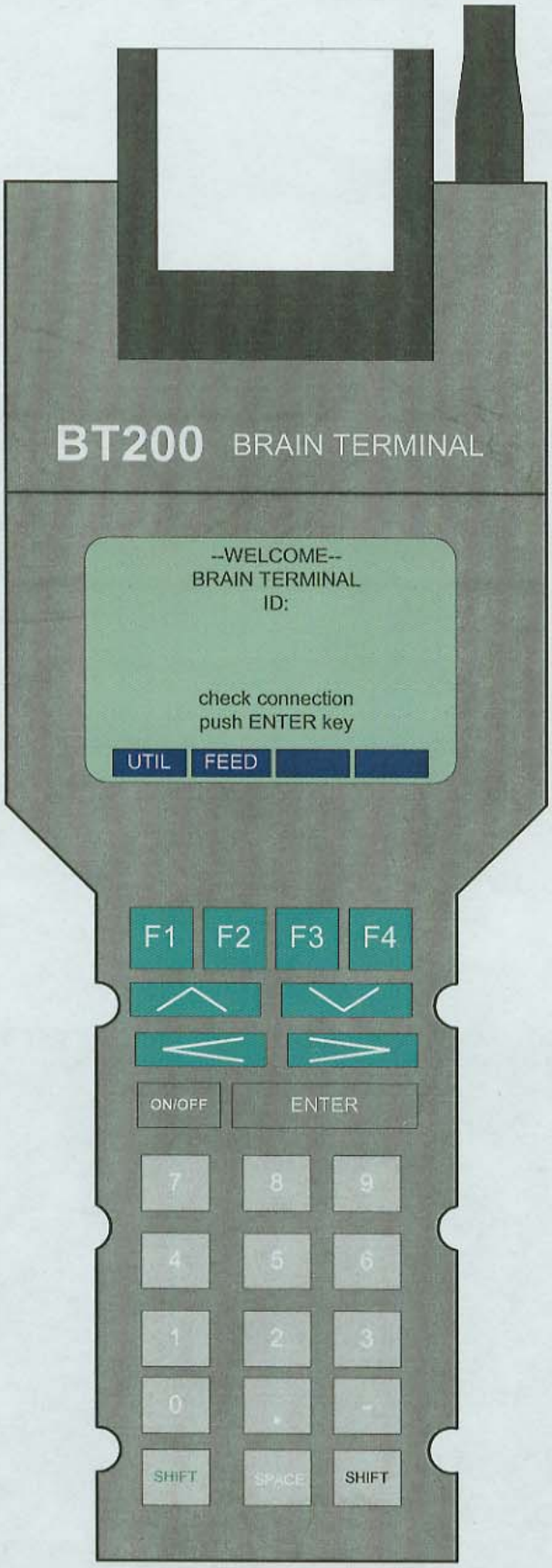
YOKOGOWA BT 200 BRAIN TERMINAL



Configuring Yokogowa DPTs Using the BT200 Brain Terminal

1. **OVERVIEW OF FLOW METERS**
   A. ORIFICE PLATE
   B. V-CONE
   C. FLOW EQUATION

2. **SR. ABSORBER SYSTEM**
   A. FLOWMETERS
   B. LOVE CONTROLLER CHASSIS

3. **CONNECTING BRAIN TO DPT**
   A. LONG WIRE
   B. SHORT WIRE – RESISTOR

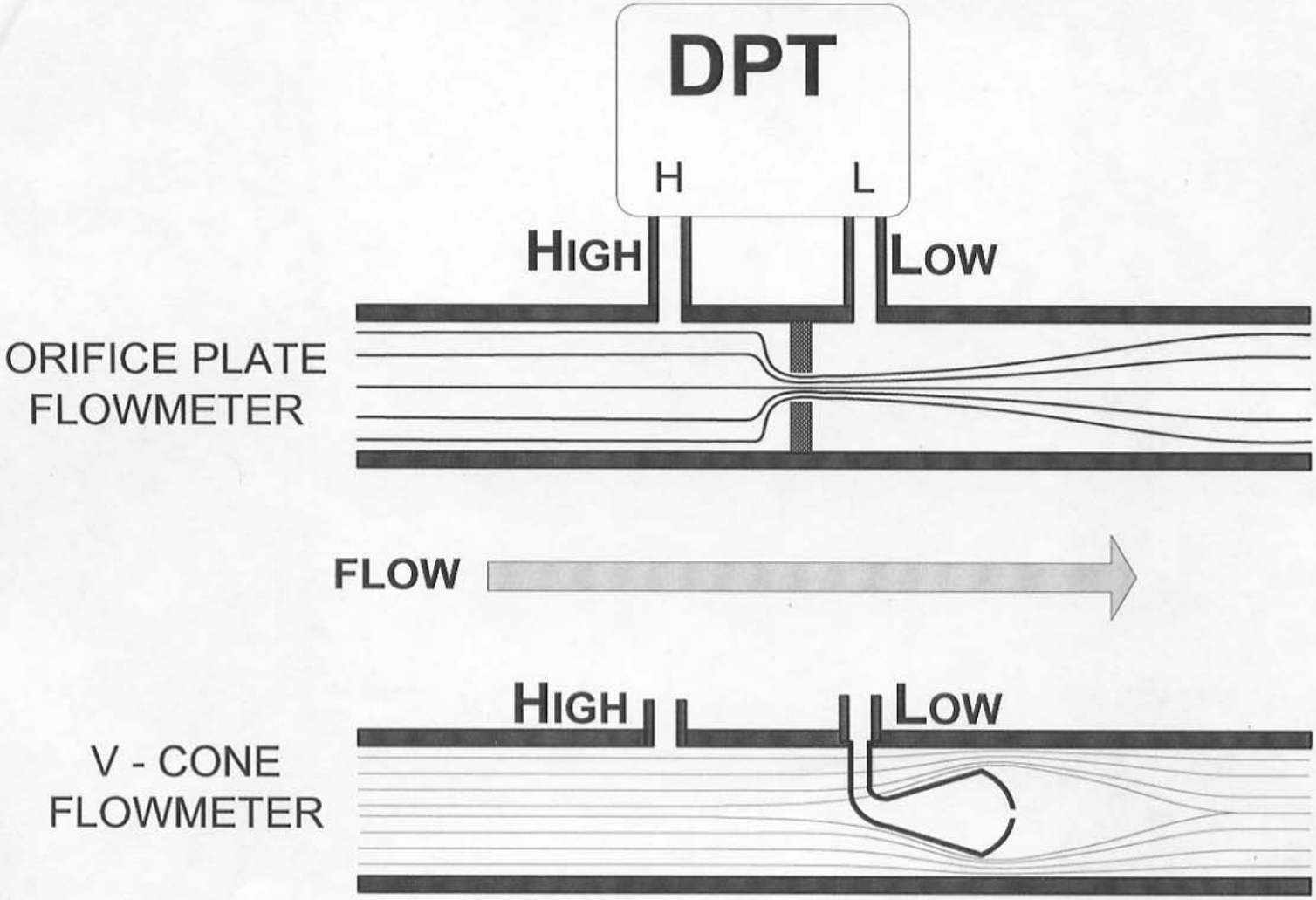
4. **OPERATING THE BRAIN**
   A. POWER ON AND CHECKING CONNECTIONS.
   B. MENUS
      1. DISPLAY – MONITORING DATA
      2. SET
         a. **SETTING**
            1. PRESS UNIT – USUALLY (inH2O)
            2. LOW RANGE 4 ma. - USUALLY ZERO
            3. HIGH RANGE 20 ma. 4 - 400 inwc.
            4. AMP DAMPENING – 2.0 SEC
            5. OUTPUT – OUT:SQR OUT:SQR sets both 4 – 20 ma output AND display output to square root for linear reading.
            6. SELF CHECK

         b. **AUX SET 1**
            1. LOW CUT 10%
            2. LOW CUT MODE - LINEAR
            3. DISP SELECT – USER SET
            4. DISP UNIT - GPM
            5. DISPLAY LRV – ZERO
            6. DISPLAY HRV WHAT 20 ma EQUALS IN GPM.
            7. TEMP UNIT - deg F
            8 STAT. P. UNIT - psi
            9 REV. OUTPUT - NORMAL
            10 H/L SWAP - NORMAL
            11 BURN OUT - HIGH?
            12 ERROR OUT - HIGH?

         c. **ADJ**
            1. TEST – Used to force a known output.

