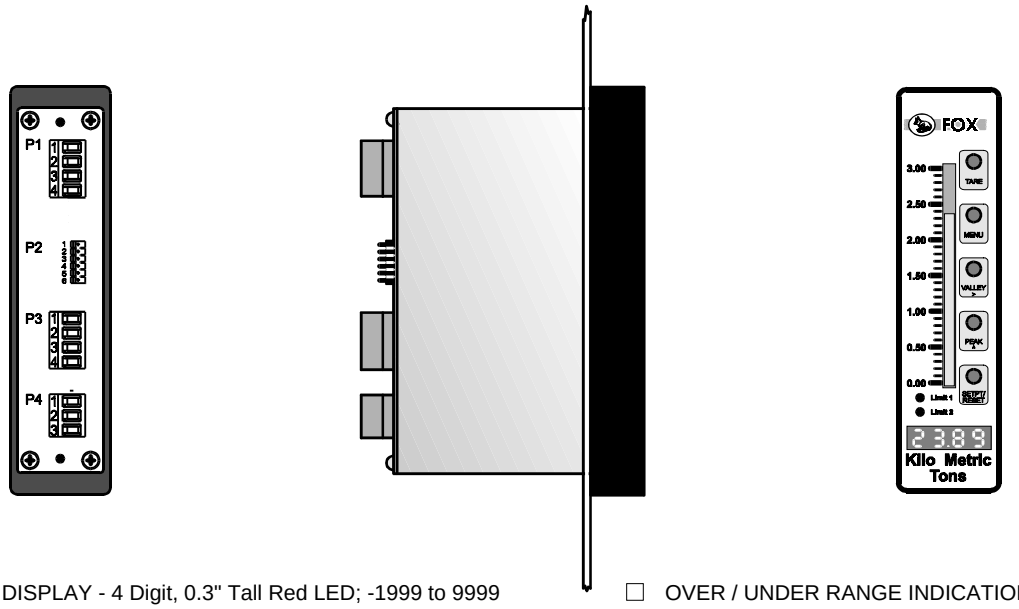
FV1XX - 1XX

INSTALLATION - SETUP - OPERATION - INSTRUCTIONS

FV1XX-1XX DESCRIPTION / SPECIFICATIONS

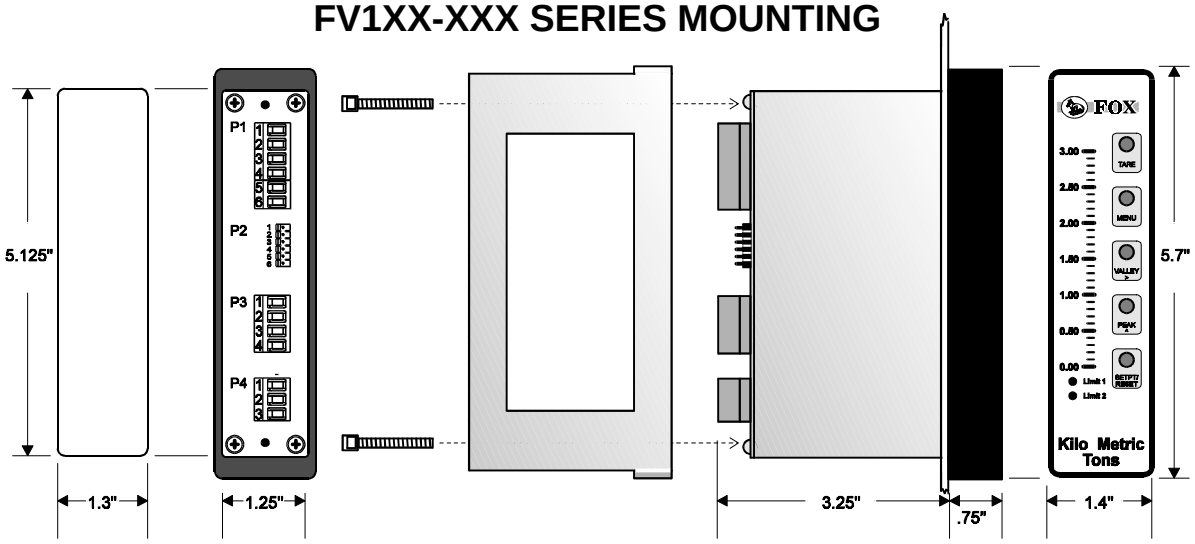


- ☐ DISPLAY - 4 Digit, 0.3" Tall Red LED; -1999 to 9999 display range, 31 element bar, .2" wide, 3.1" long
- ☐ BEZEL - Black epoxy enameled, welded, 16 ga. steel, WINDOW - Non - glare cast acrylic ruby red filter
- ☐ CASE - 16 ga. stainless steel
- ☐ MOUNTING BRACKET - 18 ga. stainless steel
- ☐ WINDOW LABEL - Laser printed at time of order, non-glare vinyl laminate protection, adhesive backed
- ☐ OVERALL ACCURACY - Better than .05% F.S. over operating temperature range. Accuracy at fixed temperature better than .02% F.S.
- ☐ OPERATING TEMPERATURE RANGE - -25 Degrees C to +80 Degrees C
- ☐ STORAGE TEMPERATURE RANGE - -55 Degrees C to +80 Degrees C
- ☐ A/D CONVERTER RESOLUTION - 16 Bits (65536 counts)
- ☐ A/D CONVERSION RATE - 4000 Conversions / second
- ☐ DISPLAY UPDATE RATE - From 16 to 1 updates per second user selectable
- ☐ RESPONSE TIME - 0.5 seconds for full scale step
- ☐ OVER / UNDER RANGE INDICATION - Meter displays '-or-' or '-ur-' when input exceeds min/max displayable range or min/max input range
- ☐ CALIBRATION / DISPLAY SCALING - Two menu steps allow entry of any 2 known display points; a known input is necessary for scaling
- ☐ REMOTE CONTROL INPUTS - A 6-pin header is provided for remote access to the 5 front panel pushbutton functions
