

# Appedix D. MT91 Delta R Parameters

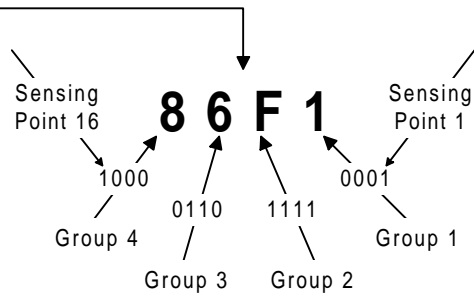
For each instrument there are “MT91 Delta R Parameters” sheets and a 4-20mA look up table inserted in the rear page protector. Appendix D explains the codes found on the Delta R Parameters sheets. A sample of both the Delta R Parameter sheet and the 4-20mA look up table follow the explanations.

Above each column is a menu level code. When verifying parameters, access the menu level and then scroll down through the menu until the value in question appears on the screen. For example, to view the parameter “dRmin 1”, press HOME, 5, 2, 3, and 1. (Verify $\Rightarrow$  Verify Cal $\Rightarrow$  Flow $\Rightarrow$  Limits). Scroll down by pressing ENTR until “dRmin 1” appears on the screen.

The instrument uses internal units of Standard Feet per Second and degrees Fahrenheit. Therefore, all values on this sheet are in Standard Feet per Second. Refer to "Verify Standard vs. Actual Conditions" in Chapter 5 to convert actual readings to standard readings.

In menu levels 5.1.1 and 5.1.3 active sensing points are designated by hexadecimal notation. Use the following diagram and table to decipher which sensing points are active. For example, the number 0003 in hexadecimal notation means sensing points 1 and 2 are active.

This hexadecimal notation is found on the Delta R Parameter Sheet and on the Display. This code indicates that sensing points 1,5,6,7,8,10,11, and 16 are active.



0=Off  
1=On

- Group 1** represents sensing points 1,2,3, and 4.
- Group 2** represents sensing points 5,6,7,and 8.
- Group 3** represents sensing points 9,10,11, and 12.
- Group 4** represents sensing points 13,14,15, and 16.

C00298-1

Group Code	Hex #	Group Code	Hex #
'0000	0	1000	8
'0001	1	1001	9
'0010	2	1010	A
'0011	3	1011	B
'0100	4	1100	C
'0101	5	1101	D
'0110	6	1110	E
'0111	7	1111	F

## Explanation of Parameters and Code

### 5.1.1 Verify Setup Flow

Flow Units	Customer Specified Unit
Flow Heads	Hexadecimal Notation
Area Unit	Customer Specified Unit
Area	Area of Customer Pipe or Duct
TC Ena	Temperature Compensation Enabled
Corr Ena	Correction Enabled
Offset Ena	Offset Enabled
Filter	Filter Strength (See Chapter 3)
Density	Standard Density of Customer Media in LBM per cubic feet.
Flow Fac	Flow Factor

### 5.1.2 Verify Setup Temperature

Temp Type	Units used during calibration.
Temp Heads	Hexadecimal Notation

### 5.1.3 Verify Setup Outputs

[1] = Channel 1      [2] = Channel 2

PortUnit[1]	0 = Flow 1 = Temperature
PortUnit[2]	0 = Flow 1 = Temperature
Out Head[1]	Hexadecimal Notation
Out Head[2]	Hexadecimal Notation
Zero[1]	Zero output setting at either zero (0) or minimum flow. (e.g. 4mA represents either 0 or minimum flow)
Zero[2]	
Span[1]	High point of output signal.(e.g. 20mA represents high point)
Span[2]	

### 5.1.4 Verify Setup Communication

Comm Mode 0	= EIA-232C	1 = EIA-422	2 = EIA-485
Comm Rate	0 = 4800	1 = 9600	2 = 19.2K
Comm Prot	0 = Protocol 1	1 = Protocol 2	2 = Protocol 3
485 Addr			

