OM-LGR-5320 Series

- Up to 200 kS/s Correlated Sampling of all Data
- 16 Analog Inputs up to ±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.

OM-LGR-5325 shown smaller than actual size

Correlated, High-Speed Sampling

Three models are available in the OM-LGR-5320 Series. The OM-LGR-5325 features up to ±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 ±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 ±10V. The OM-LGR-5327 and OM-LGR-5329 add a ±30V analog input range for increased measurement capability. Each data logger provides 16-bit resolution.

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.

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<td>200 kS/s</td>
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<td>Analog Inputs</td>
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<td>16 SE/8 DE</td>
<td>16 SE/8 DE</td>
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<td>Analog Input Range</td>
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<td>4 conventional/ quadrature</td>
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<td>Trigger</td>
<td>Single-channel</td>
<td>Multi-channel</td>
<td>Multi-channel</td>
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</table>

* Sample rates aggregate
** Each logger includes one single Form C relay output
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

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

Logging parameters are configured via DAQLog software.

Logging Parameters

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

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.

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®.

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

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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;
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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)

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**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 µs max
Pretrigger Acquisition: 1 scan period max
External Trigger Pulse Width: 1 µs 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: ±10V;
OM-LGR-5327, OM-LGR-5329: ±30 V, ±10V, software selectable
Absolute Maximum Input Voltage
OM-LGR-5325: ATRIG_IN to AGND, ±25V maximum (power ON/OFF);
OM-LGR-5327, OM-LGR-5329: ATRIG_IN to AGND, ±38V maximum (power ON/OFF)
Input Impedance
OM-LGR-5325: ±10V 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);
Trigger Modes: Configurable for positive or negative slope, level
Trigger/Hysteresis Resolution: 12 bits, 1 in 4096

**DIGITAL INPUT**
Number of Inputs: 16-channels
OM-LGR-5325
Input Type: TTL
Input Voltage Range: 0 to 28V
Input Characteristics: 47 kΩ pull-down resistor, 39.2 kΩ 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 kΩ pull-down resistor, 39.2 kΩ 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

OM-LGR-5329
Input Type: Industrial
Input Voltage Range: 0 to 30V
Input Characteristics: Resistor divider 39.2 kΩ series resistor and 10 kΩ shunt resistor connected to AGND
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 MΩ 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 kΩ pull-down resistor
Max Input Voltage Range: -0.5V to 7.0V
Input High Voltage: 2.0V
Input Low Voltage: 0.8V
## Data Loggers

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 ±  
**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 ground. (-) Inputs of differential receiver routed to +3V reference.  
**Common Mode Input Voltage Range:** ±12V max  
**Differential Input Voltage Range:** ±12V max  
**Input Sensitivity:** ±200 mV  
**Input Hysteresis:** 50 mV typ  
**Input Impedance:** 12 kΩ min  
**Absolute Maximum Input Voltage:** Differential, ±14V max

### Single-Ended

**Counter Type:** Quadrature and conventional (x1, x2, x4)  
**Number of Channels:** 4  
**Inputs:** Phase A+/A-, Phase B+/B-, Index ±  
**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.

### 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 gms  
**Test Time:** 100 minutes/axis  
**Standard:** IEC 60068-2-64

### 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

### OMEGACARE Extended Warranty Program

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

### To Order

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