- ☐ DECIMAL POINT - Selectable for 0, 0.0, 0.00, 0.000, display precision
- ☐ OPTIONAL SETPOINT RELAYS - 2 On-board 1 Amp @ 200 V AC/DC isolated MOSFET solid state relays with a 4 position socketed terminal block for connection are available; the trip point for each relay is programmable through the front panel; each relay is independently programmble as NO (form A) or NC (form B)
- ☐ OPTIONAL ISOLATED EXCITATION - An internal isolated 24 VDC @ 30 mA unregulated power supply is available for powering loop powered sensors or transducers.
- ☐ OPTIONAL NEMA 4X BEZEL - The pushbuttons can be omitted from the front bezel and a gasket provided for NEMA 4X applications; controls are available through the remote control header

SIGNAL INPUT - Separate terminal block positions are provided for the following signal input ranges:

Model FV1XX-110 input 0 to +/-10 VDC
Model FV1XX-111 input 0 to +/-5 VDC or 1 - 5 VDC
Model FV1XX-112 input 4 to 20 mADC
Model FV1XX-113 input 0 to +/-15 VDC

FV1XX-XXX SERIES MOUNTING



PANEL CUTOUT **REAR VIEW** **PANEL MOUNTING HARDWARE** **SIDE VIEW WITH PANEL** **FRONT VIEW**

FV1XX-XXX SERIES POWER SUPPLY SPECIFICATIONS

FV1X1 - XXX 120 VAC UNITS

- ☐ INPUT VOLTAGE RANGE - 85 to 140 VAC
- ☐ INPUT FREQUENCY RANGE - 47 to 63 Hz
- ☐ POWER DISSIPATION - Less then 3 VA typical

P4 WIRING

- ☐ P4 - 1 : Neutral Line
- ☐ P4 - 2 : 120 VAC Hot Line
- ☐ P4 - 3 : Chassis ground - Read cautions

