



# SANInsight™ ProbeFCX

Virtual Instruments VirtualWisdom® software and SANInsight hardware products provide an unprecedented scope of diagnosis and prevention capabilities for complex, heterogeneous fibre channel storage-area networks (SANs).

The Virtual Instruments SANInsight ProbeFCX analyzes every packet on a fibre channel SAN. A ProbeFCX can be dedicated to a single SAN link or, using a SANInsight Rover, can rove among many SAN links to provide statistics about storage I/O traffic as it relates to an application server, storage subsystem, remote replication, virtualization or other key SAN device or application.



*SANInsight ProbeFCX*

The ProbeFCX probe detects application performance slowdowns by measuring every SCSI I/O transaction from start to finish, for both reads and writes. Exchange Completion Times (ECT) metrics are maintained for every server/volume combination (initiator/target/LUN). ProbeFCX can measure latency through wide-area networks and from servers to storage subsystems. A baseline of metrics can be created to verify that there are no impacts after server OS or device firmware upgrades, zone modifications, or other changes to the SAN.

Failing SCSI devices may be proactively detected by monitoring link errors and SCSI operation errors using ProbeFCX. Congested storage ports can be identified from ProbeFCX queue depth metrics. VirtualWisdom® measures queue depth by monitoring the number of active and pending SCSI exchanges to the same target port. Overrunning storage queues may impact the performance of the entire SAN.

The SANInsight ProbeFCX contains probes that simultaneously monitor up to eight fibre channel links. Probes contain algorithms that correlate end-to-end storage traffic between a server and a storage volume. Metrics are calculated within the probes for every active ITL (Initiator/Target/LUN) nexus, including SCSI frame analysis, elapsed time from SCSI read to first data, time elapsed for each complete read or write exchange, and the number of simultaneous open exchanges on the link. Probes also detect and track fibre channel faults, SCSI errors, and device faults. An Ethernet connection allows the probes to communicate with the VirtualWisdom Server software. A summary of changed metrics are reported to the VirtualWisdom Portal Server every second via the Ethernet connection.



*VirtualWisdom® Dashboard*

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## FEATURES

- Application I/O performance, san latency measurement
- Storage protocol faults and failing device detection
- Congested ports and unauthorized traffic on a SAN link detection
- Tiered monitoring architecture enabled by a VirtualWisdom Rover extends the monitoring each of the ProbeFCX probes

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## PROBEFCX SPECIFICATIONS

### CONNECTIONS

- SAN Link Connectivity: Probes must be connected to SAN links via Virtual Instruments TAPs. TAPs are passive, thereby protecting SAN link connectivity from any power impacts to the ProbeFCX.
- Protocol Analyzer Connectivity: Probes can be connected to a Virtual Instruments Protocol Analyzer for additional VirtualWisdom analysis functionality using the transmit portion of the ProbeFCX probe ports.
- VirtualWisdom Portal Connectivity: ProbeFCX is connected to the VirtualWisdom software portal via Ethernet to transfer calculated SAN metrics to the portal for saving in the database, reporting and display.

### MECHANICAL

#### DIMENSIONS

Height: 3.4 inches (8.7 cm), 2U

Width: 13 inches (38.6 cm)

Depth: 12.7 inches (32.3 cm)

Weight: 13.5 lbs (6.1 kg) (no blades), 18.0 lbs (8.2 kg) (4 blades)

#### INDICATORS

Status | Temp | Ready | Power

#### CONNECTORS

- Management Port: 100/1000 RJ45 Ethernet
- Power: Male IEC 320 Receptacle
- Console Port: DB9
- Cascade Ports: Not used
- Trigger Out: Not used
- Trigger In: Not used

### ENVIRONMENT

#### TEMPERATURE

- Operational: 10 to +40° C (50 to +104° F)
- Non-operational: -40 to +70° C (-40 to +158° F)

#### HUMIDITY

- Operational: Up to 90% humidity (non-condensing) at +40° C
- Non-operational: Up to 95% humidity at +65° C

#### VIBRATION

- Operational: Random Vibration 5-500 Hz, 10 minutes per axis, 2.41g (rms)
- Non-operational: Random vibration 5-500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5-500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis

### ELECTROMAGNETIC COMPLIANCE

FCC Class A, CE Compatibility

SAFETY: UL

### POWER SPECIFICATIONS

Input Voltage Range: 120/240 VAC, 2.0A

Fuse Protection: 2.5A 250V

Input Frequency: 50/60 Hz



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