

ELECTRICAL

UNITS

VALUE

| | | | | |
|--|----------------------------------|-------|------------------------|------|
| Channels | | | 16 | |
| Display: | LED (red) - Bias LED (yellow) | | Open/Short Overload | |
| Sensor Excitation | | V/mA | 24 ±1/3-20 | [12] |
| Fixed Gain: | | | x1 (unity) | |
| | Accuracy (at 500 Hz) | % | ±1 | |
| | Linearity (10-50 kHz) | % | ±1 | |
| Frequency Response (gain x 1) (-5%) | | Hz | 0.5-100,000 | |
| Phase Accuracy (at 1 kHz) | | ° | ±1 | |
| <input type="checkbox"/> Noise (spectral): | Typical | gain | x1 | [20] |
| | 1 Hz | µV√Hz | 2.0 | |
| | 10 Hz | µV√Hz | 0.2 | |
| | 100 Hz | µV√Hz | 0.2 | |
| | 1 kHz | µV√Hz | 0.15 | |
| | 10 kHz | µV√Hz | 0.15 | |
| Broadband Noise 1 Hz-10 kHz (typical) | | µV | 11.0 | |
| Input Range | | V | 9.0 (Max.) | |
| Output Range (w/5 kΩ load minimum) | | V/mA | 10/2.0 | |
| Overload Threshold | | Vpk | +10 (±0.2) | |
| Output DC Offset (maximum) | | mV | 50 | |
| Output Impedance | | ohms | 50 (maximum) | |
| Channel Isolation (minimum) | | dB | 72 | |
| Power Requirements: | | VAC | 100-240 | |
| | Maximum | A | 0.6 | |
| | Frequency | Hz | 47-63 | |

ENVIRONMENTAL

| | | |
|------------------------|----|-----------|
| Operating Temperature: | °F | 32 to 120 |
| | °C | 0 to 50 |
| Relative Humidity | % | 85 |

PHYSICAL

| | | | |
|----------------------|----------------|----------|--------------------|
| Connectors - Signal: | Input (rear) | D-sub-50 | 1 |
| | Output (rear) | D-sub-37 | 1 |
| | Output (front) | BNC | 16 |
| Connector - Power | | | IEC 320 |
| Size (H x W x D): | | in | 3.5 x 19.0 x 16.25 |
| | | mm | 88,8 x 483 x 413 |
| Weight (maximum) | | lb [kg] | 15.0 [6,82] |

NOTES:

- [1] Limited by channel's frequency response.
- [2] 055 - user defined filter cutoffs (-3 dB).
- [3] Frequencies - 10 Hz, 100 Hz, 1,000 Hz and 10 kHz - tested at final calibration.
- [4] 041 option required.
- [5] "S" is defined as sensor sensitivity in mV/g times channel gain in V/V.
- [6] Reference to sensor sensitivity of 100 mV/g (@ 61.4 Hz).
- [7] Based on sinusoidal input.
- [8] Reference specification sheets for 422M113, 422M116 and 422M117.
- [9] Constant current adjusted/monitored in ICP® mode.
- [10] RS-485 interface uses proprietary interconnect of PCB equipment only.
- [11] Filter cutoffs 21.4k, 17.1k, 14.3k channel isolation 66 dB (minimum).
- [12] Factory set at 4.0 mA ±1.0 mA.
- [13] Gain x1 - Filter cutoff set to 995 Hz - 28.0, 16.0, 14.1, 16.8, 1.40, Broadband 525.
Gain x10 - Filter cutoff set to 995 Hz - 30.0, 9.60, 8.20, 7.10, 3.20, Broadband 540.
- [14] Reference to sensor sensitivity of 10.2 mV/m/s² (100 mV/g)
- [15] Filter enabled, accuracy -2%, disabled ±1%.
- [16] Filter enabled, if disabled reference other options included, highest noise specification dominates.
- [17] After serial number 567.
- [18] Tested with option 481-038 set to x1, channel output
- * Not Tested
- [19] See PCB Declaration of Conformance PS024 for details.
- [20] Noise test per AT-107-2, using 401A05, or highest value dominates capacitor to ground in charge option.

SUPPLIED ACCESSORIES:

Model 017 Power Cable
 Ferrite Bead (part number 100-2973-30)
If Option 498-101 Also Supplied
 009N03
 EE-75 481A Control Software (1CD ROM)



After serial n

In the interest of constant product improvement, we reserve the right to change specifications without notice.