FV1X3 - XXX 240 VAC UNITS

- ☐ INPUT VOLTAGE RANGE - 190 to 260 VAC
- ☐ INPUT FREQUENCY RANGE - 47 to 63 Hz
- ☐ POWER DISSIPATION - Less then 3 VA typical

P4 WIRING

- ☐ P4 - 1 : 240 VAC Hot Line
- ☐ P4 - 2 : 240 VAC Hot Line
- ☐ P4 - 3 : Chassis ground - Read cautions

FV1X5 - XXX 5 TO 12 VDC UNITS

- ☐ INPUT VOLTAGE RANGE - 5 TO 12 VDC
- ☐ PERMISSABLE RIPPLE - 200 mV Max
- ☐ INPUT CURRENT - Less then 200 mA typical

P4 WIRING

- ☐ P4 - 1 : GROUND
- ☐ P4 - 2 : + DC
- ☐ P4 - 3 : Chassis ground - Read cautions

FV1X6 - XXX 5 TO 12 VDC ISOLATED UNITS

- ☐ INPUT VOLTAGE RANGE - 5 TO 12 VDC
- ☐ PERMISSABLE RIPPLE - 200 mV Max
- ☐ INPUT CURRENT - Less then 200 mA typical
- ☐ POWER SUPPLY ISOLATION - 750 Volts isolation between power supply and signal input

P4 WIRING

- ☐ P4 - 1 : GROUND
- ☐ P4 - 2 : + DC
- ☐ P4 - 3 : Chassis ground - Read cautions

FV1X7 - XXX 10 TO 30 VDC UNITS

- ☐ INPUT VOLTAGE RANGE - 10 TO 30 VDC
- ☐ PERMISSABLE RIPPLE - 500 mV Max
- ☐ INPUT CURRENT - Less then 150 mA typical

P4 WIRING

- ☐ P4 - 1 : GROUND
- ☐ P4 - 2 : + DC
- ☐ P4 - 3 : Chassis ground - Read cautions

FV1X8 - XXX 10 TO 30 VDC ISOLATED UNITS

- ☐ INPUT VOLTAGE RANGE - 10 TO 30 VDC
- ☐ PERMISSABLE RIPPLE - 500 mV Max
- ☐ INPUT CURRENT - Less then 150 mA typical
- ☐ POWER SUPPLY ISOLATION - 750 Volts isolation between power supply and signal input

P4 WIRING

- ☐ P4 - 1 : GROUND
- ☐ P4 - 2 : + DC
- ☐ P4 - 3 : Chassis ground - Read cautions

FV1XX - 100 SERIES WIRING GUIDE

CONNECTOR / PIN DESCRIPTIONS

P1 - SIGNAL INPUT

- ☐ P1 - 1: SIGNAL INPUT
- ☐ P1 - 2: SIGNAL RETURN
- ☐ P1 - 3:+EXCITATION *
- ☐ P1 - 4: -EXCITATION *

P2 - REMOTE CONTROL INPUTS

- ☐ P2 - 1: GROUND RETURN
- ☐ P2 - 2: TARE
- ☐ P2 - 3: SETPT / RESET
- ☐ P2 - 4: PEAK / ^ (SET)
- ☐ P2 - 5: VALLEY / > (STEP)
- ☐ P2 - 6: MENU

ABOVE INPUTS ARE ALL ACTIVE LOW - SHORT INPUT TO GROUND RETURN OR PULL TO LOGIC LOW TO ACTIVATE FUCTION; SEE FRONT PANEL CONTROL SECTION FOR A DESCRIPTION OF EACH FUNCTION

ON UNITS MANUFACTURED AFTER 6/10/01: INSTALLATION OF A SHORTING JUMPER BETWEEN PINS P2-5 AND P2-6 DISABLES THE FIVE FRONT PANEL PUSH BUTTONS.

