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.

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 customary 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 (0 to 20 mA) for signal transfer over long distances as well as a gain selection to expand the signal 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:	50[1], 100, 200, 250[2] 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 GByte Flash Memory per module card
Recording time:	29 minutes per 2 Mbytes (12 / 18 Bit) 19 minutes per 2 Mbytes (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 @ -10 °C to +50 °C)
External time interfaces:	GPS

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
Communication protocol:	TG protocol
Protocol securities:	Checksum and software handshaking
Communication:	PC/RS-232 port or optional modem
Modem operations:	Auto Dial

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)

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[1] 24 Bit version only

[2] 12, 16 and 18 Bit version only