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| | | | |
|----------|-----|---------|-------------------------|
| Drawn | LH | 10/8/09 | Spec No. 8092 |
| Engineer | CPH | 9/16/09 | |
| Sales | JJM | 9/21/09 | |
| Approved | EB | 9/23/09 | Sheet 1 of 8 |

UNITSVALUE**012 - Calibration Signal: External Input or Internal Oscillator with Amplitude Control**

| | | | | |
|--|--|-------|---------------|-----|
| External Input Amplitude Range | | V rms | 1.0 (maximum) | |
| External Input Frequency Limits | | Hz | 0.5-100k | [1] |
| External Input Buffer Gain Accuracy | | % | 1 | |
| Internal Oscillator Frequency | | Hz | 100 (±2%) | |
| Internal Oscillator Amplitude | | V pk | 1 (maximum) | |
| Internal Oscillator Amplitude Steps | | V | 0.01 | |
| Internal Oscillator Amplitude Steps Front Panel (Option 103) | | V | 0.05 | |
| Internal Oscillator Amplitude Accuracy | | % | 2 | |

013 - Selectable Time Constant

| | | | | |
|--------------------------------|------------|--------|------|--|
| Time Constant | | sec | 2/10 | |
| Frequency Response (-5%): | 2 Seconds | Hz max | 0.25 | |
| | 10 Seconds | Hz max | 0.05 | |
| with 037, 057 or both included | 10 Seconds | Hz max | 0.09 | |

014 - Calibration Signal: External Input

| | | | | |
|----------------------------|--|--------|---------------|-----|
| Input Amplitude Range | | V | ±10 (maximum) | |
| Input Impedance | | M ohms | 1 (minimum) | |
| Input Frequency Limits | | kHz | 0.5-100 | [1] |
| Input Buffer Gain Accuracy | | % | 1 | |

020 - Programmable Overload Threshold Level

| | | | | |
|-------------------|--|---|----|--|
| Threshold Maximum | | V | 10 | |
| Steps | | V | 1 | |
| Accuracy | | % | 2 | |

031 - Fixed Gain x5

| | | | | |
|--------------------------|--|----|---------|--|
| Gain Accuracy | | % | 1 | |
| Frequency Response (-5%) | | Hz | 0.5-80k | |

032 - Fixed Gain x10

| | | | | |
|--------------------------|--|----|---------|--|
| Gain Accuracy | | % | 1 | |
| Frequency Response (-5%) | | Hz | 0.5-50k | |

NOTES:

[1] Limited by channel's frequency response.

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If Option 498-101 Also Supplied
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UNITS

VALUE

035 - Programmable Gain

| | | | | | | |
|---------------------------------------|---------|-------|---------------|------|-------|------|
| Gain Accuracy | | % | 1 | | | |
| Linearity | | % | 1 | | | |
| Gain | | | x1, x10, x100 | | | |
| Noise (spectral): | Typical | gain | x1 | x10 | x100 | [20] |
| | 1 Hz | μV√Hz | 2.0 | 20.0 | 200.0 | |
| | 10 Hz | μV√Hz | 0.2 | 0.6 | 6.0 | |
| | 100 Hz | μV√Hz | 0.2 | 0.6 | 5.0 | |
| | 1 kHz | μV√Hz | 0.15 | 0.6 | 5.0 | |
| | 10 kHz | μV√Hz | 0.15 | 0.6 | 5.0 | |
| Broadband Noise 1 Hz-10 kHz (typical) | | μV | 11.0 | 50.0 | 500 | |
| Frequency Response (-5%) | | kHz | 65 | 65 | 40 | |

037 - Programmable Fine Gain

| | | | | | | |
|---------------------------------------|----------------------------------|-----------------|----------|------|------|------|
| Gain Accuracy | | % | 1 | | | |
| Linearity | | % | 1 | | | |
| Gain Limits: | | minimum/maximum | 0.1/200 | | | |
| | Steps | | 0.1 | | | |
| Frequency Response | (gain 0.1 – 99.9) (-2%/-5%/-10%) | kHz | 20/65/90 | | | |
| | (gain 100 - 200) (-2%/-5%/-10%) | kHz | 20/60/80 | | | [17] |
| Noise (spectral): | Typical | gain | x1 | x10 | x100 | [20] |
| | 1 Hz | μV√Hz | 3.0 | 20.0 | 200 | |
| | 10 Hz | μV√Hz | 1.5 | 1.5 | 10 | |
| | 100 Hz | μV√Hz | 1.0 | 1.0 | 8.0 | |
| | 1 kHz | μV√Hz | 1.0 | 1.0 | 6.0 | |
| | 10 kHz | μV√Hz | 1.0 | 1.0 | 6.0 | |
| Broadband Noise 1 Hz-10 kHz (typical) | | μV | 100 | 125 | 650 | |