P3 - SETPOINT RELAY OUTPUT

**** SETPOINT RELAYS ARE RATED AT 200 V AC/DC @ 1 AMP MAXIMUM ****

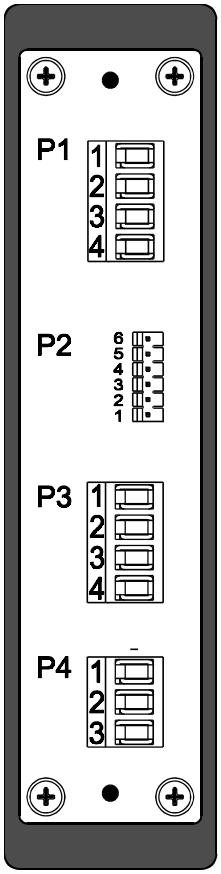
- ☐ P3 - 1: SETPOINT 1 RELAY *
- ☐ P3 - 2: SETPOINT 1 RELAY *
- ☐ P3 - 3: SETPOINT 2 RELAY *
- ☐ P3 - 4: SETPOINT 2 RELAY *

P4 - POWER INPUT

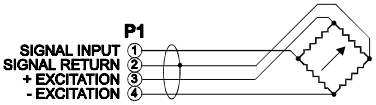
SEE POWER SUPPLY SPECIFICATIONS FOR CONNECTION INFORMATION

* OPTIONAL CONNECTIONS - THESE TERMINAL BLOCK POSITIONS WILL ONLY BE PRESENT IF THE METER IS EQUIPPED WITH THE CORRESPONDING OPTION

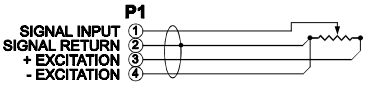
REAR VIEW OF FV1XX-100



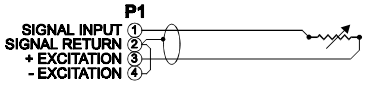
VOLTAGE EXCITATION WIRING EXAMPLES



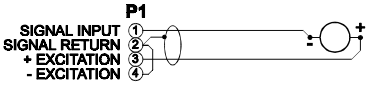
4 WIRE TRANSDUCERS
ie. LOAD CELL
VOLTAGE INPUT METERS



3 WIRE TRANSDUCERS
ie. LINEAR POT
VOLTAGE INPUT METERS



TRANSCONDUCTANCE SENSORS
ie. PH PROBE
CURRENT INPUT METERS



2 WIRE LOOP POWERED PROBES
ie. 4 - 20 mA TEMPERATURE TRANSMITTER
CURRENT INPUT METERS

FV1XX - XXX SERIES FRONT PANEL (REMOTE) CONTROLS

TARE
- ☐ PRESS MOMENTARILY TO ZERO METER DISPLAY
- ☐ DISPLAY OFFSET (TARE) VALUE IS STORED UNTIL POWER IS REMOVED, MENU IS ENTERED OR TARE IS RESET
- ☐ TO RESET THE TARE VALUE - WHILE HOLDING 'TARE', PRESS 'SETPT / RESET' MOMENTARILY

MENU
- ☐ PRESS TO ENTER THE MENU / SCALING MODE
- ☐ PRESS AGAIN TO EXIT THE MENU / SCALING MODE

VALLEY / > (STEP)
- ☐ PRESS AND HOLD TO VIEW VALLEY VALUE
- ☐ TO RESET THE VALLEY VALUE - WHILE HOLDING 'VALLEY', PRESS 'SETPT / RESET' MOMENTARILY
- ☐ WHEN IN THE SETPOINT OR MENU MODE, THIS BUTTON ADVANCES TO THE NEXT PARAMETER OR TO THE NEXT DIGIT

PEAK / ^ (SET)
- ☐ PRESS AND HOLD TO VIEW PEAK VALUE
- ☐ TO RESET THE PEAK VALUE - WHILE HOLDING 'PEAK', PRESS 'SETPT / RESET' MOMENTARILY
- ☐ WHEN IN THE SETPOINT OR MENU MODE, THIS BUTTON CHANGES THE SETTING FOR A PARAMETER OR INCREMENTS THE FLASHING DIGIT

