





## **Each Unit Includes:**

- Five Fused Voltage probes 600V
- Pronto for Windows Analysis Software
- Bluetooth Adapter for Laptop or PC
- 16GB Flash Drive for Expanded Memory
- 12 Volt Charger & Carrying Case
- 1 year warranty
- No cost lifetime upgrades for Software & Firmware

## Why you should consider a PM4000

- Records 32 Detail Channels simultaneously with single cycle resolution on changes, because of our Exclusive Patented Single Cycle Adaptive Store
- Auto-ranking of waveform capture greatest disturbances-Ranger exclusive
- Compliant to IEEE 1453 Flicker Specification. Only Ranger Loggers measure Instantaneous Flicker
- Input leads fusing is Standard
- High speed sampling on ALL inputs including 4 Currents and 4 Voltages
- Interharmonics Option
- 32 MB on board memory. Expandable memory though USB Flash Port that automatically writes to drive when recording finishes
- Wireless communications to remote PC or Android Device allows access to PM4000 display, without suiting up as required by NFPA 70

## **Quick Specs**

Voltage Channels

4 (0-600 VAC)

Current Channels

4 (2 ranges- 6000A or 400.0A)

Recording Channels

32 Detailed

Sample Rate

320 Samples/cycle

Memory storage for recorded data

32MB, Expandable with External Flash Drive

Communication

Bluetooth, USB, USB Flashdrive, Ethernet, Remote

Waveform Triggers

Transient, Ring, Sag, Swell, RMS Fall, THD Current, THD Voltage

Waveform Memory

2 MB

Power Requirements

90-660 VRMS(V1), 12Vdc (DC Charger)

| Current Channels   |  | PM7000   | PM4000            | PM3000HF                         | PM2000F           | PM2000F-300       | PM7000 FLM               | PM7503                                  |
|--|--|--|-------------------|----------------------------------|-------------------|-------------------|--------------------------|---|
| Current Channels   | Voltage Channels   | 4 (0-600 VAC)  | 4 (0-600 VAC)     | 3 (0-525 VAC)                    |                   |                   | 4 (0-600 VAC)            |   |
| Recording (Prinnels   10   | Current Channels   |  |                   | 3 (2 ranges- 6000A<br>or 400.0A) | Rogowski Type '   | Rogowski Type     |                          | supplied, nominal                       |
| Parameters   Par   | Detailed<br>Recording Channels   | 32   | 32                | 16                               | 16                | 16                | 32                       | 32                                      |
| Sample Rate         Sembles/cycle (Principles/cycle)         3,840 Samples/see         3,840 Samples/see<  | General<br>Parameters*1  | $\odot$  |                   |                                  |                   |                   | $\odot$                  | $\odot$                                 |
| Expandable Memory Stick  Filcker (Fit. Pst. Files)  Fit Band THC   Fit Band THC  | Sample Rate  | Samples/cycle PM7000H<br>@ 2,056 Samples/cycle<br>PM7000T @ 20,480 | 320 Samples/cycle | 3,840 Samples/sec                | 3,840 Samples/sec | 3,840 Samples/sec | 320 Samples/cycle        | 19.2k Samples/sec                       |
| with a premay Stick         Commental Stick         Commen   | Memory storage for recorded data   | 128MB  | 32MB              | 8MB, 16MB, 32MB                  | 1MB               | 1MB               | 128MB                    | 128MB                                   |