      C. **ERROR CODES** - 03 & 07

C. Putnam 01/30/04



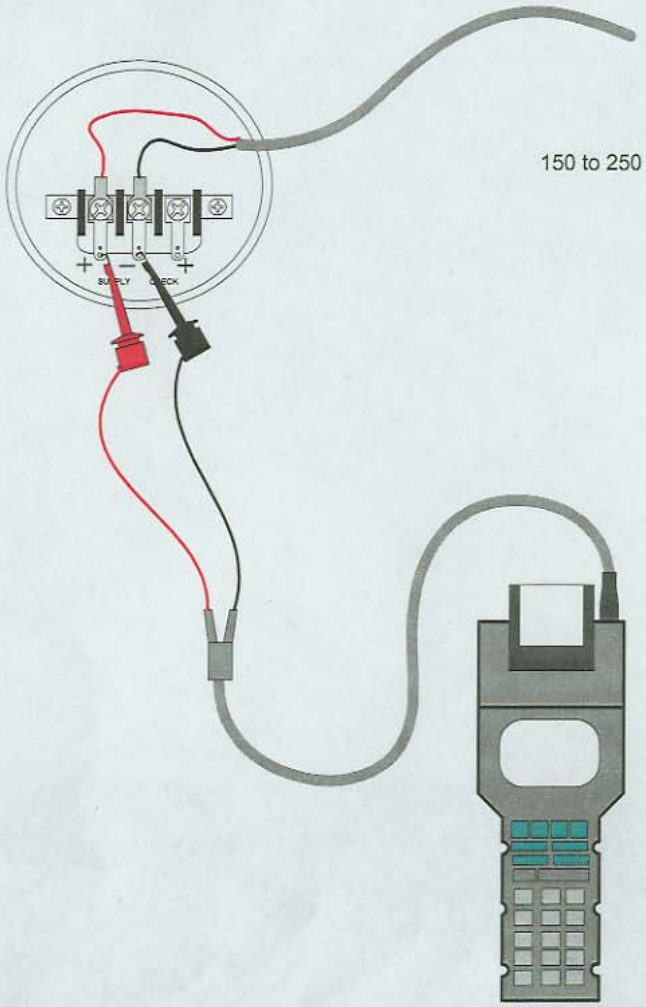
(inches of water column) **DP = HIGH - LOW**

FLOW = SQR(DP) * CONSTANT

WHICH MEANS IF I DOUBLE THE FLOW I GET 4 TIMES THE DIFF PRESSURE

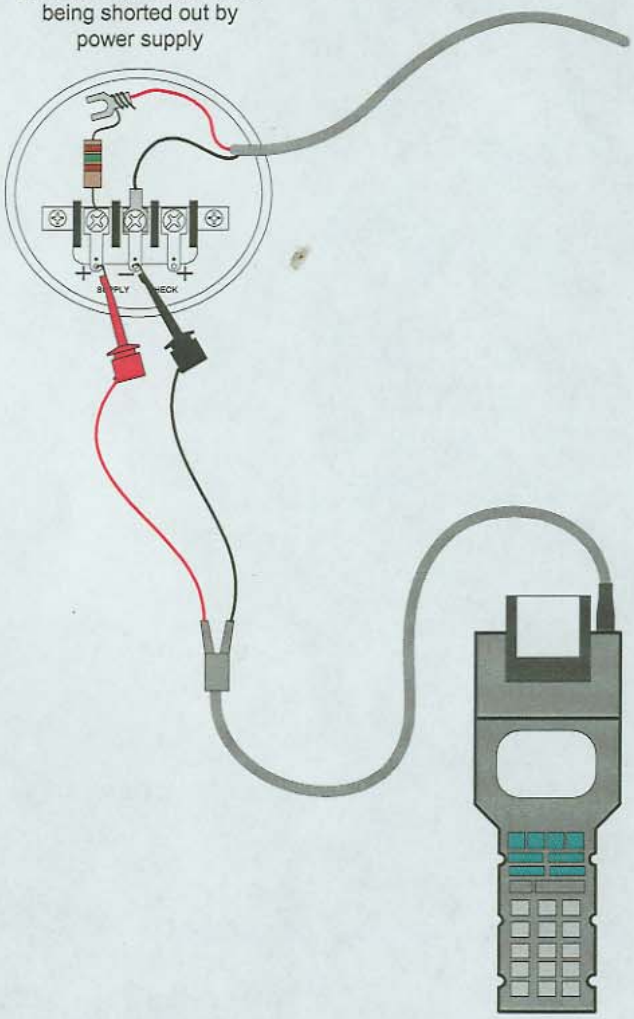
BRAIN CONNECTIONS FOR YOKOGAWA

If signal cable long enough then resistor is not needed.