SETPT / RESET
- ☐ PRESS MOMENTARILY TO VIEW / SET SETPOINT 1 - SEE INSTRUCTIONS BELOW TO SET A SETPOINT OR SCALING VALUE
- ☐ PRESS AGAIN MOMENTARILY TO VIEW / SET SETPOINT 2 - SEE INSTRUCTIONS BELOW TO SET A SETPOINT OR SCALING VALUE
- ☐ PRESS AGAIN MOMENTARILY TO RETURN TO THE OPERATE MODE
- ☐ PRESS WHILE HOLDING 'PEAK', 'VALLEY' OR 'TARE' TO RESET THOSE VALUES

TO SET A SETPOINT OR SCALING VALUE:

- ☐ PRESS AND RELEASE THE 'PEAK / ^' BUTTON UNTIL THE FLASHING DIGIT REACHES THE DESIRED VALUE
- ☐ PRESS THE 'VALLEY / >' BUTTON TO ADVANCE TO THE NEXT DIGIT
- ☐ REPEAT UNTIL ALL DIGITS ARE SET
- ☐ NOTE: THIS METER IS EQUIPPED WITH LEADING ZERO SUPPRESSION - BLANK DIGITS ARE ASSUMED TO BE 0'S (THEY WILL NOT FLASH)
- ☐ NOTE: TO ALLOW THE ENTRY OF NEGATIVE VALUES, THE MSD (LEFT MOST DIGIT) WILL INCREMENT 0 THRU 9, -1, -(0)

FV1XX - XXX SERIES SET-UP MENU

PARAMETER	SETTING	DESCRIPTION
DECIMAL POINT	d	NO DECIMAL POINT
	d .	O.O
	d .	O.OO
	d .	O.OOO
AVERAGING	Av.16	4096 CONVERSIONS AVERAGED; 1 UPDATE / SECOND
	Av. 8	2048 CONVERSIONS AVERAGED; 2 UPDATES / SECOND
	Av. 4	1024 CONVERSIONS AVERAGED; 4 UPDATES / SECOND
	Av. 2	512 CONVERSIONS AVERAGED; 8 UPDATES / SECOND
	Av. 1	256 CONVERSIONS AVERAGED; 16 UPDATES / SECOND
SETPOINT 1 ACTIVE LEVEL	S1.no	SETPOINT 1 OUTPUT WILL BE NORMALLY OPEN
	S1.nc	SETPOINT 1 OUTPUT WILL BE NORMALLY CLOSED
SETPOINT 1 BAR INDICATION	S1nF	DO NOT FLASH BAR
	S1Fb	FLASH BAR WHEN LIMIT 1 CLOSES
SETPOINT 2 ACTIVE LEVEL	S2.no	SETPOINT 2 OUTPUT WILL BE NORMALLY OPEN
	S2.nc	SETPOINT 2 OUTPUT WILL BE NORMALLY CLOSED
SETPOINT 2 BAR INDICATION	S2nF	DO NOT FLASH BAR
	S2Fb	FLASH BAR WHEN LIMIT 2 CLOSES
BAR DIRECTION	br.bu	BOTTOM UP
	br.td	TOP DOWN
	br.C0	CENTER ZERO OR CENTER REFERENCE
BAR FORMAT	bF. F	FULL BAR DISPLAY
	bF. d	MOVING DOT DISPLAY
BAR STARTING POINT SCALING	[ ] [ ] [ ] [ ]	ENTER THE DISPLAY VALUE FOR THE STARTING BAR LED
BAR FULL SCALE POINT	[ ] [ ] [ ] [ ]	ENTER THE DISPLAY VALUE FOR THE FULL SCALE BAR LED
CAL POINT 1	CAL1	ANNOUNCES CAL 1 STEP *
	1234	ADJUST DISPLAY TO DESIRED VALUE FOR CAL 1 INPUT *
CAL POINT 2	CAL2	ANNOUNCES CAL 2 STEP *
	1234	ADJUST DISPLAY TO DESIRED VALUE FOR CAL 2 INPUT *

