

**Calculation 98-ENG-02405D2, Revision 2**

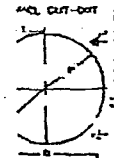
**Attachment 3**

-P2405DZ  
 Calculation No. 98-ENG-02045BZ, Rev. 2  
 236 ~~Notes~~ *from* 7-6-2012

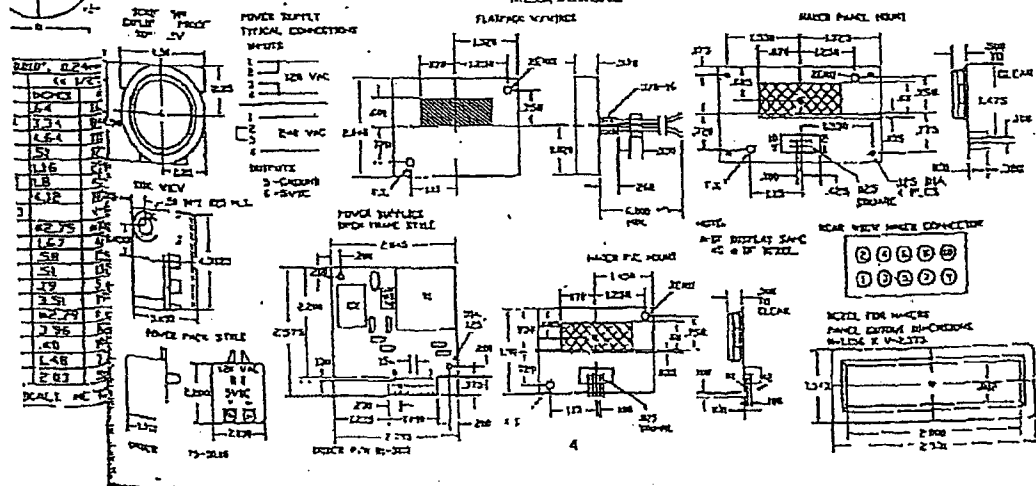
# Attachment 3, Page 1 of 2

## COMMON PERFORMANCE SPECIFICATIONS BY FUNCTION AT 75 C

<b>FUNCTION</b>	<b>A.C. POWERLESS (Models 572, 577, 578, and 579)</b>
Accuracy and linearity	±0.05% of F.S. ±1 count/bar
Resolution	1% of F.S. for bargraph; 0.05% for digital
Minimum input signal	3VDC/5mA (DC); 4V/2mA (AC)
Maximum input voltage	30VDC (clamped to 4VDC)
Maximum input current	50mA DC (fuse protected to 100mA)
Power requirement	5VDC ±20% at 5mA (from 577)
Logic output	1 TTL load (see NOTE 1)
Optoisolated limit's logic output	10 TTL loads
Accuracy and linearity	±0.1% of F.S. ±1 Digit
<b>NOTE:</b> When the 547 is ordered as slave display for the A.C. POWERLESS (models 572, 577, 578, and 579) no isolation from the A.C. mains exists and the backlight (if ordered) is driven from the same signal (powerline) as the master.	
<b>When 4's ordered for the D.C. (models 570, 571, and 573) the backlight (if ordered) must be externally powered from a 5VDC ±20% at 120mA supply.</b>	
<b>FUNCTION</b>	<b>D.C. POWERLESS (Models 561, 571, 581, and 591)</b>
Accuracy and linearity	±0.05% of F.S. ±1 count/bar
Resolution	1% of F.S. for bargraph; 0.05% for digital
Minimum input signal	4VDC/200µA for 591; 4VDC/2mA for 571, 561, and 581
Maximum input signal	150% of specified range except 140VDC range limited to 160VDC
Polarity	Unipolar
Measuring method	Dual slope integration
Span adjustment	±40% of full scale
Zero	Automatic
Backlight operating range	4-6VDC/AC, 120mA
<b>FUNCTION</b>	<b>CURRENT LOOP POWERLESS (Models 500, 521, 563, 573, 583, and 593)</b>
Accuracy and linearity	±0.05% (±1) count/bar
Resolution	1% of F.S. for bargraph; 0.05% for digital
Minimum input signal	3VDC/5mA DC for 521 and 593; 4V/2mA for 500, 563, 573, and 583
Maximum input voltage	30VDC (clamped to 4VDC)
Maximum input current	50mA DC (fuse protected to 100mA)
Polarity	Unipolar (digital will show - sign for below "zero" set)
Span adjustment range	±50% of specified range
Zero adjustment range	±50% of "zero" (see NOTE 1)
Backlight operating range	4-6VDC/AC, 120mA
<b>NOTE 1:</b> Models 593 are factory set to specified "floating zero."	
<b>NOTE 2:</b> Standard calibration is 1-5mA = 0-100%, 4-20mA = 0-100% and 10-50mA = 0-100% and/or 0-1000 counts for the digital section of full scale unless otherwise specified at time of ordering (others on request).	



