

Stand-Alone, High-Speed, Multifunction Data Loggers

OM-LGR-5320 Series



OM-LGR-5325 shown smaller than actual size

- ✓ Up to 200 kS/s Correlated Sampling of all Data
- ✓ 16 Analog Inputs up to $\pm 30V$
- ✓ 16-Bit Resolution
- ✓ 16 Industrial Digital Inputs up to 30V
- ✓ Single Form C Relay Digital Output Configurable for Triggering/Alarming
- ✓ 4 Counter Inputs (Quadrature Available)
- ✓ 4 GB SD Memory Card Included, Supports up to 32 GB
- ✓ Multi-Channel Analog and Digital Triggering
- ✓ Pushbutton Controls for Field Operation

The OM-LGR-5320 Series are high-speed, standalone data loggers for analog and digital signals. Each module offers 16 analog inputs, 16 digital inputs, one single Form C relay (0.5A) digital output for triggering/alarming, and four counter/encoder inputs. These devices allow users to collect high-speed correlated analog and digital data without a computer. OM-LGR-5320 devices perform high-speed, correlated measurements, up to 200 kS/s, directly to a Secure Digital (SD) or SDHC memory card. Utilizing the advanced analog and digital triggering options, users can collect data to monitor systems and events without dedicating a PC. The OM-LGR-5320 loggers include easy-to-use DAQLog software to configure the devices and retrieve data via the USB interface or SD memory card.

Three models are available in the OM-LGR-5320 Series. The OM-LGR-5325 features up to $\pm 10V$ analog inputs, 100 kS/s sampling, four conventional counter inputs (non-quadrature), and single-channel trigger modes.

The OM-LGR-5327 features up to $\pm 30V$ analog inputs, 200 kS/s sampling, four quadrature encoder inputs, and multi-channel trigger modes. The OM-LGR-5329 includes all the functionality of the OM-LGR-5327 plus isolated digital inputs.

Analog Input

16SE/8DE analog inputs are included on each data logger. The OM-LGR-5325 features multiple analog input gain ranges up to $\pm 10V$. The OM-LGR-5327 and OM-LGR-5329 add a $\pm 30V$ analog input range for increased measurement capability. Each data logger provides 16-bit resolution.

Correlated, High-Speed Sampling

The OM-LGR-5327 and OM-LGR-5329 can sample input data at up to 200 kS/s while the OM-LGR-5325 offers a 100 kS/s sample rate. Each module can sample all analog, digital, and counter data synchronously, making it easy to compare time between all channels.

Configuration, Data Storage, and Retrieval

Each data logger can be configured through the SD memory card or via the on-board USB port. Simply configure the logging session with the included DAQLog software.

All logging parameters are captured on the SD memory card. A 4 GB SD memory card is included with each data logger. Memory cards up to 32 GB are supported for extended data collection.

Data is retrieved by removing the SD memory card from the logger and uploading to a PC or by connecting to the USB port on the logger.

Module Overview

Features	OM-LGR-5325	OM-LGR-5327	OM-LGR-5329
Sample Rate*	100 kS/s	200 kS/s	200 kS/s
Analog Inputs	16 SE/8 DE	16 SE/8 DE	16 SE/8 DE
Analog Input Range	Up to $\pm 10V$	Up to $\pm 30V$	Up to $\pm 30V$
Digital Inputs**	16-channel TTL	16-channel TTL	16-channel industrial isolated
Counters	4 conventional	4 conventional/ quadrature	4 conventional/ quadrature
Triggering	Single-channel	Multi-channel	Multi-channel

* Sample rates aggregate

** Each logger includes one single Form C relay output

Triggering

OM-LGR-5320 Series data loggers offer multiple triggering options for starting and stopping a data scan. These options vary by model. The OM-LGR-5325 features single-channel analog and digital triggering. The OM-LGR-5327 and OM-LGR-5329 offer multi-channel and pattern triggering options. Multiple trigger options allow collection of only the desired data. External clocking is also supported.

Digital I/O

16 digital inputs are included with each data logger. These inputs can be sampled synchronously with analog input data.

The OM-LGR-5325 and OM-LGR-5327 feature up to 28V digital inputs while the OM-LGR-5329 features up to 30V digital inputs. The digital inputs on the OM-LGR-5329 also provide 500 Vdc isolation. Each data logger also features one digital output relay channel. The Form C relay can be programmed via the included DAQLog software to alarm when desired conditions are met.