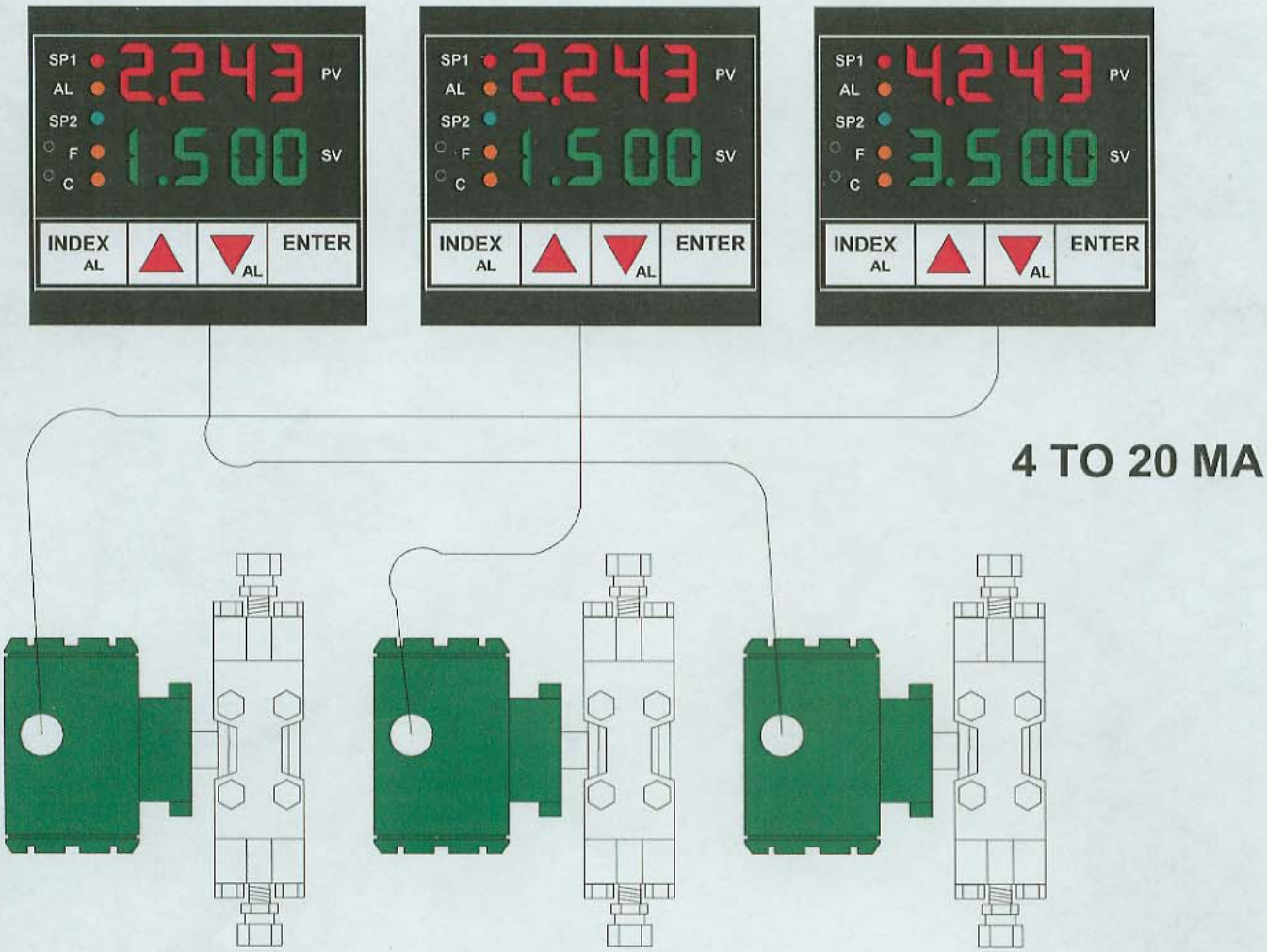


Alternate connections with resistor. Used where cable too short to provide enough inductance to prevent Brain signal from being shorted out by power supply

