REFTEK
SYSTEMS INC.

180 MULTI-CHANNEL RECORDER



Multiple Applications, One Solution

Built on Reftek's proven 180-family architecture—sharing core processors, firmware, and components with the Wrangler and SMHR2—the Reftek 180-MC provides a single, highly adaptable solution for complex geophysical and structural monitoring across bridges, buildings, dams, and beyond. This standardized platform ensures long-term system support while delivering the flexibility needed for custom applications.

Reftek Systems Inc. is one of only two approved equipment vendors for the State of California's Department of Conservation and California Geological Survey (CGS). Our 180-MC, Wrangler, and SMHR2 accelerograph systems have met all CGS/SSC Central-Recording Multichannel Accelerograph System Requirements and are actively deployed within the California Strong Motion Instrumentation Program (CSMIP) to protect critical infrastructure and deliver reliable earthquake data

KEY FEATURES

- 6 to 18 Integrated Recording Channels
- 24-Bit and 30-Bit Output A/D Resolution
- IP Based Communications over Ethernet and Asynchronous Serial
- Embedded/Removable USB Drive (Configurable)
- Remote Alerting for both Event and Alarm Triggers
- Embedded Seedlink Server

APPLICATIONS

- Structural Monitoring (Buildings, Bridges, Dams)
- Dense Accelerometer Arrays
- Multi-Component Geophysical Monitoring

180-MULTICHANNEL ACCELEROGRAPH

REF TEK MULTI-CHANNEL ACCELEROGRAPH

MODEL	R-180-MC6A R-180-MC12A R-180-MC18A
A/D CONVERTER	
Type	32-bit
Dynamic Range	~139 dB
Input Channels	6, 12, 18
Gain Selection	x1, x2, x4 and x8
Input Full Scale	40, 20, 10, 5 Vpp
Common Mode Rejection	>90 dB
Sample Rates	200, 100 sps
Multiple Sample Rates	Supported for rates in the group 200, 100,
Sampling	Simultaneous on all channels
FIR Filter	~140 dB down in the stopband
CHANNEL SPECIFICATIONS	
Noise Level	<40 µV P-P (<1 count of an 18 bit system) @ 200 sps
Temperature Effects	<1% Full Scale from -20 °C to 70 °C
TIME BASE	
Type	GNSS Receiver/Clock plus a Disciplined TCXO Oscillator
Accuracy with GNSS	<±5 µsec after validated 3-D Fix and Locked
Alternate Time Sources	NTP
TRIGGERED RECORDING	
Trigger Type	Continuous, Vote, External/Event
VOTE TRIGGER	
Votes	User settable number of: • Votes per Channel • Votes required to determine Trigger/Detrigger User settable threshold for issuing votes Threshold range 0.00001 – 4 g
EXTERNAL TRIGGER	
An external signal can be issued by one station to trigger all other statons in the case of an event.	
RECORDER INTERCONNECTION	
Interconnected	Common GPS Time Trigger Notification
Time Synchronization	< 5 µsec
POWER	
Input Voltage	Device Input: 9–30 VDC AC Adapter Input: 100–240 VAC (North American & European compatible)

POWER	
Average Power	<21 Watt-Hour/Day Per Channel
Low Voltage Disconnect	User-programmable
Reset	Resettable via WebUI, Magnet Wand, or external connector pin.
SENSOR CONTROL	
Test Pulse	All Channels
COMMUNICATIONS	
Ethernet	10/100 Base-T, TCP/IP, UDP/IP, FTP, RTP DHCP, Static, Link-Local, RJ45 Connection
WIFI	Access-point mode for local command and control
WebUI	Accessible via WiFi or Ethernet
RECORDING	
Format	Miniseed, MRF
Transmission	SeedLink Server, RTP, Jopens 6.0 (Simulcasting), State-of-Health (SOH)
Trigger Type	Continuous, STA/LTA, Time, External, Cross, Level and Vote (0.0001 to 4g)
Data Products	On-board Calculation of: PGA, PGV, PGD, MMI, PEIS, JMA (email notifications available)
Internal Capacity	8 GB internal Flash memory data buffer (Upgradeable to 32 GB)
External Capacity	Removable 8, 16, 32 or 64 GB USB drive
MECHANICAL	
Screen	2.8" TFT
Switch	Magnetic Switch for WiFi & LED wakeup
Standard Dimensions	24" high x 20" wide x 16" deep (61 cm x 50.8 cm x 40.6 cm)
Slim Dimensions	20" high x 24" wide x 10" deep (51 cm x 61 cm x 25 cm)
Weight without Battery	**Standard:** 93 lbs (42.2 Kg) **Slim:** 68 lbs (30.8 Kg)
Watertight Integrity	IP68 (recorder)
Humidity	0 to 100%
Operating Temp	–30°C to 70°C
Storage Temp	–40°C to 85°C
Volume	**Standard:** 4.4 cubic feet **Slim:** 2.8 cubic feet
CERTIFICATIONS	
Compliance	CE, FCC, RoHS

CUSTOMER SUPPORT

REF TEK products are installed in locations around the world, from urban settings to rainforests to deserts. The environments are often challenging for electronics and REF TEK Systems is committed to providing reliable, practical support. Our team includes seismologists and seismic installation experts as well as engineers and technicians.

Contact support@reftek.com.

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