038 - Expanded Programmable Fine Gain (Up to 200)

039 – Expanded Programmable Fine Gain (Up to 1000)

| | | | | | | |
|--|---------------------------------|-----------------|--------------------|------|------|------|
| Gain Accuracy | | % | 1 | | | |
| Linearity | | % | 1 | | | |
| Gain Limits: | | minimum/maximum | 0.0025/200 or 1000 | | | |
| | Steps | 0.0025 - 9.9975 | 0.0025 | | | |
| | | 10.00 - 99.975 | 0.025 | | | |
| | | 100.0 – max. | 0.25 | | | |
| Frequency Response (gain 0.0025 – 99.975) (-2%/-5%/-10%) | | kHz | 20/65/90 | | | |
| | (gain 100 - 200) (-2%/-5%/-10%) | kHz | 20/60/80 | | | [17] |
| Noise (spectral): | Typical | gain | x1 | x10 | x100 | [20] |
| | 1 Hz | μV√Hz | 3.0 | 20.0 | 200 | |
| | 10 Hz | μV√Hz | 1.5 | 1.5 | 10 | |
| | 100 Hz | μV√Hz | 1.0 | 1.0 | 8.0 | |
| | 1 kHz | μV√Hz | 1.0 | 1.0 | 6.0 | |
| | 10 kHz | μV√Hz | 1.0 | 1.0 | 6.0 | |
| Broadband Noise 1 Hz-10 kHz (typical) | | μV | 100 | 125 | 650 | |

NOTES:

- [17] After serial number 567.
- [20] Noise test per AT-107-2, using 401A05, or highest value dominates capacitor to ground in charge options

SUPPLIED ACCESSORIES:

- Model 017 Power Cable
- Ferrite Bead (part number 100-2973-30)

If Option 498-101 Also Supplied

- 009N03
- EE-75 481A Control Software (1CD ROM)

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| | | | | |
|----------|-----|---------|--------------|------|
| Drawn | LH | 10/8/09 | Spec No. | 8092 |
| Engineer | CPH | 9/16/09 | | |
| Sales | JJM | 9/21/09 | | |
| Approved | EB | 9/23/09 | Sheet 3 of 8 | |

UNITSVALUE**041 - Dual Independent 16 : 1 Switchable Output**

| | | | |
|--------------------------------|------|----------|-----|
| Number of Outputs | | 2 | |
| Frequency Response (maximum) | kHz | 100 | [1] |
| Output Range (maximum/minimum) | V/mA | 10.0/1.0 | |
| Output Impedance (maximum) | ohms | 400 | |
| Connectors | BNC | 2 | |

050-056 - Plug-In Fixed Filter Low Pass with Enable/Disable

[2]

| | | | |
|---------------------------------|-----------------|--------------------|--|
| Cutoff Accuracy (-3 dB) Fx | Hz (%) | ±5 | |
| Order of Filter | | 4 | |
| Roll Off | dB/oct & dB/dec | 24/80 | |
| Pass Band Accuracy | % | 1 | |
| Stop Band Attenuation (minimum) | dB | 96 | |
| List of Standard Cutoffs | Hz | 2k, 10k, 20k, 100k | |

057 - Programmable Low Pass Filter (Elliptical)**157 - Programmable Low Pass Filter (Elliptical) with Enable/Disable (sn > 353)**