150 to 250 ohm resistor



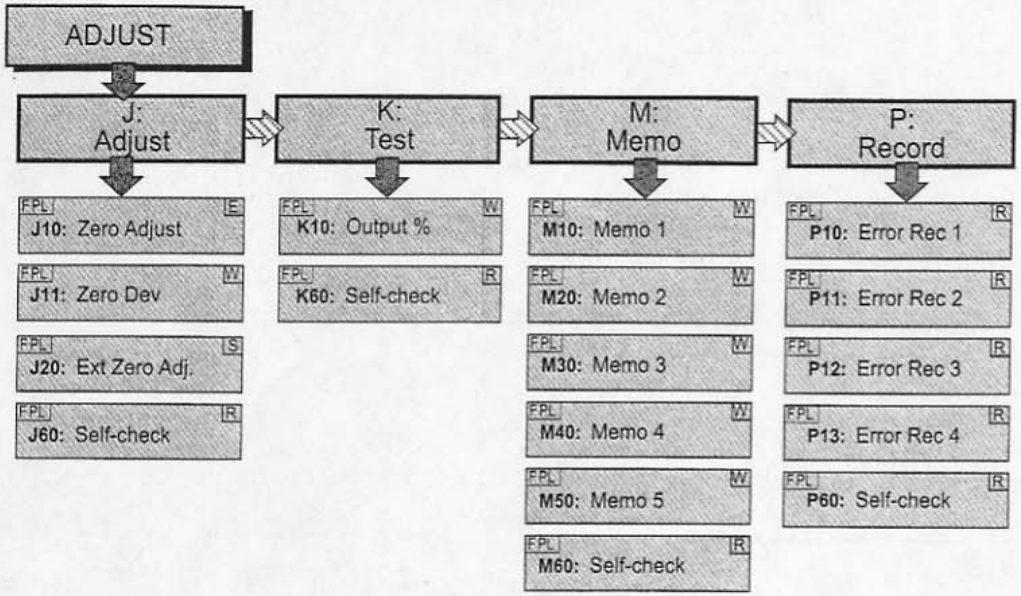
1/29/04 CCP
REV 0



YOKOGOWA FLOW METERS ARE BRAINED AS FOLLOWS:

1. **RANGE 0 TO 400 IN. OF W. C.**
   0 IN. W.C. = 4 MA.
   400 IN. W.C. = 20 MA.

2. **SQUARE ROOT OUTPUT-TAKES THE SQUARE ROOT OF THE DP.**
   MAKES THE 4 - 20 MA OUTPUT LINEAR WITH FLOW



ERROR CODES

Integral Display	Brain Terminal Display	Action or Cause
Er.01	CAP MODULE FAULT	Replace Capsule
Er.02	AMP MODULE FAULT	Replace Amplifier
Er.03	OUT OF RANGE	Check Input Range
Er.04	OUT OF SP RANGE	Static Pressure > Specified Range
Er.05	OVER TEMP (CAP)	Process Temp Too High or Low
Er.06	OVER TEMP (AMP)	Ambient Temp Too High or Low
Er.07	OVER OUTPUT	Change Input or Range Setting
Er.08	OVER DISPLAY	Change Input or Display Conditions
Er.09	ILLEGAL LRV	Change Low Range Value
Er.10	ILLEGAL HRV	Change High Range Value
Er.11	ILLEGAL SPAN	Change Span Value
Er.12	ZERO ADJ OVER	Readjust Zero Point