**5.2.1 Verify Cal Inputs**

URRG1	Unipolar Reference R Gain	Channel 1
URRG2		Channel 2
URRO1	Unipolar Reference R Offset	Channel 1
URRO2		Channel 2
UDRG1	Unipolar Delta R Gain	Channel 1
UDRG2		Channel 2
UDRO1	Unipolar Delta R Offset	Channel 1
UDRO2		Channel 2
BRRG1	Bipolar Reference R Gain	Channel 1
BRRG2		Channel 2
BRRO1	Bipolar Reference R Offset	Channel 1
BRRO2		Channel 2
BDRG1	Bipolar Delta R Gain	Channel 1
BDRG2		Channel 2
BDRO1	Bipolar Delta R Offset	Channel 1
BDRO2		Channel 2
RxAdj1	Reference Adjust (sensing points 1 through 8)	Output Board 1
RxAdj2	Reference Adjust (sensing points 9 through 16)	Output Board 2
HtAdj1	Heater Adjust	Sensing Point 1
HtAdj2		Sensing Point 2
HtAdj3		Sensing Point 3
HtAdj4		Sensing Point 4
HtAdj5		Sensing Point 5
HtAdj6		Sensing Point 6
HtAdj7		Sensing Point 7
HtAdj8		Sensing Point 8
HtAdj9		Sensing Point 9
HtAdj10		Sensing Point 10
HtAdj11		Sensing Point 11
HtAdj12		Sensing Point 12
HtAdj13		Sensing Point 13
HtAdj14		Sensing Point 14
HtAdj15		Sensing Point 15
HtAdj16		Sensing Point 16

**5.2.2 Verify Cal Outputs**

Zero[1]	A to D Values
Zero[2]	A to D Values
Span[1]	A to D Values
Span[2]	A to D Values
Slope[1]	A to D Values
Slope[2]	A to D Values
Off[1]	A to D Values
Off[2]	A to D Values
CorrF[1]	Correction Factor 1
CorrF[2]	Correction Factor 2
CorrF[3]	Correction Factor 3
CorrF[4]	Correction Factor 4

**5.2.3.1 Verify Cal Flow Limits**

FlowMin	Customer specified and factory calibrated value for minimum flow.
FlowMax	Customer specified and factory calibrated value for maximum flow.
TempMin	Customer specified and factory calibrated value for minimum temperature.
TempMax	Customer specified and factory calibrated value
RRmin	Reference R minimum Calibration Value
RRmax	Reference R maximum Calibration Value
dRMin 1	Delta R minimum Calibration Value Sensing Point 1
dRMin 2	Sensing Point 2
dRMin 3	Sensing Point 3
dRMin 4	Sensing Point 4
dRMin 5	Sensing Point 5
dRMin 6	Sensing Point 6
dRMin 7	Sensing Point 7
dRMin 8	Sensing Point 8
dRMin 9	Sensing Point 9
dRMin 10	Sensing Point 10
dRMin 11	Sensing Point 11
dRMin 12	Sensing Point 12
dRMin 13	Sensing Point 13
dRMin 14	Sensing Point 14
dRMin 15	Sensing Point 15
dRMin 16	Sensing Point 16
drMax 1	Delta R maximum Calibration Value Sensing Point 1
drMax 2	Sensing Point 2
drMax 3	Sensing Point 3
drMax 4	Sensing Point 4
drMax 5	Sensing Point 5
drMax 6	Sensing Point 6
drMax 7	Sensing Point 7
drMax 8	Sensing Point 8
drMax 9	Sensing Point 9
drMax 10	Sensing Point 10
drMax 11	Sensing Point 11
drMax 12	Sensing Point 12
drMax 13	Sensing Point 13
drMax 14	Sensing Point 14
drMax 15	Sensing Point 15
drMax 16	Sensing Point 16

