

## VME Intensity Monitor - Task #12905

### Changes to the scaling filter for the PXIE donut ring current device

06/09/2016 07:09 PM - John Diamond

<b>Status:</b>	Closed	<b>Start date:</b>	06/09/2016
<b>Priority:</b>	High	<b>Due date:</b>	
<b>Assignee:</b>	John Diamond	<b>% Done:</b>	100%
<b>Category:</b>	ACNET	<b>Estimated time:</b>	3.00 hours
<b>Target version:</b>		<b>Spent time:</b>	2.00 hours

#### Description

Request from Ning -

GW: Digitizer raw Gate Width reading

RAW\_CURRENT: Digitizer raw INT reading divided by raw Gate Width reading

(I don't remember this clearly anymore, so need to verify with you guys.)

Scaling for M01EPC (Average Current mA):

$$\text{Current\_Reading} = C1 * ( C3 ^ ( C2 * \text{RAW\_CURRENT} ) ) + C4$$

Values:

$C1 = 0.3660774$

$C2 = 0.0003773625$

$C3 = 1.7$

$C4 = -0.268996$

----- D80 parameters changes: -----

(I already made these changes.)

New:

$C1 = 1$

$C2 = 1$

$C3 = 0$

----- End of D80 parameters changes -----

Scaling for M01EPI (Intensity E10):

Choose between these two:

$$\text{INT\_Reading} = [ C1 * ( C3 ^ ( C2 * \text{RAW\_CURRENT} ) ) + C4 ] * \text{GW} * C5 + C6$$

or

$$\text{INT\_Reading} = C5 * \text{Current\_Reading} * \text{GW} + C6$$

Values:

$C1 = 0.3660774$

$C2 = 0.0003773625$

C3 = 1.7

C4 = -0.268996

C5 = 8 / 1.6021766208 = 4.9932073

C6 = 0

----- D80 parameters changes: -----

(I already made these changes.)

New:

C1 = 1

C2 = 1

C3 = 0

----- End of D80 parameters changes -----

## History

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### #1 - 06/09/2016 07:33 PM - John Diamond

- % Done changed from 0 to 30

Set new default scale factors for P:M01EPC in pxintstartup (C1, C2 and C3 from Ning's e-mail). Note that the offset (C4) was set using the ACNET device database (D80).

I'll need to develop a scaling filter for the intensity device (P:M01EPI).

### #2 - 06/09/2016 09:36 PM - John Diamond

- % Done changed from 30 to 80

Created a new filter class for converting the ring pickup's current reading to properly scaled intensity reading. The filter simply multiplies the scaled current by the gate width according to Ning's description above.

Also, modified the device database entry for P:M01EPI to include C5 and C6.

Can't test right now, will need to be tested in the morning.

### #3 - 06/14/2016 03:19 PM - John Diamond

- Status changed from Assigned to Closed

- % Done changed from 80 to 100

Appears to be working so far.