* CALIBRATION INSTRUCTIONS:

- ☐ THE FV1XX - 100 SERIES REQUIRES 2 KNOWN INPUT SIGNALS FOR CALIBRATION / SCALING. THESE INPUTS CAN BE OF ANY POLARITY WITH RESPECT TO EACH OTHER AND SHOULD BE AS FAR APART AS POSSIBLE IN MAGNITUDE.
- ☐ APPLY THE FIRST KNOWN INPUT SIGNAL TO THE METER INPUT.
- ☐ SIMULTTANEOUSLY PRESS THE 'SETPT / RESET' AND 'TARE' PUSH BUTTONS TO ADVANCE TO THE CAL 1 VALUE SETTING STEP.
- ☐ ADJUST THE CAL 1 VALUE ON THE DISPLAY UNTIL IT IS AT THE DESIRED VALUE FOR THE KNOWN INPUT - SEE THE INSTRUCTIONS ABOVE TO SET A SETPOINT OR SCALING VALUE.
- ☐ SIMULTANEOUSLY PRESS BOTH THE 'SETPT / RESET' AND 'TARE' BUTTONS TO ENTER THIS SCALING / CALIBRATION POINT.
- ☐ PRESS THE 'VALLEY / >' BUTTON TO ADVANCE TO THE CAL 2 VALUE SETTING STEP.
- ☐ APPLY THE SECOND KNOWN INPUT SIGNAL TO THE METER INPUT.
- ☐ ADJUST THE CAL 2 VALUE ON THE DISPLAY UNTIL IT IS AT THE DESIRED VALUE FOR THE KNOWN INPUT - SEE THE INSTRUCTIONS ABOVE TO SET A SETPOINT OR SCALING VALUE.
- ☐ SIMULTANEOUSLY PRESS BOTH THE 'SETPT / RESET' AND 'TARE' BUTTONS TO ENTER THIS SCALING / CALIBRATION POINT - CALIBRATION / SCALING IS NOW COMPLETE.

WARRANTY

☐ FOX METER INC., warrants its products to be free from defective material or workmanship for a period of two years from date of purchase.

☐ FOX METER INC., under this warranty is limited to repairing the defective device when returned to the factory, shipping charges prepaid, within two full years from date of purchase.

☐ This warranty is transferrable to second and third parties and will remain in force for the two year term from date of original purchase from FOX METER INC.

☐ Units returned to FOX METER INC., that have been subject to abuse, misuse, damage or accident, or have been connected, installed or adjusted contrary to the instructions furnished by FOX METER INC., or that have been repaired by unauthorized persons will not be covered by this warranty.

☐ The purchaser agrees to assume all liabilities for any damages and/or bodily injury which may result from the use or misuse of the device by the purchaser, his employees, or agents.

☐ This warranty is in lieu of all other representations or warranties, expressed or implied and no agent or representative of FOX METER INC., is authorized to assume any other obligation in connection with the sale and purchase of FOX METER INC., products.

☐ The terms of this warranty will only be honored if the products or equipment for which warranty service has been requested have been paid for in full by the original purchaser within the agreed upon terms and conditions of sale.

* NOTE *

☐ While FOX METER INC., provides application assistance on its products, personally and through our literature, it is the responsibility of the customer to determine the compatibility of the product in the application.

FACTORY SERVICE AND REPAIR

☐ FOX METER INC., will service and repair this instrument free of charge for the period of two years, subject to the warranty conditions above.

☐ When returning any defective product to FOX METER INC. ,please include any information that may pertain to the problem and please include the name of the individual for us to contact, along with your company name, address and phone number.

RETURN REPAIRS TO

FOX METER INC.
5403 Patton Dr. Unit 218
Lisle, IL 60532
ATTN: Service Department