### MECHANICAL



Calculation No. 98-ENG-0204502, Rev. 01 02

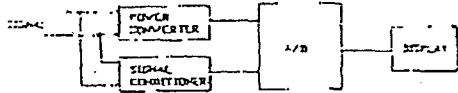
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DM 7/6/2012

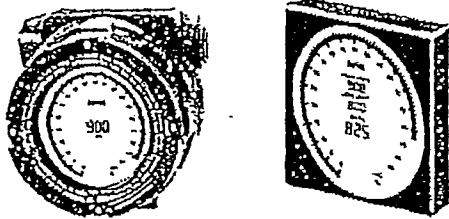
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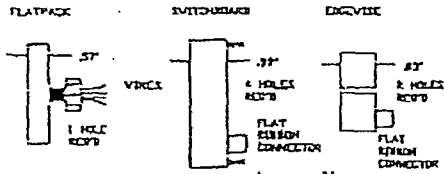
HOW IT WORKS: IMC's Powerless DPM's (not need) utilize custom and semi-custom IC's for extra low power consumption, and AC/DC conversion for charge pump to minimize standby quiescent power



THE DISPLAY is the most important element on a panel since it interfaces directly and instantaneously with our fastest sense. IMC's Powerless DPM's are designed to give the maximum display to case ratio and to blend in your panel as an integral part of it. Both ambient light reflective and backlighted models have sharp contrasting characters and annunciators for easy viewing.



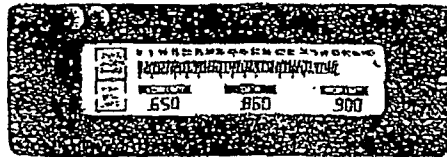
MOUNTING & CONNECTIONS to the Powerless DPM's are kept simple. None of the series require soldering, and except for the analog meter replacements, none require the usual expensive panel cut out. The size of the cases were designed to meet industry's existing standards for easy replacement, mounting and connections with minimum labor.



ANALOG, DIGITAL, OR BOTH? THE ANALOG BARGRAPH models have 101 bars that illuminate in proportion to the signal's amplitude, this gives you 1% resolution at a glance and with the scale graduation constantly lit, it indicates the trend.

THE DIGITAL (3 1/2 DIGITS) models have 0.05% resolution of full scale for an accurate display of your process.

THE HYBRID models combine both the bargraph and digital technologies to give you the best of them in the same compact case, the bargraph section gives you 1% resolution and the digital section 0.1% resolution.

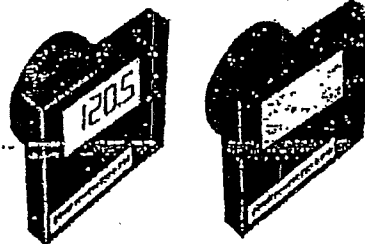


POWERED OR POWERLESS? Not all applications are created equally with the POWERLESS DPM. Generally speaking, if the load (meter) can stand the burden of the load (meter) without affecting its accuracy then the powerless is the right choice because it means less components to go bad, weight less installation costs, and safety problems if the signal cannot withstand the burden or it cannot be buffered. See our powered models.

COMPARISON DATA

Table comparing Powerless DPM, Analog Meter, and Conventional DPM across various metrics like Accuracy, Resolution, Status, Response, Viewing Range, Ruggedness, Power Consumption, Freq Response, Illumination, Power Supply, Connections, Price Range, Weight, Environmental, Acceleration, Shock, and Vibration.

AMBIENT OR BACKLIGHTING? The decision is based on the viewing angle and ambient light conditions. All IMC's Powerless DPM's (4 1/2 digit) feature an optional soft aviation green backlight or standard high contrast reflective display. A word of advice: the operator's viewing angle is very important in either backlighted or reflective displays, the location of the DPM should be so it is normally viewed from the 6 o'clock position. IMC's DPM's can be easily viewed from ±40° of center.



SCALING needs not be specified if standard 1:1 signal reading ratio is desired (100mV = 100%, 10V = 1000, 50V = 500). However, if the signal represents other than direct reading its relationship must be noted next to the part number. Examples: 4-20mA = 0 to 1500; 0-50mV = 0 to 600; 10V = 0 to 1300, etc.

In hybrid models, the digital display(s) is (are) limited by the scaling of the bargraph section, consequently if the scaling is set for 4-20mA = 0 - 600 the bargraph will illuminate up to the 60% bar and the digital "data" will show 600.

NOTE: The digital portion will not read beyond 1000 counts since it's controlled by the bargraph's A/D converter.

POWERLESS... 20/240VAC... POWERLESS... 73,583 & 59... WARNING: A.C. VOLT... and 599 are c... and contr... typically less... loading... The... calibrated bel... HOUSINGS:... color... black matte fi... THE MAKE... CIRCUIT MO... from the... are ava... laboratory... ready to so...