



# FOX

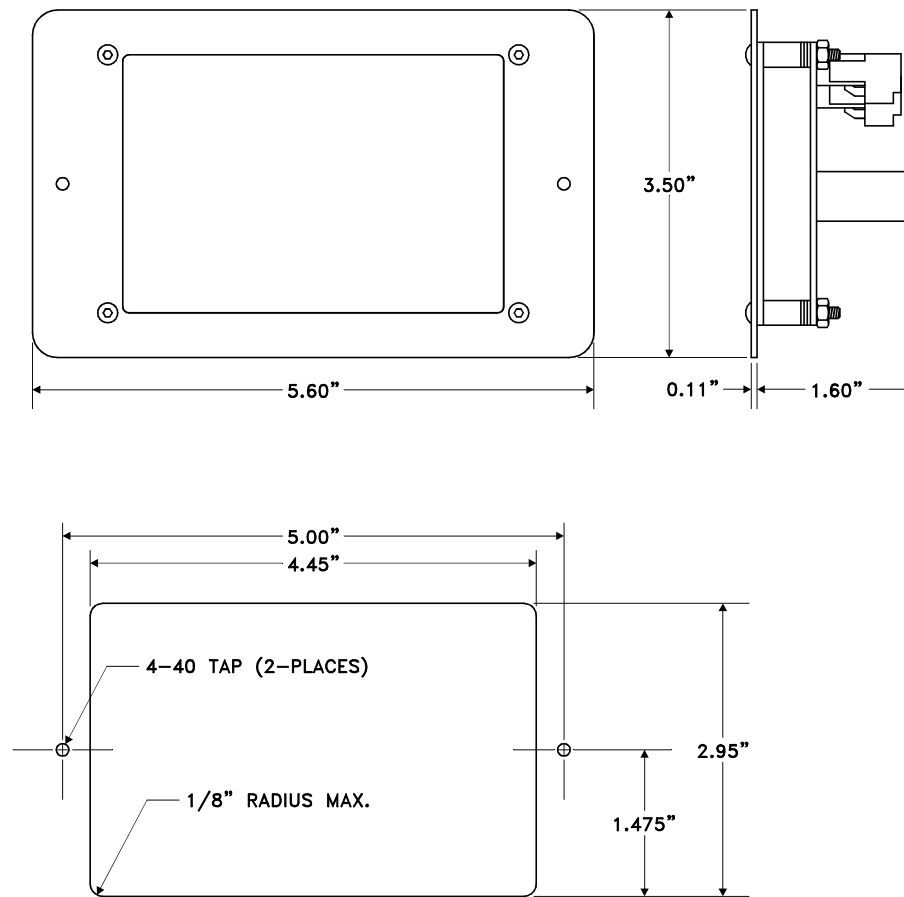
## INSTALLATION GUIDE FOR F000-988

### 2.3" 2-DIGIT MODBUS SERIAL REMOTE DISPLAY

## SPECIFICATIONS

- DISPLAY - 2 digit, 2.3" tall red LED
- BEZEL - Steel with black textured powder coat finish
- WINDOW - Ruby red, non-glare cast acrylic
- DISPLAY POWER - 15 to 30VDC @ 80 mA.
- OPERATING TEMPERATURE RANGE - -25 degrees C to +85 degrees C
- STORAGE TEMPERATURE RANGE - -55 degrees C to +85 degrees C
- I/O - RS-485 four wire, MODBUS RTU protocol
- BAUD RATE - Menu selectable; 19.2K, 9600, 4800, 2400, 1200, or 300 baud
- PARITY - Menu selectable; odd, even, or none
- ID NUMBER - Menu selectable for display identification from 00 to 99
- DECIMAL POINT - Menu selectable; 0 or 0.0
- CONNECTIONS - All connections are via socketed screw terminals
- PROGRAMMING CONTROLS - Two pushbuttons are provided for access to the setup menu
- VIEWING DISTANCE - 150 feet

## PHYSICAL/MECHANICAL/MOUNTING SPECIFICATIONS



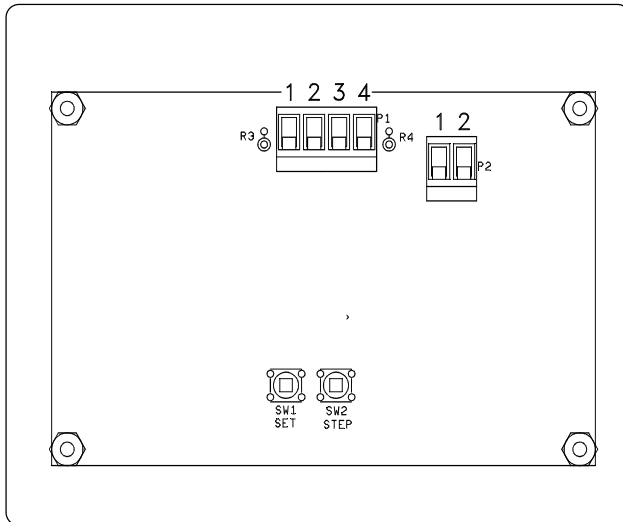
PANEL CUTOUT



# FOX

## POWER SUPPLY

- INPUT VOLTAGE RANGE - 15 TO 30VDC
- PERMISSIBLE RIPPLE - 500mV MAX.
- INPUT CURRENT - Less than 80mA typical
- P2-1 : +VDC
- P2-2 : GROUND