**5.2.3.2 Verify Cal Flow Coefficients**

H01C1	Sensing Point 1	Coefficient 1	H09C1	Sensing Point 9	Coefficient 1
H01C2		Coefficient 2	H09C2		Coefficient 2
H01C3		Coefficient 3	H09C3		Coefficient 3
H01C4		Coefficient 4	H09C4		Coefficient 4
H01C5		Coefficient 5	H09C5		Coefficient 5
H02C1	Sensing Point 2	Coefficient 1	H10C1	Sensing Point 10	Coefficient 1
H02C2		Coefficient 2	H10C2		Coefficient 2
H02C3		Coefficient 3	H10C3		Coefficient 3
H02C4		Coefficient 4	H10C4		Coefficient 4
H02C5		Coefficient 5	H10C5		Coefficient 5
H03C1	Sensing Point 3	Coefficient 1	H11C1	Sensing Point 11	Coefficient 1
H03C2		Coefficient 2	H11C2		Coefficient 2
H03C3		Coefficient 3	H11C3		Coefficient 3
H03C4		Coefficient 4	H11C4		Coefficient 4
H03C5		Coefficient 5	H11C5		Coefficient 5
H04C1	Sensing Point 4	Coefficient 1	H12C1	Sensing Point 12	Coefficient 1
H04C2		Coefficient 2	H12C2		Coefficient 2
H04C3		Coefficient 3	H12C3		Coefficient 3
H04C4		Coefficient 4	H12C4		Coefficient 4
H04C5		Coefficient 5	H12C5		Coefficient 5
H05C1	Sensing Point 5	Coefficient 1	H13C1	Sensing Point 13	Coefficient 1
H05C2		Coefficient 2	H13C2		Coefficient 2
H05C3		Coefficient 3	H13C3		Coefficient 3
H05C4		Coefficient 4	H13C4		Coefficient 4
H05C5		Coefficient 5	H13C5		Coefficient 5
H06C1	Sensing Point 6	Coefficient 1	H14C1	Sensing Point 14	Coefficient 1
H06C2		Coefficient 2	H14C2		Coefficient 2
H06C3		Coefficient 3	H14C3		Coefficient 3
H06C4		Coefficient 4	H14C4		Coefficient 4
H06C5		Coefficient 5	H14C5		Coefficient 5
H07C1	Sensing Point 7	Coefficient 1	H15C1	Sensing Point 15	Coefficient 1
H07C2		Coefficient 2	H15C2		Coefficient 2
H07C3		Coefficient 3	H15C3		Coefficient 3
H07C4		Coefficient 4	H15C4		Coefficient 4
H07C5		Coefficient 5	H15C5		Coefficient 5
H08C1	Sensing Point 8	Coefficient 1	H16C1	Sensing Point 16	Coefficient 1
H08C2		Coefficient 2	H16C2		Coefficient 2
H08C3		Coefficient 3	H16C3		Coefficient 3
H08C4		Coefficient 4	H16C4		Coefficient 4
H08C5		Coefficient 5	H16C5		Coefficient 5

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### 5.2.3.3 Verify Cal Flow Offsets

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Offset 1	Offset Value added to the Raw Signal.	Sensing Point 1
Offset 2		Sensing Point 2
Offset 3		Sensing Point 3
Offset 4		Sensing Point 4
Offset 5		Sensing Point 5
Offset 6		Sensing Point 6
Offset 7		Sensing Point 7
Offset 8		Sensing Point 8
Offset 9		Sensing Point 9
Offset 10		Sensing Point 10
Offset 11		Sensing Point 11
Offset 12		Sensing Point 12
Offset 13		Sensing Point 13
Offset 14		Sensing Point 14
Offset 15		Sensing Point 15
Offset 16		Sensing Point 16

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### 5.2.3.4 Verify Cal Flow Temp Comp

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Cal Ref	Temperature Compensation Calibration Reference Value	
TCAdj01	Temperature Compensation Coefficient	Sensing Point 1
TCAdj02		Sensing Point 2
TCAdj03		Sensing Point 3
TCAdj04		Sensing Point 4
TCAdj05		Sensing Point 5
TCAdj06		Sensing Point 6
TCAdj07		Sensing Point 7
TCAdj08		Sensing Point 8
TCAdj09		Sensing Point 9
TCAdj10		Sensing Point 10
TCAdj11		Sensing Point 11
TCAdj12		Sensing Point 12
TCAdj13		Sensing Point 13
TCAdj14		Sensing Point 14
TCAdj15		Sensing Point 15
TCAdj16		Sensing Point 16







