Data Logger QML201C

Features
• Easy to install, economical to maintain and upgrade
• Field-proven reliability and accuracy in harsh environments
• Low power consumption
• Extensive calculation and data logging capability
• Good expandability and high level of customization through open and modular design
• Built-in TCP/IP connectivity
• Compact design

Vaisala Data Logger QML201C is built using proven sensor technology by Vaisala. A 3-bit central processing unit (CPU), 24-bit A/D conversion (ADC), autocalibration of the ADC, and measurement electronics, coupled with advanced data quality control and validation software, ensure the accuracy of data measurement.

Easy to Use
Sensor measurements, statistical calculations, data logging, and data transmissions are performed according to configuration done with the Vaisala Lizard Setup Software. The software has many setup options and advanced features.

Easy to Upgrade
The system architecture enables QML201C to be easily upgraded with new sensors, calculations, output formats, and logging schedules at any time to accommodate the changing requirements of the users.

Easy to Expand
QML201C can also be expanded with another QML201C unit that offers 10 additional differential analog channels and serial lines.

The basic system provides RS-232, RS-485, and SDI-12 ports for interfacing with almost any type of telemetry, terminal, display, and smart sensor. With optional plug-in modules, the number of serial ports can be extended from 2 to up to 8 ports, enabling multiple RS-232, RS-485, SDI-12, and Ethernet connections.

A digital I/O unit adds 8 digital outputs and 8 digital inputs for sensors, power optimizing, and unmanned control functions based on user-defined requirements.
### Technical Data

#### Operating Environment
- **Operating temperature**: −50 ... +60 °C (−58 ... +140 °F)
- **Extended operating temperature**: −60 ... +70 °C (−76 ... +158 °F)
- **Storage temperature**: −60 ... +70 °C (−76 ... +158 °F)
- **Operating humidity**: 0 ... 100 %RH

#### Inputs and Outputs
- **Processor**: 33 MHz, 32-bit Motorola
- **A/D conversion**: 24-bit
- **Memory**: 4 MB RAM and 4 MB program
- **Data logging memory**: 3.3 MB internal Flash memory
- **External memory card capacity**: 2 GB on CompactFlash card
- **Sensor inputs**: 10 analog inputs (20 single-ended inputs), 2 counter/frequency inputs
- **Voltage (external powering)**: 8 ... 30 VDC
- **Power consumption**: < 10 mA / 12 V (typically with basic 5 sensors)

#### Communication Specifications
- **Serial**
  - **Standard**: RS-232, 2-wire RS-485, SDI-12
  - **Optional**: 2 optional plug-in slots for communication modules to increase the number of the serial I/O channels up to 8 pcs
- **Speed**: 300 ... 38 400 bps
- **Configurable parameters**: Speed, start bits, data bits, stop bits, parity, XON/XOFF, and checksum

- **Ethernet**
  - **Standard**: IEE 802.3
  - **Speed**: 10 Mbs (10 BASE-T), can also be connected to 100/1000 Mbs (100/1000 BASE-T) networks with 10 Mbps
  - **Parameters**: Full/Half duplex with auto-negotiation

- **TCP/IP**
  - **Supported protocols**: ARP, UDP/IP, TCP/IP, FTP, SMTP, PPP (with PAP or CHAP authentication), HTTP (GET), Telnet, ICMP Echo, DHCP, NTP, DNS, serial port tunneling over TCP/IP

#### Compliance
- **Emissions**: CISPR 32 Class B (EN 55032)
- **EMC immunity**: IEC 61326-1 Industrial environment (EN 61326-1)

#### Accuracy Specifications
- **All data for ambient temperature range −50 ... +60 °C (−58 ... +140 °F) unless otherwise specified.**

- **Temperature Measurement (Pt100 Sensor)**
  - **Measurement range**: −60 ... +70 °C (−76 ... +158 °F)
  - **Uncertainty over range**: ±0.02 °C, typically
  - **Maximum error over −50 ... +60 °C**: < ±0.04 °C
  - **Maximum error over −60 ... +70 °C**: < ±0.08 °C
  - **Maximum error at 0 °C (+32 °F)**: < ±0.02 °C

- **Voltage Measurement**
  - **Uncertainty over range**: −5 ... +30 °C (14 ... +86 °F):
    - ±5 V range: < 0.06 % of reading ±100 μV
    - ±2.5 V range: < 0.04 % of reading ±50 μV
    - ±250 mV range: < 0.06 % of reading ±6 μV
    - ±25 mV range: < 0.06 % of reading ±5 μV
  - **Uncertainty over range**: −40 ... +60 °C (−40 ... +140 °F):
    - ±5 V range: < 0.06 % of reading ±100 μV
    - ±2.5 V range: < 0.04 % of reading ±50 μV
    - ±250 mV range: < 0.15 % of reading ±15 μV
    - ±25 mV range: < 0.15 % of reading ±10 μV
  - **Uncertainty over range**: −50 ... +60 °C (−58 ... +140 °F):
    - ±5 V range: < 0.08 % of reading ±100 μV
    - ±2.5 V range: < 0.08 % of reading ±50 μV
    - ±250 mV range: < 0.15 % of reading ±15 μV
    - ±25 mV range: < 0.15 % of reading ±10 μV
  - **Uncertainty over range**: −60 ... +70 °C (−76 ... +158 °F):
    - ±5 V range: < 0.12 % of reading ±150 μV
    - ±2.5 V range: < 0.12 % of reading ±80 μV
    - ±250 mV range: < 0.20 % of reading ±20 μV
    - ±25 mV range: < 0.20 % of reading ±10 μV
  - **Common mode range**: +7 V / −3 V

- **Frequency Measurement**
  - **Uncertainty over range**: −60 ... +70 °C (−76 ... +158 °F):
    - 20 Hz ... 8000 Hz: < 0.04 % of reading
    - 8000 Hz ... 20000 Hz: < 0.40 % of reading

- **Real-time Clock (Standard)**
  - **Accuracy**: Better than 20 s/month
  - **Backup time**: 5 years minimum with CR1220 battery

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