| Finst Pflage   | Expandable Memory<br>with a memory Stick<br>or Hard Drive                | $\odot$  | $\odot$           |                                  |                   |                   | $\odot$                  | $\odot$                                 |
| Interharmonics   Optional   Op    | Flicker (Plt, Pst,<br>Pinst, Pflag)                                      | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| THD and THC  | Highest order of individual harmonics*2                                  | 50th<br>(127th Optional)   | 50th              | 15th                             | N/A               | N/A               | 50th<br>(127th Optional) | 50th<br>(127th Optional)                |
| kW Image: Components <t< td=""><td>Interharmonics</td><td>Optional</td><td></td><td></td><td></td><td></td><td>Optional</td><td>Optional</td></t<>   | Interharmonics   | Optional   |                   |                                  |                   |                   | Optional                 | Optional                                |
| KVAR   | THD and THC  | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| KVAR  Power Factor  O  O  O  O  O  O  O  O  O  O  O  O  O  | kW   | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| Power Factor  Po | KVA  | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| Unbalance (V & I)  Frequency 45-65Hz (can automatically detect 50 or 60Hz nominal)  InRush Current  Optional  Optional  Measures to Class  | KVAR   | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| Frequency 45-65Hz (can automatically detect 50 or 60Hz nominal)  InRush Current  W  Optional  Optional  Measures to Class   | Power Factor   | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| InRush Current    O  | Unbalance (V & I)  | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| K Factor $\bigcirc$   | Frequency 45-65Hz<br>(can automatically<br>detect 50 or 60Hz<br>nominal) | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| DC Measurement  Optional  Symmetrical Components  Omega  | InRush Current   | $\odot$  | $\odot$           | $\odot$                          | $\odot$           | $\odot$           | $\odot$                  | $\odot$                                 |
| Symmetrical Components   Measures to Class Measures Measu | K Factor   | $\odot$  | $\odot$           |                                  |                   |                   | $\odot$                  | $\odot$                                 |
| IEC6100-4-30 Measures to Class Measures to Class Class S Measures to Class Measures to Class   | DC Measurement   |  |                   | Optional                         |                   |                   |                          | $\odot$                                 |
|  | Symmetrical<br>Components  | $\odot$  | $\odot$           | $\odot$                          |                   |                   | $\odot$                  | $\odot$                                 |
|  | IEC6100-4-30   |  |                   | Class S                          |                   |                   |                          | Measures to Class<br>A or more accurate |

