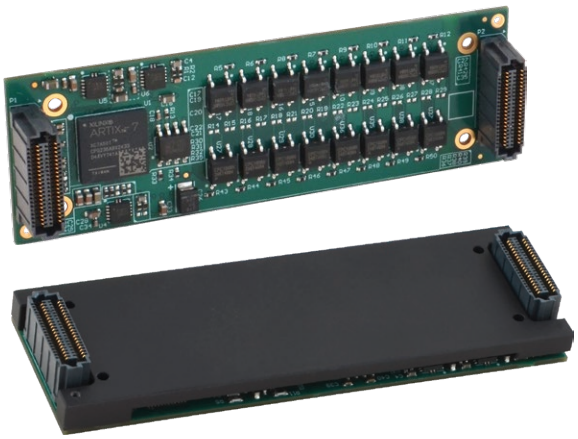
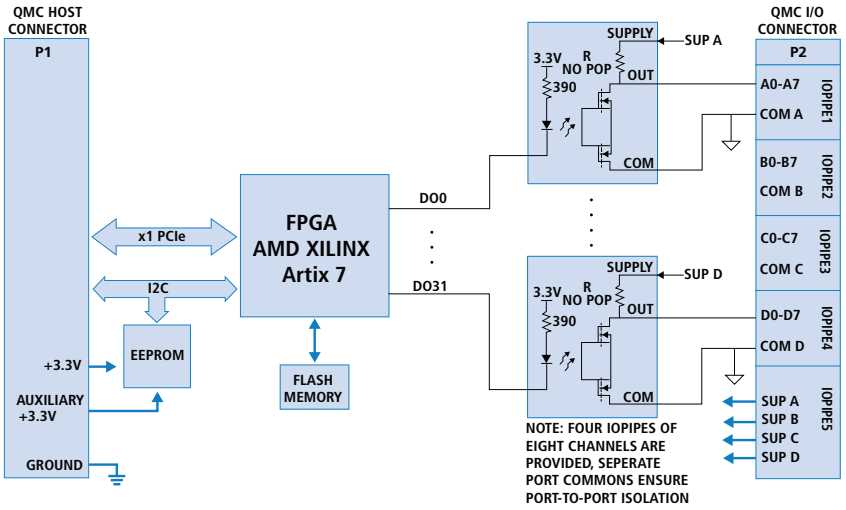
VITA 93 QMC Modules

QMC450 Series Isolated Digital Output





32 Isolated Digital Output Channels ◆ Bipolar Solid-State Relays ◆ AC and DC Switching ◆ PCIe Bus Interface

Description

QMC mezzanine modules plug into a carrier card to interface connected I/O and provide a variety of signal processing functions. Acromag QMC450 modules offer 32 isolated solid-state relay outputs to safely control discrete level devices. A PCIe bus interface provides communication to the carrier and host computer.

Isolation protects your computer system from noise, transient signals, and field wiring faults. The outputs are grouped into four 8-channel ports. Ports are isolated from the logic and each other.

A major QMC450 advantage is its flexibility. The module supports wide-range, bipolar, AC or DC voltage switching. Each port is configurable for high or low-side switches.

Readback buffers simplify output status monitoring. And for easy closed-loop monitoring of critical control signals, use the QMC450 in conjunction with Acromag's QMC440 digital input module.

QMC modules adhere to the VITA 93 standard for small form factor (SFF) mezzanine modules. Two high-performance 80-pin connectors provide separate field I/O and PCIe bus host interfaces. Modules can deploy on a variety of carrier card platforms including PCIe expansion cards, 3U/6U Eurocards such as VPX and CompactPCI, VNX+ SFF cards, and many other architectures. The rugged design is well-suited for use in laboratory, industrial, defense, and aerospace applications.

QMC modules have a much smaller footprint than PMC/XMC modules. Single-width QMC modules are only 26 x 78.25mm which facilitates mixing and matching of multiple functions on a single carrier card for high-density I/O solutions. They are ideal for computing systems with strict size, weight, power, and cost (SWAP-C) limitations.

An Intelligent Platform Management Interface (IPMI) facilitates system management. The QMC EEPROM holds module information and sensor data that is accessible by a smart carrier card with an IPMC controller over an I2C interface.

Key Features & Benefits

- 32 bipolar solid-state relays
- Port-isolated output channels
- ±60V AC/DC voltage range
- Unique ground reference points for each port permits AC and DC switching
- High-side or low-side switch configuration
- TTL-compatible with pull-up resistors
- High speed processing
- Failsafe power-up and system reset
- Output readback function
- Software configured (no jumpers/switches) allowing "on-the-fly" changes without removing modules
- Pins are compatible with QMC440 input module for loopback monitoring
- Extended temperature range and support for conduction-cooled systems

Acromag
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VITA 93 QMC Modules

ISO9001
AS9100
MADE IN USA

Performance Specifications

Digital Outputs

Output channel configuration
32 isolated bipolar solid-state SPST-NO relays.
Supports AC and DC switching.

Isolation
Individual solid-state relays provide isolation. Four groups (ports) of 8 channels, each with separate port commons, ensure port-to-port isolation. Individual ports are isolated from each other and from the PCIe interface logic. Output lines of an individual port share a common connection and are not isolated from each other.

Host connector to I/O connector isolation
IPC-2221B: 548.64V (peak) at sea level
IPC-9592: 425V (peak)
UL61010C-1: 250V (rms)

IOPIPE to IOPIPE isolation
IPC-2221B: 30V (peak) at sea level
IPC-9592: 30V (peak)
UL61010C-1: 60V (rms)

Voltage range
±60V DC or AC peak

Output ON current range
150mA maximum continuous
(up to 1A total per port)

Turn on time
1ms typical, 2ms maximum

Turn off time
0.2ms typical, 1ms maximum

Output pull-up resistors
Not populated (default), consult factory

PCI Express Base Specification

Conforms to revision 2.1

Lanes
1 lane in each direction

Bus Speed
2.5 Gbps (Generation 1)

Memory
256k space: Base address register 0
1M space: Base address register 2

Environmental

Operating temperature range
Air-cooled: 0 to 70°C (200 LFM airflow)
Conduction-cooled: -40°C to +85°C

Storage temperature
-55 to 125°C

Relative humidity
5 to 95% non-condensing

Power
+3.3 VDC(±5%): 0.50A typical
+3.3 VDC AUX(±5%): 0.20A typical
+12 VDC(±5%): Not used

MTBF (Mean Time Between Failure)
Contact the factory

Physical

Size
Length: 78.25mm (3.08 in)
Width: 26.00mm (1.02 in)
Height: 11.00mm (0.43 in)

Weight
Unit weight: 8.9g (0.31 oz)

Ordering Information

QMC Modules

Go to on-line ordering page >

QMC451-1111
QMC452-1111
Isolated digital output module,
Air-cooled (QMC451) or Conduction (QMC452)

Carrier Cards

See Acromag.com/QMC-Carriers for a full list of QMC carrier cards.

Software *(see software documentation for details)*

USW-API
Universal Embedded Design Suite with software support for VxWorks®, Windows®, and Linux®

Example QMC Module shown with attatched heatsink inlcluded with conduction-cooled QMC Modules.

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