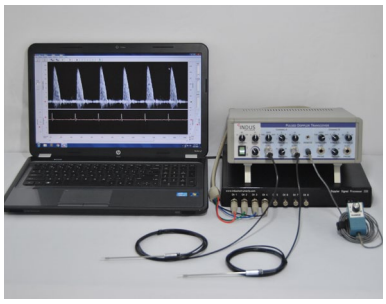
DOPPLER FLOW VELOCITY SYSTEM - SPECIFICATIONS

The Indus Instruments Doppler Flow Velocity System is a high-frequency, real-time pulsed Doppler measurement device with integrated data analysis software designed specifically for measuring cardiovascular function in small animals.

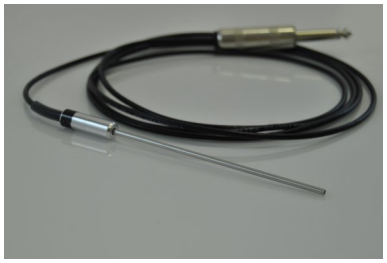
The system consists of three components: Pulsed Doppler Transceiver (PDT: 10 & 20 MHz switchable dual channel system), Doppler Signal Digitizer (DSD), and Doppler Workstation (DW).

Pulsed Doppler Transceiver



Doppler Flow Velocity System, including Doppler Workstation (left), Pulsed Doppler Transceiver (right top), Doppler Signal Digitizer (right bottom), Probes and Remote Range control.

Pulsed Doppler Transceiver front panel with inputs and signal adjustment controls.



Tubing-mounted probe (10MHz or 20MHz) for noninvasive measurements

Channels	Two, each switchable between 10MHz & 20MHz	
Power	110 VAC / 60Hz OR 220 VAC / 50Hz	
Recorder Outputs	2 from each channel (Phasic & Mean)	
Audio Outputs	2 from each channel (InPhase & Quadrature)	
Audio Monitor	Amplifier & speaker selectable from any channel	
External Ground	Intended for chasis grounding, if required	
USB, RF/DEMOD	Future use	
Ultrasound Frequency	10 MHz	20 MHz
Pulse Repetition Frequency	31.25, 62.5, 125 KHz	62.5, 125 KHz
Transmitter Output	25 Vpp into 50 Ohm	35 Vpp into 50 Ohm
Audio Bandwidth	≈ 100 Hz to 15 KHz	≈ 200 Hz to 25 KHz
Transmitter Pulse Width	0.4 µs	
Receiver Pulse Width	0.32 µs	
Variable Range Gate	1-10 mm (1-13 µs)	
Velocity Outputs	0.25 V/kHz simultaneous Phasic & Mean	
Phasic Output Filter	Phasic (1 pole at 50 Hz), Damped (1 pole at 15 Hz) and Mean (2 poles at 0.25 Hz)	
Probe Connection	Floating & differential (single-ended, differential)	
Velocity Range	1-100 cm/s at 0° angle, 2-200 cm/s at 60° angle	
Electrical Zero	Front panel switches	
Controls	Range adjustment, Polarity Switch, Filter	

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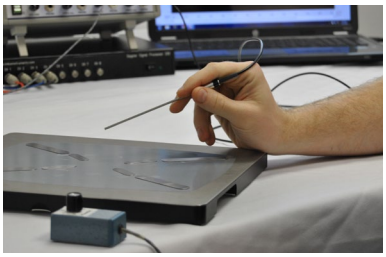
Doppler Signal Digitizer

Doppler Signal Digitizer with 8 BNC input channels



Addition of a Rodent Surgical Monitor provides integrated subject warming and ECG measurement.

Channels	Channels 1 and 2 = Doppler InPhase & Quadrature Channel 3 = ECG Channels 4 - 8 = Auxiliary inputs
Input Range	±10 V
Coupling	AC or DC software selectable
Sampling	125 kHz per channel, 16 bits
Hardware Low Pass Filter	10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140 or 150 kHz
Software High Pass Filter	100, 200, 400, 600, 800, 1000, 1500 or 2000 Hz (Second or Fourth order)
Digital Signal Processor	500MHz Dual Core Processor
Data Link to PC	USB 2.0 (480 Mb/s)
Power	100-240 VAC Universal Adapter

Doppler Flow Velocity Measurements

Surgical Monitoring / Vital Sign Measurements

- Heart Rate
- R-R Interval

Systolic Indices: Aortic Outflow Velocity

- Peak velocity
- Mean velocity
- Peak acceleration
- Mean acceleration
- Pre-ejection time
- Ejection & Rise time
- Stroke distance

Diastolic Indices: Mitral Inflow Velocity

- E-peak & E-stroke velocity
- E-time duration
- E-acceleration & E-deceleration time
- E-peak to ½ E-peak time
- E-linear deceleration time & rate
- A-peak
- A-stroke distance
- A-time duration
- E-A peak velocity ratio
- Isovolumic contraction time
- Isovolumic relaxation time

Peripheral Artery Indices: Carotid, Renal, Femoral & Tail

- Peak Velocity
- Mean & Minimum flow velocity
- Pulsatility Index
- Resistivity Index

Other Indices: Coronary, Transverse & Abdominal Aorta

- Peak Diastolic Velocity (Coronary)
- Peak Systolic Velocity (Coronary)
- Diastolic & Systolic Area (Coronary)
- Ratios PSV/PDV & SA/DA
- Pulse Wave Velocity