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DPharp EJA Series

BRAIN™ Communicating Pressure Transmitters

Basic Programming Pocket Reference Guide

YOKOGAWA
Yokogawa Industrial Automation

PG5
3rd Edition, September 1997

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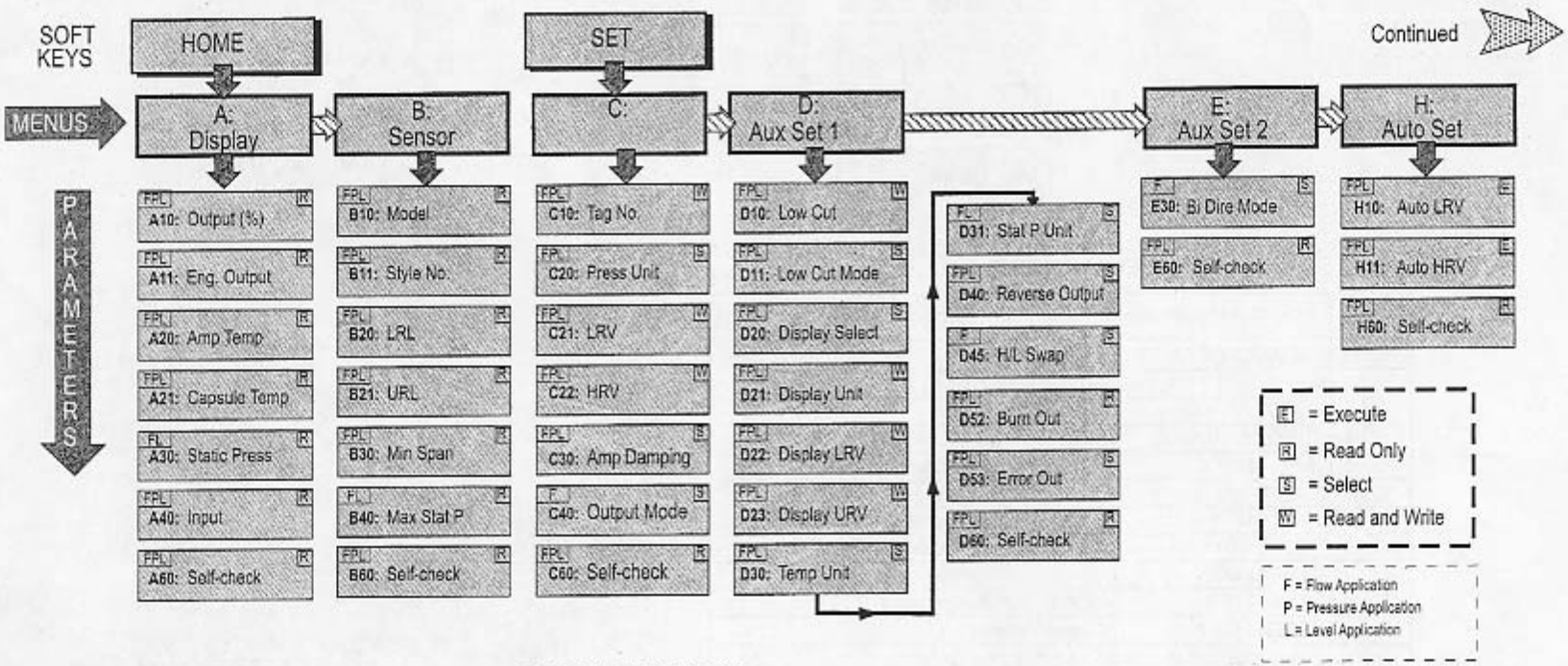
Function Block Diagram

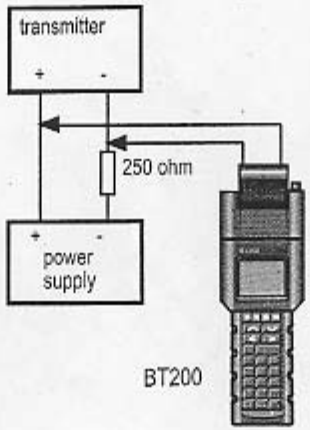


TO CALIBRATE:

1. Set C21 LRV and C22 HRV.
2. Zero transmitter in J10 at pressure or with external zero.
3. Check 0%, 50% and 100%.

OR

1. H10: Auto LRV, apply 0% pressure, press ENTER.
2. H11: Auto HRV, apply 100% pressure, press ENTER.
3. Check 0%, 50% and 100%.

BT200 BASIC OPERATION

1. POWER on, check connection, press ENTER.
2. Select HOME to view PV and transmitter limits.
3. Select SET to change engineering units, ranges and output functions.
4. Select ADJUST to adjust the display, linearity mA output.
5. When changing values press ENTER twice.
6. For Execute E Commands apply pressure and press ENTER.