Counters

Four counter inputs are built into the OM-LGR-5320 Series. The OM-LGR-5325 features conventional up/down counters.

The OM-LGR-5327 and OM-LGR-5329 include quadrature and conventional counter inputs. Multiple count modes are also supported.

Pushbutton Logging Controls

Onboard one touch logging controls are featured on each module for quick and simple operation. These controls can be used for a variety of functions including:

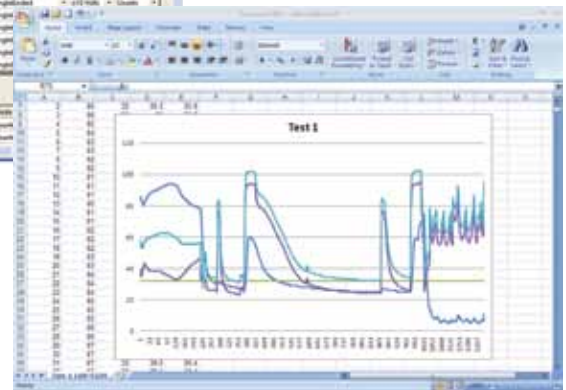
- Configuration loading from SD memory card
- Start/stop logging
- Force trigger/user event
- Device reset
- Control of status LEDs

LEDs on each module provide instant logging and trigger status and activity state.



Logging parameters are configured via DAQLog software.

Acquired data files are easily opened in programs such as Excel.



DAQLog Software

DAQLog Software is an easy to use application included with each OM-LGR-5320 Series data logger. DAQLog uses a spreadsheet style interface that allows simple setup of channel and logging parameters.

DAQLog includes the following functions:

- Data logger configuration
- Channel setup
- Trigger setup
- Data conversion
- Scan rate and acquisition length
- Trigger, event, and alarm parameters

Data can be saved in .csv format for easy import into Excel®.

Specifications

ANALOG INPUT

A/D Converter: 16-bit successive approximation type

Input Ranges: Software selectable per channel;

OM-LGR-5325: ±10V, ±5V, ±1V;

OM-LGR-5327, OM-LGR-5329: ±30V, ±10V, ±5V, ±1V

Number of Channels:

8 differential/16 single-ended, software configurable

Input Configuration: Multiplexed

Absolute Max Input Voltage:

OM-LGR-5325: CH_x to AGND, ±25V maximum (power ON/OFF);

OM-LGR-5327, OM-LGR-5329: CH_x to AGND, ±38V maximum (power ON/OFF)

Input Impedance

OM-LGR-5325: ±10V, ±5V, ±1V range, 10 GΩ (power ON), 1 kΩ (power OFF)

OM-LGR-5327, OM-LGR-5329: ±30V range, 1 MΩ (power ON), 1 GΩ (power OFF); ±10V, ±5V, ±1V range, 10 GΩ (power ON), 1 GΩ (power OFF)

Input Leakage Current: ±100 pA

Input Capacitance: ±30V range, 90 pf; ±10V, ±5V, ±1V range, 55 pf

Max Working Voltage (Signal+ Common Mode): ±30V range,

±30.05V; ±10V, ±5V, ±1V range, ±10.2V

Common Mode Rejection Ratio:

fin = 60 Hz, ±30V range, 65 dB min; fin = 60 Hz, all other ranges, 75 dB min

Crosstalk: DC to 25 kHz, adjacent differential mode channels, -80 dB

ADC Resolution: 16-bits

Input Bandwidth (-3 dB):

All input ranges, 450 kHz min

Input Coupling: DC

Max Sample Rate:

OM-LGR-5325: 100 kHz;

OM-LGR-5327, OM-LGR-5329: 200 kHz

A/D Pacing Sources: See input sequencer section

Warm Up Time: 30 minutes, min

Absolute Accuracy: All ranges, 0.07% FSR

Noise: Differential mode, 2 LSB rms

ANALOG INPUT CALIBRATION

Calibration Method:

Factory calibration

Calibration Interval: 1 year

OM-LGR-5325



OM-LGR-5329



OM-LGR-5327



TRIGGERING

Mode External Digital via

DTRIG (Pin 76): Software configurable for rising or falling edge

External Analog via ATRIG

(Pin 78): See external analog trigger

Multi-Channel Analog

(OM-LGR-5327, OM-LGR-5329): Level-sensitive based on acquired data. Up to 16-channels may be used as independent trigger sources.

