



Multi-Frequency **River MONITOR** ADCPs

for

Channel Flow and Sediment Profile Measurement

RTI's NEW **Multi Frequency River MONITORs** measures horizontal profiles of flow velocity profiles, river stage, plus Triple-Frequency horizontal profiles of sediment **Target Strength** sediment estimation from a single instrument, providing a Cost-effective approach for calculating river discharge and suspended-sediment concentration and grain size distribution in rivers at a level of accuracy sufficient for many scientific purposes.

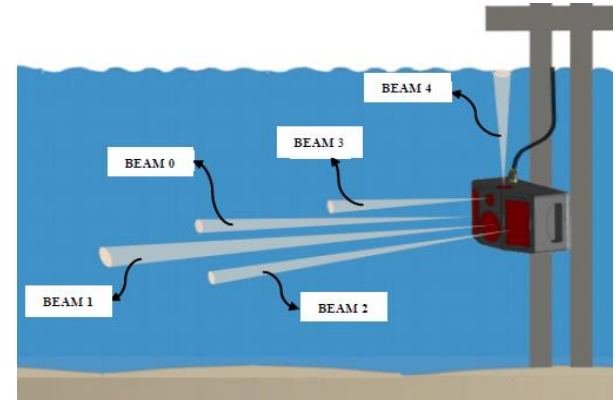
RM1



RM2



| MODELS | RM1 | RM2 |
|---------------------|-----------|-----------|
| Slant Beams: | | |
| Frequency (kHz) | 1200 | 600 |
| Beam Width | 0.5° | 1.1° |
| 0° Beams: | | |
| Frequency (kHz) | 600/2400 | 1200/2400 |
| Beam Width | 1.1°/1.1° | 1.1°/1.1° |



| FEATURES | APPLICATION BENEFITS |
|--|--|
| Triple (600, 1200 and 2400 kHz) frequency horizontal beams, inter-frequency calibrated transmission and echo reception | ➤ Precise Multi-frequency Target Strength profiles for calculation of sediment concentration, and grain size distribution. |
| RM1 ADCP ultra-narrow 1200 kHz slant beams | ➤ Improved velocity and sediment profile measurement range, accuracy and data quality, particularly in shallow rivers and varying depth, by minimizing surface and bottom clutter which are the primary source of poor data quality in many conventional horizontal ADCPs. |
| User programmable or fully automatic transmit levels, Broadband, Narrowband and Pulse-Pulse Coherent operation. | ➤ Real-time adaption to optimize measurement of accurate velocities and sediments in difficult and conditions such as slow moving flow or in fast changing environments ➤ Battery life tradeoffs |
| Real-time data quality monitoring | ➤ Continuous assurance of ADCP data quality |
| Continuous Built-In-Test of transducer and electronics plug-in replaceable modules | ➤ Continuous assurance of ADCP operational status, plus fault localization to plug-in field replaceable modules. |
| Vertical beam and pressure sensor | ➤ Accurate cross calibrated surface height measurements. |
| Optional high capacity (512 GB) internal data recorder | ➤ Recording of Velocity and Target Strength Data “raw” data for post deployment analysis |
| Optional software for collection of “raw” Target Strength data | ➤ Controls collection of raw Target Strength data for post deployment analysis. |

SPECIFICATIONS

| | RM1 | | | RM2 | | |
|-------------------------------------|---|--------------|-----------|----------------------------------|--------------|-----------|
| | Horizontal Profiling | | | | | |
| Acoustic Beams | | | | | | |
| Frequency (kHz) | 600 | 1200 | 2400 | 1200 | 600 | 2400 |
| # Beams | 1 | 2 | 1 | 1 | 2 | 1 |
| Beam Angles | 0° | ± 20° | 0° | 0° | ± 20° | 0° |
| 2-Way Beamwidth | 1.1° | 0.5° | 1.1° | 1.1° | 1.1° | 1.1° |
| Velocity Profile (20° Beams) | | | | | | |
| Velocity Range | ±7 m/s | | | | | |
| NB Profiling Range ² (m) | 0.1 to 50 | | | 0.1 to 80 | | |
| BB Profiling Range ² (m) | 0.1 to 40 | | | 0.1 to 60 | | |
| Narrowband Precision ³ | 20 cm/s @ 2 m Range Cell | | | 20 cm/s @ /1 m Range Cell | | |
| Broadband Precision ³ | 4 cm/s @ 2 m Range Cell | | | 4 cm/s @ 1 m Range Cell | | |
| Long Term Accuracy | 1 % ± 2 mm/s | | | | | |
| Maximum # Range Cells | 200 | | | | | |
| Range Cell Size (m) | 0.1 to 4 | | | | | |
| Target Strength Profile | | | | | | |
| Amplitude Dynamic Range | 80 dB | | | | | |
| NB Profiling Range ² (m) | 0.1 to 80 | 0.1 to 50 | 0.1 to 10 | 0.1 to 40 | 0.1 to 80 | 0.1 to 10 |
| BB Profiling Range ² (m) | 0.1 to 60 | 0.1 to 40 | 0.1 to 5 | 0.1 to 30 | 0.1 to 60 | 0.1 to 5 |
| Narrowband Precision ³ | ± 2 dB | ± 2 dB | ± 2 dB | ± 2 dB | ± 2 dB | ± 2 dB |
| Broadband Precision ³ | ± 0.5 dB | ± 0.5 dB | ± 0.5 dB | ± 0.5 dB | ± 0.5 dB | ± 0.5 dB |
| Resolution | ± 0.01 dB | | | | | |
| Long Term Accuracy | ± 0.5 dB | | | | | |
| Maximum # Range Cells | 200 | | | | | |
| Range Cell Size (m) | 0.1 to 4 | 0.1 to 2 | 0.05 to 1 | 0.1 to 2 | 0.1 to 4 | 0.05 to 1 |
| Water Level | | | | | | |
| Vertical Acoustic Beam | | | | | | |
| Frequency (kHz) | 1200 | | | | | |
| Beamwidth | 5° | | | | | |
| Range (m) | 0.1 to 30 | | | | | |
| Accuracy | 1 % ± 2 cm | | | | | |
| Resolution (m) | ± 0.01 | | | | | |
| Sensors | | | | | | |
| Compass | ± 2°/±0.01° | | | | | |
| Tilt(Accuracy/Resolution) | ± 0.2° ± 0.05° | | | | | |
| Water Temperature | -5 to 50°C ± 0.2°C | | | | | |
| Pressure | ± 0.1% Full Scale | | | | | |
| Input Power | 10 - 18 VDC @ 2 amps max., 0.2 amps typical | | | | | |
| Data Communications | RS-232, RS42 or RS-485 serial @ 1,200 – 115,000 baud | | | | | |
| Optional Data Storage | Up to 512 GB | | | | | |
| I/O Cable Length | 100 m max | | | | | |
| Operating/Storage Temp | -5 to 50°C/-30 to 70°C | | | | | |