| | | | |
|------------------------------------|-----------|-------------------------|---------------------|
| Order of Filter | | 8 | |
| Roll Off | dB | >65 at 1.5 times fc | |
| Pass Band Ripple | dB | 1 | |
| Pass Band Accuracy | % | 2 | [15] |
| Cutoff Frequency Accuracy | % | 5 | [3] |
| Stop Band Attenuation (minimum) | dB | 70 | |
| Spectral Noise (typical): | Gain x100 | filter cutoff (-3dB) Hz | 10 100 995 10.7k |
| | 1 Hz | μV√Hz | 750 125 65.5 101 |
| | 10 Hz | μV√Hz | 225 50.0 15.0 12.5 |
| | 100 Hz | μV√Hz | 35.0 70.0 15.0 9.00 |
| | 1 kHz | μV√Hz | 7.00 8.50 17.0 7.80 |
| | 10 kHz | μV√Hz | 0.50 0.90 1.50 7.20 |
| Broadband | | μV rms | 950 570 550 725 |
| Broadband Noise (typical) 1-10 kHz | | mV | 4.00 |
| List of Cutoff Frequencies (fc): | >5% apart | kHz | 21.4 17.1 14.3 |
| | | | 12.2 10.7 9.51 |
| | | | 8.56 7.78 7.13 |
| | | | 6.58 6.11 5.71 |
| | | | 5.35 4.75 4.51 |
| | | | 4.28 4.08 3.89 |
| | <5% apart | Hz | 2 thru 3.72k |

NOTES:

- [1] Limited by channel's frequency response.
 [2] 055 - user defined filter cutoffs (-3 dB).
 [3] Frequencies - 10 Hz, 100 Hz, 1,000 Hz and 10 kHz - tested at final calibration.
 [11] Filter cutoffs 21.4k, 17.1k, 14.3k channel isolation 66 dB (minimum).
 [13] Gain x1 - Filter cutoff set to 995 Hz - 28.0, 16.0, 14.1, 16.8, 1.40, Broadband 525.
 Gain x10 - Filter cutoff set to 995 Hz - 30.0, 9.60, 8.20, 7.10, 3.20, Broadband 540.
 [15] Filter enabled, accuracy -2%, disabled ±1%.
 [16] Filter enabled, if disabled reference other options included, highest noise specification dominates.
 [20] Noise test per AT-107-2, using 401A05, or highest value dominates capacitor to ground in charge options

SUPPLIED ACCESSORIES:

Model 017 Power Cable
 Ferrite Bead (part number 100-2973-30)
If Option 498-101 Also Supplied
 009N03
 EE-75 481A Control Software (1CD ROM)

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UNITSVALUE**058 – Programmable Low Pass Filter (Butterworth)****158 - Programmable Low Pass Filter (Butterworth) with Enable/Disable (sn > 353)**

| Order of Filter | | | | | | | | 8 |
|------------------------------------|-----------|--------------------------------|--|------|------|-------|------|----------|
| Roll Off | | dB/oct | | | | | | 48 |
| Pass Band Accuracy | | % | | | | | | 2 |
| Cutoff Frequency Accuracy | | % | | | | | | 5 |
| Stop Band Attenuation (minimum) | | dB | | | | | | 70 |
| Spectral Noise (typical): | Gain x100 | filter cutoff (-3dB) Hz | | 10 | 100 | 1,000 | 10k | [16][20] |
| | 1 Hz | $\mu\text{V}/\sqrt{\text{Hz}}$ | | 750 | 125 | 65.5 | 101 | |
| | 10 Hz | $\mu\text{V}/\sqrt{\text{Hz}}$ | | 225 | 50.0 | 15.0 | 12.5 | |
| | 100 Hz | $\mu\text{V}/\sqrt{\text{Hz}}$ | | 35.0 | 70.0 | 15.0 | 9.00 | |
| | 1 kHz | $\mu\text{V}/\sqrt{\text{Hz}}$ | | 7.00 | 8.50 | 17.0 | 7.80 | |
| | 10 kHz | $\mu\text{V}/\sqrt{\text{Hz}}$ | | 0.50 | 0.90 | 1.50 | 7.20 | |
| Broadband | | $\mu\text{V rms}$ | | 950 | 570 | 550 | 725 | |
| Broadband Noise (maximum) 1-10 kHz | | μV | | 900 | | | | |
| List of Cutoff Frequencies: | >5% apart | kHz | | 20.0 | 16.0 | 13.4 | | |
| | | | | 11.4 | 10.0 | 8.90 | | |
| | | | | 8.00 | 7.27 | 6.06 | | |
| | | | | 6.15 | 5.71 | 5.34 | | |
| | | | | 5.00 | 4.44 | 4.21 | | |
| | | | | 4.00 | 3.81 | 3.64 | | |
| | <5% apart | Hz | | 2 | thru | 3.4k | | |