Digital Pattern Trigger

(OM-LGR-5327, OM-LGR-5329): Trigger when a user-defined 1 to 16 bit digital pattern is matched on the DIN0-DIN15 pins. Programmable mask bits.

External Digital Trigger Latency

Non-Pretrigger Acquisition:

100 ns typical, 1 μ s max

Pretrigger Acquisition: 1 scan period max

External Trigger Pulse Width:

1 μ s min

Internal Trigger Latency:

2* (1/per-channel sample rate)

EXTERNAL ANALOG TRIGGER

External Analog Trigger Source:

ATRIG input (pin 78)

Analog Trigger Input Ranges:

OM-LGR-5325: ± 10 V;

OM-LGR-5327, OM-LGR-5329: ± 30 V, ± 10 V, software selectable

Absolute Maximum Input Voltage

OM-LGR-5325: ATRIG_IN to AGND, ± 25 V maximum (power ON/OFF);

OM-LGR-5327, OM-LGR-5329: ATRIG_IN to AGND, ± 38 V maximum (power ON/OFF)

Input Impedance

OM-LGR-5325: ± 10 V range, 10 G Ω (power ON), 1 k Ω (power OFF);

OM-LGR-5327, OM-LGR-5329: ± 30 V range, 1 M Ω (power ON), 1 G Ω (power OFF); ± 10 V range, 10 G Ω (power ON), 1 G Ω (power OFF)

Trigger Modes: Configurable for positive or negative slope, level

Trigger/Hysteresis Resolution: 12 bits, 1 in 4096

Trigger/Hysteresis Levels:

± 10 V/4096 or ± 30 V/4096, software selectable

Trigger/Hysteresis Accuracy: $\pm 2\%$ of reading, ± 50 mV offset

Latency: 1.5 μ s

Full Power Bandwidth (-3 dB): 1 MHz

DIGITAL INPUT

Number of Inputs: 16-channels

OM-LGR-5325

Input Type: TTL

Input Voltage Range: 0 to 28V

Input Characteristics: 47 k Ω pull-down resistor, 39.2 k Ω series resistor

Max Input Voltage Level:

0 to +32V (power ON/OFF)

Min High Level Input Voltage

Threshold: 2.0V max

Max Low Level Input Voltage

Threshold: 0.8V min

OM-LGR-5327

Input Type: TTL

Input Voltage Range: 0 to 28V

Input Characteristics: 47 k Ω pull-down resistor, 39.2 k Ω series resistor

Maximum Input Voltage Level:

0 to 32V (power ON/OFF)

Minimum High Level Input Voltage

Threshold: 2.0V max

Maximum Low Level Input Voltage

Threshold: 0.8V min

Event Logging: Change of state,

pattern recognition; event time stamped using real time clock

OM-LGR-5329

Input Type: Industrial

Input Voltage Range: 0 to 30V

Input Characteristics: Resistor

divider 39.2 k Ω series resistor and 10 k Ω shunt resistor connected to IGND

Maximum Input Voltage Level: 36V (power ON/OFF)

Minimum High Level Input Voltage

Threshold: 10.04V maximum

Maximum Low Level Input

Voltage Threshold: 3.85V minimum

Event Logging: Change of state,

pattern recognition; event time

stamped using real time clock

Isolation: 500 Vdc min

DIGITAL OUTPUT

Number of Outputs: 1

Type: Mechanical relay, NEC ED2/EF2 series

Relay Configuration: 1 Form C

Relay Contact Resistance: 0.075 Ω

Relay Contact Operate Time:

3 mS (excluding bounce)

Relay Contact Release Time:

2 ms (excluding bounce)

Relay Insulation Resistance:

1000 M Ω at 500 Vdc

Relay Contact Ratings

Max Switching Voltage:

220 Vdc/250 Vac

Max Switching Current: 1.0 A

Max Carrying Current: 2.0 A

COUNTERS

OM-LGR-5325

Counter Type: Conventional

Number of Channels: 4

Inputs: Counter, Up/Down, Gate

Resolution: Fixed 32-bit or as sized by the modulo register

Count Modes: Up/down, period/frequency, Modulo n

De-Bounce Times

(Programmable): 16 steps

from 500 ns to 25 ms; positive or negative edge sensitive; glitch detect mode or de-bounce mode