|   | PM7000   | PM4000   | РМ3000НF  | PM2000F   | PM2000F-300   | PM7000 FLM   | PM7503   |
|---|--|--|---|---|---|--|--|
| Single Cycle<br>Adaptive Store                                  | $\odot$  | <b>⊘</b>   | $\odot$   | $\odot$   | $\odot$   | $\odot$  | <b>⊘</b>   |
| Time Interval Store   | $\odot$  | $\odot$  | $\odot$   | $\odot$   | $\odot$   | $\odot$  | $\odot$  |
| Sag / Swell / Outage<br>Monitoring                              | $\odot$  | $\odot$  | $\odot$   | $\odot$   | $\odot$   | $\odot$  | $\odot$  |
| High Speed<br>Waveforms with<br>AutoRanking<br>Waveform Capture | PM7000S @ 320<br>Samples/cycle PM7000H<br>@ 2,056 Samples/cycle<br>PM7000T @ 20,480<br>Samples/cycle | 320 Samples/cycle  | 3,840 Samples/sec   | 3,840 Samples/sec   | 3,840 Samples/sec   | 320 Samples/cycle  | 19.2k Samples/sec  |
| Waveform Capture<br>Memory                                      | 32MB   | 2МВ  | N/A   | N/A   | N/A   | 32MB   | 32MB   |
| Transient detection   | (both cycle & sub-cycle)   | (both cycle & sub-cycle)   | (down to single cycle)  | (down to single cycle)  | (down to single cycle)  | (both cycle & sub-cycle)   | (both cycle & sub-cycle  |
| CBEMA / ANSI / ITIC curve plots                                 | $\odot$  | $\odot$  |   |   |   | $\odot$  | $\odot$  |
| Onboard Display   |  |  | $\odot$   |   |   |  |  |
| Bluetooth   | $\odot$  | $\odot$  | $\odot$   | $\odot$   | $\odot$   | $\odot$  | $\odot$  |
| Ethernet  | Optional   | Optional   |   |   |   | Optional   | $\odot$  |
| USB or Infra-Red<br>Communication                               | USB  | USB  | USB   | Infra-Red   | Infra-Red   | USB  | USB  |
| Remote screen with PMScreen                                     | $\odot$  | $\odot$  | $\odot$   | $\odot$   | $\odot$   | $\odot$  | $\odot$  |
| Remote<br>Communications via<br>PMGateway                       | $\odot$  | $\odot$  | $\odot$   | $\odot$   | $\odot$   | $\odot$  | $\odot$  |
| Time Synchronization over mobile phone or PC                    | $\odot$  | $\odot$  |   |   |   | $\odot$  | $\odot$  |
| Baud Rate   | Up to 921.6k   | Up to 921.6k   | 115.2k  | 115.2k  | 115.2k  | Up to 921.6k   | Up to 921.6k   |
| Power Requirements  | Powered from V1 input<br>(90-660 VRMS, 15W<br>Max) OR from charger<br>input @ 12Vdc, 6W Max.         | Powered from V1 input<br>(90-660 VRMS, 15W<br>Max) OR from charger<br>input @ 12Vdc, 6W Max. | Powered from V1 input<br>(50-525 VRMS,) OR from<br>charger input @ 12Vdc,<br>6W Max.      | 100-300 Vac from L1<br>to L2 voltage<br>measurement or<br>separate power supply | 100-300 Vac from L1<br>to L2 voltage<br>measurement or<br>separate power supply | Powered from V1 input<br>(90-660 VRMS, 15W<br>Max) OR from charger<br>input @ 12Vdc, 6W Max. |  |
| Portable/Fixed  | Р  | Р  | Р   | Р   | Р   | Р  | F  |
| Dimension   | 9" x 7.5" x 4.3"   | 9" x 7.5" x 4.3"   | 8" x 6.5" x 3.5"  | 6.75" x 6.75" x 5"  | 6.75" x 6.75" x 6"  | 9" x 7.5" x 4.3"   | 11.3" x 8.1" x 2.8"  |
| Weight  | 7.7lbs   | 7.7lbs   | 2.5lbs  | 2.6lbs  | 2.6lbs  | 7.7lbs   |  |
| Operating<br>Temperature  | -20 to 60°C  | -20 to 60°C  | -10 to 60°C   | -30 to 65°C   | -30 to 65°C   | -20 to 60°C  | -20 to 60°C  |
| Accuracy  | < 0.25% excluding<br>sensors, +/- 2LSDs (in<br>target ranges)  | 0.2%. 0.1% in reference<br>range 20-30°C<br>(excluding sensors).<br>+/-2LSB.                 | Volts and wide range<br>current < 0.25% True<br>RMS Narrow range<br>current < 1% True RMS | Voltage < 0.25% True<br>RMS of Reading<br>Current < 0.5% True<br>RMS of Reading | Voltage < 0.25% True<br>RMS of Reading<br>Current < 0.5% True<br>RMS of Reading | < 0.25% excluding<br>sensors, +/- 2LSDs (in<br>target ranges)                                | 0.2%. 0.1% in reference<br>range 20-30°C<br>(excluding sensors).<br>+/-2LSB. |
| Safety Rating   | 600V Cat IV, 1000V Cat<br>III (Fuses removed)  | 600V Cat IV, 1000V Cat<br>III (Fuses removed)  | 600V Cat III  | 600V Cat III  | 600V Cat III  | 600V Cat IV, 1000V Cat<br>III (Fuses removed)  | 600V Cat III   |
| IP Rating   | IP65   | IP65   | IP51  | N/A   | N/A   | IP65   | IP40   |
| Software  | Pronto for Windows   | Pronto for Windows   | Pronto for Windows  | Pronto for Windows  | Pronto for Windows  | Pronto for Windows   | Pronto for Windows   |