

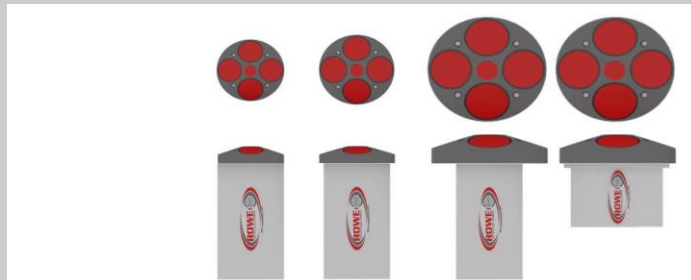
RTI's Multi-Frequency **River Q3** ADCPs employ advanced 3rd generation RTI ADCP Technologies providing:

- Dual-Frequency Bottom Track, Current Profile, and Altitude measurements
- Quad or Triple Target Strength measurements for Sediment Concentration and Grain Size estimation

Jointly providing measurement of calculation of both River Flow and Sediment Discharge. Four Optional configurations are available.

FEATURES

Multi-Frequency ADCP with overlapping inclined Dual-Frequency 4-beam sets and Dual-Frequency vertical beams.



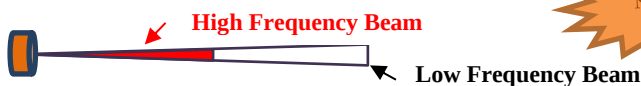
MODEL	<u>RQ3-S1</u>	<u>RQ3-S2</u>	<u>RQ3-S3</u>	<u>RQ3-S4</u>
SLANT BEAMS:	1200/2400	600/2400	300/1200	300/1200
VERTICAL BEAMS:	600	300/1200	600	600

NOTE: RS3 and RS4 have same transducers but different mechanical housings.

APPLICATION BENEFITS

- Synchronized sequential long profiling range at lower frequencies, plus high spatial, velocity and temporal resolution measurements over short ranges at higher frequencies in a single ADCP.
- Dual ADCP use in shallow and deep rivers
- Accurate low frequency Bottom Track in high sediment "moving bottoms" conditions.
- Triple and Quad-Frequency beams enable sediment characterization.

Dual-Frequency piston transducers



- Reduced Dual-Frequency transducer size re multiple single-frequency piston arrays.
- Overlapping beams improved sediment and velocity measurement and data Quality Control

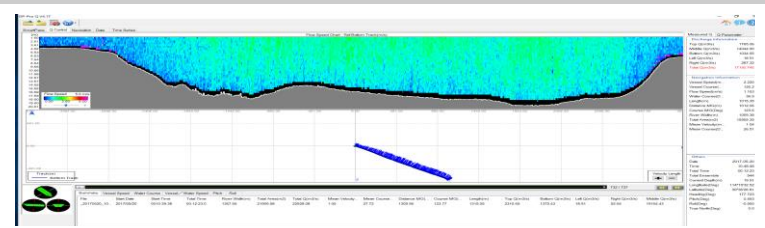
Precision inter-frequency calibrated acoustic transmit and echo reception of Triple or Quad-Frequency beams

- Precise Multi-Frequency Target Strength measurement for characterization of sediment concentration and grain size.

Real-Time automatic multi-mode optimization of multiple frequency, bin sizes, Multiple-Frequency pings, transmit levels, Broadband, Narrowband and pulse-to-pulse coherent modes.

- Automatic mode adaption to River and Channel depth, velocity and sediment conditions.

DP-Pro Q software



- Real time GPS integration, processing and display of velocity and sediment profiles, Discharge, navigation and data quality.
- Real time flow discharge and sediment transport calculation.
- Internal ADCP recording of all raw and processed echo data for post deployment review.

Optional trimaran and autonomous USV with integrated radios and DGPS



- Complete river discharge measurement system.

SPECIFICATIONS

ACOUSTIC CONFIGURATIONS

	RS1			RS2				RS3*			RS4 *		
Frequency (kHz)	1200	2400	600	600	2400	300	1200	300	1200	600	300	1200	600
# Beams	4	4	1	4	4	1	1	4	4	1	4	4	1
Beam Angles	± 20°	± 20°	0°	± 20°	± 20°	0°	0°	± 20°	± 20°	0°	± 20°	± 20°	0°
2-Way Beamwidth	1.8°	2.2°	6.1°	2.2°	2.2°	6.3°	4.3°	2.9°	2.9°	6.1°	2.9°	2.9°	6.1°

CURRENT PROFILE

Velocity Range	±20 m/s Max; ±5 m/s Typical
Resolution	0.01 cm/s
Number of cells	Up to 300

MAXIMUM RANGE

Broad Band Profiling Range (m)	17	5	40	60	5	70	10	65	15	40	65	15	40
Standard depth cell size (m)	1	0.5	2	2	0.5	4	1	4	1	2	4	1	2
Narrowband Single Ping Precision	20 cm/s @ standard depth cell size												
Broadband Single Ping Precision	3.5 cm/s @ standard depth cell size												
Long Term Accuracy	± 0.7 %, ± 2 mm/s												

ECHO INTENSITY PROFILE

Amplitude Dynamic Range	80 dB
Amplitude Accuracy	± 2 dB
Altitude Accuracy	± 1 %

BOTTOM TRACKING

Maximum Range (m)	25	10	60	90	10	105	20	120	25	60	120	25	60
Long Term Accuracy (Low Accuracy)	± 1.0 %, ± 2 mm/s												
Single-Ping Precision	± 0.4 cm/s @ 3 m/s												
Maximum Bottom Track Speed	15 m/s												

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	5 m and 25 m
Operating/Storage Temp	-5 to 50°C/-30 to 70°C

➤ **NOTE:** RS3 and RS4 have same transducers but different mechanical housings

MECHANICAL DETAILS

MODEL NUMBER	A DIAMETER	B THICKNESS	C DIAMETER	D HEIGHT	E DIAMETER	F HEIGHT	G HEIGHT
RQ3-S1	5.0"/127	1.7"/ 43	5.0"/127	8.0"/203	4.9"/ 124	6.4"/162	1.2"/ 30
RQ3-S2	7.0"/178	2.0"/ 51	5.0"/127	8.0"/203	4.9"/ 124	6.4"/162	1.2"/ 30
RQ3-S3	8.9"/226	3.21"/81.5	5.0"/127	8.0"/203	4.9"/124	6.4"/162	1.2"/ 30
RQ3-S4	8.9"/226	2.94"/74.7	7.95"/202	5.5"/138	7.1"/180	4.55"/116	0.5"/ 13