061 - Dual Independent Single/Double Integrators Through Switched Output

| | | | | | | | | |
|---------------------------------------|----------------|----------------|--|--------|--|--|--|-----|
| Number of Outputs | | | | | | | | 2 |
| Output Range (minimum): | | V/mA | | 5/1 | | | | |
| | Acceleration | % | | 2 | | | | |
| | Velocity | % | | 5 | | | | |
| | Displacement | % | | 5 | | | | |
| Integration Scale Factor: | Acceleration | | | S | | | | [5] |
| | Velocity | mV/in/s | | 10 x S | | | | |
| | Displacement | mV/mil | | 2 x S | | | | |
| Low Frequency Corner (ref 100 Hz): | Velocity -5% | Hz (maximum) | | 8.0 | | | | |
| | Velocity -3 dB | Hz (maximum) | | 3.0 | | | | |
| | Disp -5% | Hz (maximum) | | 15.0 | | | | |
| | Disp -3 dB | Hz (maximum) | | 6.0 | | | | |
| High Frequency Response (ref 100 Hz): | Velocity -5% | kHz (minimum) | | 10 | | | | |
| | Disp -5% | kHz (minimum) | | 1 | | | | |
| Output Impedance | | ohms (maximum) | | 400 | | | | |
| Connectors | | BNC | | 2 | | | | |

NOTES:

- [3] Frequencies - 10 Hz, 100 Hz, 1,000 Hz and 10 kHz - tested at final calibration.
 [4] 041 option required.
 [5] "S" is defined as sensor sensitivity in mV/g times channel gain in V/V.
 [15] Filter enabled, accuracy -2%, disabled $\pm 1\%$.
 [16] Filter enabled, if disabled reference other options included, highest noise specification dominates.
 [20] Noise test per AT-107-2, using 401A05, or highest value dominates capacitor to ground in charge options

SUPPLIED ACCESSORIES:

Model 017 Power Cable
 Ferrite Bead (part number 100-2973-30)
If Option 498-101 Also Supplied
 009N03
 EE-75 481A Control Software (1CD ROM)

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| | | <u>UNITS</u> | <u>VALUE</u> | |
|---|----------------|---------------|--|-------|
| 062 - Single Integration Per Channel with Enable/Disable (100 mV/in/s) | | | | |
| 063 - Single Integration Per Channel with Enable/Disable (1,000 mV/in/s) | | | | |
| Output Range (minimum): | | V/mA | 5.0/1.0 | |
| | Acceleration | % | 2 | |
| | Velocity | % | 5 | |
| Integration Scale Factor: | | option number | 062 | 063 |
| | Velocity | mV/in/s | 100 | 1,000 |
| Low Frequency Corner (ref 100 Hz): | | | | [6] |
| | Velocity -5% | Hz (maximum) | 8.0 | |
| | Velocity -3 dB | Hz (maximum) | 3.0 | |
| High Frequency Response: | | | | |
| | Velocity -5% | kHz (minimum) | 10 | |
| 064 - RMS to DC Conversion | | | | |
| Accuracy | | % | 3 | |
| Frequency Response | | Hz | 2-20,000 | |
| Output Range (maximum) | | VDC/mA | 7.07/1.0 | [7] |
| Output Impedance (maximum) | | ohms | 50 | |
| Connectors (rear panel) | | BNC | 16 | |
| 065 - Single Integration Per Channel with Enable/Disable | | | | |
| Output Range (minimum): | | V/mA | 5.0/1.0 | |
| | Acceleration | % | 2 | |
| | Velocity | % | 5 | |
| Integration Scale Factor: | | | | |
| | Velocity | mV/m/s | 1000 | [14] |
| Low Frequency Corner (ref 100 Hz): | | | | |
| | Velocity -5% | Hz (maximum) | 1.0 | |
| | Velocity -3 dB | Hz (maximum) | 0.5 | |
| High Frequency Response: | | | | |
| | Velocity -5% | kHz (minimum) | 10 | |
| 070 - IEEE - 488 Parallel Bus Communication | | | | |
| Byte Transfer Rate | | byte/sec | 10,000 | |
| End of Line | | | EOI | |
| Interface Parameters (controller, serial poll, etc.): | | | SH1, AH1, T6, TE0, L4, LE0, SR1, RL1, PP0, DC1, C0, E2 | |
| Cable Length (maximum) | | ft [m] | 50 [20] | |

NOTES:

- [6] Reference to sensor sensitivity of 100 mV/g (@ 61.4 Hz).
 [7] Based on sinusoidal input.
 [14] Reference to sensor sensitivity of 10.2 mV/m/s² (100 mV/g)

SUPPLIED ACCESSORIES:

Model 017 Power Cable
 Ferrite Bead (part number 100-2973-30)
If Option 498-101 Also Supplied
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 EE-75 481A Control Software (1CD ROM)

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| | <u>UNITS</u> | <u>VALUE</u> | | | |
|---|--------------|--------------|-----------|-----------|------|
| 080 - 8 BNC Inputs Rear Panel | | | | | |
| 081 - 8 BNC Input and 16 BNC Outputs Rear Panel | | | | | |
| 085 -8 BNC Outputs Rear Panel | | | | | |
| 082/086/087 - Selectable ICP ® or Charge Mode Sensor Input | | | | | |
| 282/286/287 – Programmable ICP ® or Charge Mode Sensor Input | | | | | |
| 382/386/387 – Programmable ICP ® or Charge Mode Sensor Input – 0.5 Hz Low Frequency Response | | | | | |
| Switch Rear Panel (082/086/087 only) | | | | | |
| | | Toggle | | | |
| | | x82 | x86 | x87 | |
| Input Charge Range (maximum) ±2% | ± pC | 25,000 | 2,500 | 250 | |
| Input Time Constant | sec | 0.1 | 0.1 | 0.1 | |
| Charge Sensitivity (100 Hz) ±2% | mV/pC | 0.1 | 1.0 | 10.0 | |
| Amplitude Linearity (maximum) | %FS | 1.0 | 1.0 | 1.0 | |
| Low Frequency Response -5% | Hz | 5.0 | 5.0 | 5.0 | |
| Low Frequency Response -5% (382/ 386/ 387) Only | Hz | 0.5 | 0.5 | 0.5 | |
| High Frequency Response -5% (2/4/20 mA) | kHz | 5/15/100 | 30/60/100 | 50/75/100 | [9] |
| Broadband Noise | µV | 400.0 | 20.0 | 20.0 | [20] |
| Spectral Noise: | 1 Hz | µV√Hz | 14.0 | 20.0 | 16.0 |
| | 10 Hz | µV√Hz | 0.7 | 1.0 | 1.3 |
| | 100 Hz | µV√Hz | 0.1 | 0.1 | 0.2 |
| 486 – Programmable ICP or Charge (0.1, 1, or 10mV/pC) Mode Sensor Input | | | | | |
| | | 0.1 | 1.0 | 10 | |
| Input Charge Range (maximum) ±2% | ± pC | 90,000 | 9,000 | 900 | |
| Input Time Constant | sec | 1.0 | 1.0 | 1.0 | |
| Charge Sensitivity (100 Hz) ±2% | mV/pC | 0.1 | 1.0 | 10.0 | |
| Amplitude Linearity (maximum) | %FS | 1.0 | 1.0 | 1.0 | |
| Low Frequency Response -5% | Hz | 0.5 | 0.5 | 0.5 | |
| High Frequency Response -5% | kHz | 100 | 100 | 100 | [1] |
| Broadband Noise | µV | 45.0 | 47.0 | 65.0 | [18] |
| Spectral Noise: | 1 Hz | µV√Hz | 2.5 | 4.2 | 13.0 |
| | 10 Hz | µV√Hz | 1.0 | 1.0 | 1.5 |
| | 100 Hz | µV√Hz | 0.5 | 0.5 | 0.7 |
| | 1 kHz | µV√Hz | 0.42 | 0.5 | 0.5 |
| | 10 kHz | µV√Hz | 0.42 | 0.43 | 0.5 |
| Connectors | | 10-32 | | 16 | |
| 084 - Internally Jumper Selectable ICP® or Voltage Input Signal | | | | | |
| 284 – Programmable ICP ® or Voltage Input Signal | | | | | |
| Input Range | V (maximum) | ±10 | | | |
| Input Impedance | k ohms | 200 | | | |
| Frequency Response (related to TC): Standard | Hz | 0.5 | | | [1] |
| Frequency Response: Standard | kHz | 100 | | | [1] |

NOTES:

- [1] Limited by channel's frequency response.
- [8] Reference specification sheets for 422M113, 422M116, 422M117, 422M128, and 422M135.
- [9] Constant current adjusted/monitored in ICP mode.
- [18] Tested with option 481-038 set to x1, channel output.
- [20] Noise test per AT-107-2, using 401A05, or highest value dominates capacitor to ground in charge options.

