GNC-CR24 / CR18 / CR16 / CR12 Central Recording System

Features
- Unlimited Extension of Channels
- Common Trigger, Common Time Synchronisation
- Available for 12 Bit, 16 Bit, 18 or 24 Bit
- Full Integration in GeoSIG’s Network Concept
- LED and LCD Status Indication
- On-Line Surveillance, Diagnostics and Self Checking System
- Detailed Analysis Tool with dedicated GeoDAS Data Analysis Package Module
- Broad Application Field
- Compact and User-Friendly
- Minimal Maintenance

Outline

The **GNC-CR** Central Recording System is a Multichannel Recorder containing several Recorder Module Cards. It can be extended to an almost unlimited amount of channels by adding further 12 Bit, 16 Bit, 18 or 24 Bit Recorder Module Cards. These unique features are based on a very compact and user friendly design.

The sensors are interconnected in a star topology and every sensor has its own connection to the **GNC-CR** Central Recording System. The Network Center provides on-line surveillance, common trigger and time synchronisation. The LCD indication informs continuously about the current status of the Network Center.

Individual trigger setting based on module channel information is possible. Data are stored on solid state CMOS SRAM or Flash memory.

With the **GNC-CR** Central Recording System and a connected Personal Computer the parameters of each Recorder Module Card can be set easily and specifically to desired requirements. The actual status can be monitored on-line on the screen. If an error or a warning occurs on one of the Recorder Module Cards, it will be indicated immediately on the PC screen and a LED lamp on the front panel will be activated.

A listing of the recorded data with the corresponding peak values of the acceleration can be shown on-line on the PC screen. Data evaluation can start immediately after retrieving measured events to the PC.

The **GNC-CR** Central Recording System is housed in a rack system.
Specifications GNC-CR24 / CR18 / CR16 / CR12 Central Recording System

Set-up and Configuration
All the necessary parameter and configuration settings are selectable with the easy-to-use GeoDAS Windows program. The configuration of the GNC-CR are stored on internal EEPROM which secure the configuration set-up independent of any back-up battery requirements.

Data Analysis
The GeoDAS program provides basic time history data evaluation in the field. The GNC-CR supplies data available in binary format or as ASCII files. The GeoDAS Data Analysis Package covers the requirements of detailed laboratory analysis for most earthquake and civil engineering applications. Any customized in trade evaluation software package can of course be used as well.

Sensor
The sensors are housed in a compact case with a single bolt mount, easy to install and to level with three levelling screws. Also available as a standard option is a current loop interface easy to install and to level with three levelling screws. Also available transferring over long distances as well as a gain selection to expand the dynamic range.

AC-23 Geophone-based Accelerometer
Frequency Response: 0.1 Hz to 100 Hz (200 optional)
Largest signal: ± 2 g Std. (±1, ±0.5, ±0.2 g optional)

AC-63 Force Balance Accelerometer
Frequency Response: DC to 100 Hz
Largest signal: ± 2 g Std. (±1, ±0.5 g optional)

CMG-5T Güralp™ Accelerometer
Frequency response: DC to 100 Hz
Largest signal: ± 2 g

VE-13 Velocity sensor
Frequency response: 1 Hz to 315 Hz
Largest signal: ± 100 mm/s

VE-23 Velocity Sensor
Frequency response: 4.5 Hz to 315 Hz
Largest signal: ± 100 mm/s

Digitizer
A/D Converter: 12 Bit, 16 Bit, 18 Bit, 24 Bit
Dynamic: 72, 96, 111, 130 dB
Sampling rates: 501, 100, 200, 2502 SPS per channel
Bandwidth: 40% of sampling rate

Data Recording
Pre-event-Time: 1 to 30 seconds (120 for 24 Bit)
Post-event-Time: 1 to 100 seconds

Triggering
Level Triggering
Lower band limit: 0.1 Hz (20 dB / decade)
Upper band limit: 12 Hz (40 dB / decade)
Range: 0.1 to 100 % of full scale

STA/LTA Triggering
STA-Base: 0.1 to 10 seconds
LTA-Base: 1 to 100 seconds
STA/LTA-Ratio: 1 to 60 dB

On-Board Memory on Recording Module RMC-12 / 16 / 18 / 24:
Type: 2 GB/byte
Recording time: 29 minutes per 2 Mybytes (12 / 18 Bit)
19 minutes per 2 Mybytes (18 / 24 Bit) (@ 3 channels, 200 SPS)

Power Supply
Type: Switched power supply
Internal battery: Rechargeable, 12 VDC, 7.2 Ah
Lead battery
Autonomy: 2 days divided by No. of RMC Cards
AC voltage: 80 - 264 VAC
DC voltage: 12 VDC
Power consumption: 1 W per RMC @ 12 VDC typically

Time Base
Standard clock accuracy: ± 20 ppm (10 min/year)
External time interfaces: @ -10 °C to +50 °C

Indicators
Green: AC Power LED
Green: Run/Stop LED
Yellow: Event/Memory LED
Red: Warning/Error LED

LCD display: User selectable choice of display parameters

Communication
Serial ports: 2 (1 for communication, 1 for GPS)
Baud rates: 1200, 2400, 4800, 9600, 38400,
57600, 115200

TCP/IP Communication Option
Using a RS-232-TCP/IP device server, GNC can be seamlessly integrated in a TCP/IP computer network for instrument setup and data acquisition. Doing so each GNC-CR can be assigned a unique IP Address.

Environment / Housing
Operational temperature: -20 °C to +70 °C
Storage temperature: -40 °C to +85 °C
Humidity: 0 % to 100 % (non condensing)
Type: Painted steel housing

Size up to 24 channels
(4 x 3 axis or 12 x 1 axis): 600 x 575 x 370 mm
Size up to 48 channels
(10 x 3 axis or 30 x 1 axis): 600 x 575 x 630 mm
Weight: 30 to 50 kg (incl. 7.2 Ah battery)
depending on amount of channels

Protection: IP54

Self Test
Permanently active, self monitoring and user selectable, periodical system test including comprehensive sensor, memory, filter, real time clock, battery level and hardware tests.

Software
Complete GeoDAS software package to perform setup, testing, data retrieval and data analysis.

Seismic Switch / Warning Unit Option
The GNC-CR warning option provides two independent warning / error outputs (relay contacts) based on user selectable criteria. This option allows to configure the GNC-CR as a seismic switch.

Alarms: 2 relay for 2 alarm levels
Alarm levels: 0.1 to 100 % of full scale
(User programmable per axis)
Relay Hold-On: 1 to 60 seconds
(User Programmable)

Specifications subject to change without notice
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1 24 Bit version only
2 12, 16 and 18 Bit version only