Time-Base Accuracy: 50 ppm

Input Voltage Range: 0 to 5.5V

Input Type: TTL

Input Characteristics: 49.9 k Ω

pull-down resistor

Max Input Voltage Range:

-0.5V to 7.0V

Input High Voltage: 2.0V

Input Low Voltage: 0.8V



Logging parameters are configured via DAQLog software. The OM-LGR-5320 Series data logger can be setup via USB or by inserting the SD memory card into a PC. Data rate, scan length, channel parameters, triggers and alarms are all quickly and easily configured using spreadsheet style setup pages in DAQLog.

Retrieval of data can be done by connecting the logger to a PC via USB or by removing the SD memory card and inserting it into a PC. Once data is uploaded to a PC, the .csv file can be opened in programs such as Excel.

OM-LGR-5327, OM-LGR-5329

Counter Type: Quadrature and conventional (x1, x2, x4)

Number of Channels: 4

Inputs: Phase A+/A-, Phase B+/B-, Index \pm

Resolution: Fixed 32-bit or as sized by the modulo register

Count Modes: Quadrature, up/down, period/frequency, Modulo n

De-Bounce Times

(Programmable): 16 steps from 500 ns to 25 ms; positive or negative edge sensitive; glitch detect mode or de-bounce mode

Time-Base Accuracy: 50 ppm

Receiver Type: Quad differential receiver

Configuration: Each channel consists of Phase A input, Phase B input and Index input; each input switch selectable as single-ended or differential

Differential: Phase A, Phase B and Index (+) inputs at user connector routed to (+) inputs of differential receiver. Phase A, Phase B and Index (-) inputs at user connector routed to (-) inputs of differential receiver.

Single-Ended: Phase A, Phase B and Index (+) inputs at user connector routed to (+) inputs of differential receiver. Phase A, Phase B and Index (-) inputs at user connector routed to ground.

(-) Inputs of differential receiver routed to +3V reference.

Common Mode Input Voltage

Range: $\pm 12V$ max

Differential Input Voltage Range: $\pm 12V$ max

Input Sensitivity: ± 200 mV

Input Hysteresis: 50 mV typ

Input Impedance: 12 k Ω min

Absolute Maximum Input Voltage: Differential, $\pm 14V$ max

SOFTWARE

Operating System: Windows XP SP2/ VISTA and 7 (32-bit and 64-bit)

POWER

External Power Supply: 9V min, 30V max

ENVIRONMENTAL

Operating Temperature Range: 0 to 55°C (32 to 131°F)

Storage Temperature Range: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 90% RH non-condensing

MECHANICAL

Dimensions:

241 x 127 x 44.5 mm H
(9.5 x 5.0 x 1.75")

Weight: 0.52 kg (1.15 lb)

SHOCK AND VIBRATION SPECIFICATIONS

Mechanical Shock

Operating: 50 g, 3 msec half sine; 30 g, 11 msec half sine; 3 hits per face for a total of 18 hits (18 hits at 50 g, 18 hits at 30 g)

Standard: IEC 60068-2-27

RANDOM VIBRATION

Frequency Hz: 10-500

Vibration Level: 5 g_{rms}

Test Time: 100 minutes/axis

Standard: IEC 60068-2-64



OMEGACARESM extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARESM covers parts, labor and equivalent loaners.

To Order

Model No.	Description
OM-LGR-5325	Stand-alone high speed 100 kS/s multi-function data logger
OM-LGR-5327	Stand-alone high speed 200 kS/s multi-function data logger
OM-LGR-5329	Stand-alone high speed 200 kS/s multi-function data logger with isolated digital inputs
OM-LGR-5300-ADAP	Spare 100/240 Vac 50/60 Hz ac adaptor (USA Plug)

Comes complete with DAQLog software Quick Start Guide, 4 GB SD memory card, 2 m (6') USB cable, 100/240 Vac 0/60 Hz ac adaptor (USA plug), DAQLog software, and operator's manual on CD.

Ordering Example: OM-LGR-5325, stand-alone high speed 100 KS/s multi-function data logger and OCW-1, OMEGACARE 1-year extended warranty (adds 1-year to standard 1-year warranty)