In the interest of constant product improvement, we reserve the right to change specifications without notice.

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SUPPLIED ACCESSORIES:

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If Option 498-101 Also Supplied
 009N03
 EE-75 481A Control Software (1CD ROM)

**686 – Programmable ICP or Charge (0.1, 1, or 10mV/pC)
Mode Sensor Input(sensors >500°F [260°C])**

| | <u>UNITS</u> | <u>VALUE</u> | | |
|--|--------------|--------------|-------|-------|
| Input Charge Range (maximum) ±2% | ± pC | 0.1 | 1.0 | 10 |
| Input Time Constant | sec | 90,000 | 9,000 | 900 |
| Capacitance (Maximum allowable at input) | pF | 0.1 | 0.1 | 0.1 |
| Resistance (Minimum required at input) | ohm | 20000 | 20000 | 2000 |
| Charge Sensitivity (100 Hz) ±2% | mV/pC | 10000 | 10000 | 10000 |
| Amplitude Linearity (maximum) | %FS | 0.1 | 1.0 | 10.0 |
| Low Frequency Response -5% | Hz | 1.0 | 1.0 | 1.0 |
| High Frequency Response -5% | kHz | 5.0 | 5.0 | 5.0 |
| Broadband Noise | µV | 100 | 100 | 100 |
| Spectral Noise: | | | | |
| 1 Hz | µV/√Hz | 60 | 62 | 85 |
| 10 Hz | µV/√Hz | 3.5 | 5.9 | 18.2 |
| 100 Hz | µV/√Hz | 1.4 | 1.4 | 2.1 |
| 1 kHz | µV/√Hz | 0.7 | 0.7 | 1.0 |
| 10 kHz | µV/√Hz | 0.42 | 0.5 | 0.5 |

[1]
[18]
[20]

Connectors

092 - External 12 VDC Power Invertor

| | | |
|--------------------------------|---------|-------------------|
| Input Voltage Range | VDC | 488A05 or 488A06 |
| Efficiency | % | 16 |
| Output Voltage | VAC rms | Reference |
| Output Frequency | Hz | 488A05 or 488A06 |
| No Load Current Draw (maximum) | A | 10-15 |
| Size (H x W x D): | in | 90 |
| | [mm] | 115 ±5% |
| Weight | lb [kg] | 60 ±0.1 |
| Output Power | Watt | 0.07 |
| | | 1.5 x 4.53 x 4.85 |
| | | 38 x 115 x 123 |
| | | 1.32 [0.60] |
| | | 150 |

101- Digital Control with RS-232/RS-485 Interface

| | | |
|----------------------------------|----------|-------------|
| Connectors | D-sub-9 | 2 |
| Baud Rate | bits/sec | 9,600 |
| Start, Data, Stop, Parity | | 1, 8, 1, No |
| Handshaking | | RTS/CTS |
| RS-485 Devices In System | | 16 |
| Cable Length (maximum): RS-232 | ft | 50 |
| Cable Length (maximum): RS-485 * | ft | 200 |
| Supplied Accessories | cable | 009N03 |

[10]

102 – Memory Default

103 - Front Panel Control/Display

| | | |
|----------------------|------------|------|
| Keypad | | 4 |
| Reset | | 1 |
| Display (dot matrix) | row/column | 2/16 |

NOTES:

- [1] Limited by channel's frequency response.
- [10] RS-485 interface uses proprietary interconnect of PCB equipment only.
- [18] Tested with option 481-038 set to x1, channel output.
- [20] Noise test per AT-107-2, using 401A05, or highest value dominates capacitor to ground in charge options

SUPPLIED ACCESSORIES:

- Model 017 Power Cable
- Ferrite Bead (part number 100-2973-30)
- If Option 498-101 Also Supplied**
- 009N03
- EE-75 481A Control Software (1CD ROM)

In the interest of constant product improvement, we reserve the right to change specifications without notice.

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| | | | |
|----------|-----|---------|-------------------------|
| Drawn | LH | 10/8/09 | Spec No. 8092 |
| Engineer | CPH | 9/16/09 | |
| Sales | JJM | 9/21/09 | |
| Approved | EB | 9/23/09 | Sheet 8 of 8 |