### PROGRAMMING INSTRUCTIONS

- TO ENTER THE SETUP MENU, PRESS THE STEP PUSHBUTTON
- TO CHANGE THE VALUE OF THE DISPLAYED PARAMETER, PRESS THE SET PUSHBUTTON
- TO ADVANCE TO THE NEXT PARAMETER, PRESS THE STEP PUSHBUTTON
- IN THE CASE WHERE A PARAMETER INVOLVES SETTING MULTIPLE DIGITS (IE. ID NUMBER), BEGIN BY PRESSING THE SET PUSHBUTTON. THIS WILL CAUSE THE LEAST SIGNIFICANT DIGIT TO FLASH. CONTINUE TO PRESS AND RELEASE THE SET PUSHBUTTON UNTIL THE DIGIT IS AT THE DESIRED VALUE. PRESS THE STEP PUSHBUTTON TO ADVANCE TO THE NEXT DIGIT. NOTE: WHEN ENTERING VALUES, ANY BLANK DIGIT MUST BE SET TO 0.
- DISPLAY RETURNS TO NORMAL OPERATION WHEN STEP IS PRESSED TO ADVANCE FROM LAST MENU STEP

## SETUP MENU

PARAMETER	DISPLAY	CHOICES	DESCRIPTION
ANNOUNCE ID NUMBER	I.d.	NONE	ANNOUNCES NEXT STEP, ID NUMBER
ENTER ID NUMBER		00 TO 99	ENTER 2-DIGIT DECIMAL VALUE ( 00 - 99 ) MODBUS I.D. NUMBER
ANNOUNCE BAUD RATE	b.r.	NONE	ANNOUNCES NEXT STEP, BAUD RATE
SELECT BAUD RATE		19.2	19,200 BAUD
		96	9600 BAUD
		48	4800 BAUD
		24	2400 BAUD
		12	1200 BAUD
		3	300 BAUD
ANNOUNCE PARITY	Pr.	NONE	ANNOUNCES NEXT STEP, PARITY
SELECT PARITY		n	NO PARITY
		O	ODD PARITY
		E	EVEN PARITY
ANNOUNCE CRC ENABLE	cr	NONE	ANNOUNCES NEXT STEP, CRC ENABLE
ENABLE CRC CHECKING		Y	ENABLE MODBUS RTU CRC CHECKING ON INCOMING MESSAGE PACKETS
		n	DISABLE CRC CHECKING
ANNOUNCE DECIMAL POINT	d.P.	NONE	ANNOUNCES NEXT STEP - DECIMAL POINT SELECTION
SELECT DECIMAL POINT		0	NO DECIMAL POINT
		0.0	ONE DECIMAL PLACE
ANNOUNCE LZS	L.Z.	NONE	ANNOUNCE NEXT STEP, LEADING ZERO SUPPRESSION
ENABLE LZS		Y	NUMBERS LESS THAN 10 ARE DISPLAYED AS A SINGLE DIGIT, IF NO DECIMAL POINT SELECTED
		n	NUMBERS LESS THAN 10 ARE DISPLAYED WITH A LEADING ZERO
ANNOUNCE TIMEOUT	t.o.	NONE	ANNOUNCES NEXT STEP, DISPLAY REFRESH TMEOUT
ENTER TIMEOUT		00 TO 99	ENTER 2-DIGIT DECIMAL ( 00 - 99 ) VALUE REPRESENTING THE MAXIMUM NUMBER OF SECONDS ALLOWED BETWEEN MESSAGES FROM HOST. IF SELECTED TIME IS EXCEDED, DISPLAY WILL REVERT TO "--". ENTER 00 TO DISABLE THIS FEATURE.



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## SERIAL CONNECTOR WIRING

RS-485 4 WIRE (FULL DUPLEX)

- P1-1 : +RECEIVE DATA
- P1-2 : -RECEIVE DATA
- P1-3 : -TRANSMIT DATA
- P1-4 : +TRANSMIT DATA

NOTE: 2 WIRE (HALF DUPLEX) OPERATION CAN BE ACHIEVED BY CONNECTING JUMPERS FROM P1-1 TO P1-4 AND FROM P1-2 TO P1-3.

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## MISC.

THIS METER IS DESIGNED TO RESPOND TO MODBUS RTU MESSAGES DELIVERED VIA A BIDIRECTIONAL RS-485 SERIAL BUS. THE DISPLAY RESPONDS ONLY TO FUNCTION 06 (PRESET SINGLE REGISTER) MESSAGES. THE MESSAGE MUST CONTAIN THE CORRECT ID ADDRESS, HOWEVER THE REGISTER ADDRESS IS IGNORED. CRC CHECKING IS IMPLEMENTED, BUT CAN BE DISABLED IF NEEDED. THE DISPLAY WILL ECHO BACK VALID MESSAGES.

UPON RECEIPT OF A VALID MESSAGE, THE LOWER 8-BITS OF THE 16-BIT DATA FIELD WILL BE CONVERTED TO DECIMAL AND DISPLAYED. IF THE CONVERTED DATA IS GREATER THAN 99, THE DISPLAY WILL INDICATE "EE". THE UPPER 8-BITS OF THE DATA FIELD ARE IGNORED.



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## 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. 60532-4625  
ATTN: Service Department**