Analog Output Modules: Process Voltage & Process Current

8 Isolated Voltage or Current Outputs

Description
The MAQ20 voltage output module and current output module offer 8 isolated voltage or current outputs. All channels are individually configurable for range and programmable output to match the most demanding applications. High-level per-channel isolation gives the module unmatched ruggedness and flexibility while default outputs provide essential functionality for fail-safe systems. User defined waveform outputs allow application-specific sophisticated, autonomous control. Field output connections are made through a pluggable terminal block which simplifies wiring during system setup and reconfiguration.

Input-to-bus isolation is a robust 1500Vrms and channel-to-channel isolation is 300Vrms. In addition, each channel is protected up to 40Vrms continuous overload in case of inadvertent wiring errors.

Channels in a module can be selectively enabled for output. All channels are enabled by default; however, non-used channels can be disabled to increase the refresh rate of enabled channels.

All MAQ20 modules are designed for installation in Class I, Division 2 hazardous locations and have a high level of immunity to environmental noise commonly present in heavy industrial environments.

Features
- 8 Isolated Output Channels
- Voltage or Current Output
- All Channels Individually Configurable for Range and Programmable Output
- User-Defined Default Output and Output Waveform
- 1500Vrms Input-to-Bus Isolation
- 300Vrms Channel-to-Channel Isolation
- Each Channel Protected up to 40Vrms Continuous Overload
- Selective Enabling of Module Channels for Refresh

Figure 1: MAQ20 Voltage & Current Output Module Block Diagram
## Specifications

Typical at $T_e = +25^\circ\mathrm{C}$ and +24VDC system power.

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAQ20-VO</td>
<td>8 Isolated Channel Voltage Output</td>
</tr>
<tr>
<td></td>
<td>0-2.5V, 0-5V, 0-10V, ±2.5V, ±5V, ±10V (Default)</td>
</tr>
<tr>
<td>MAQ20-IO</td>
<td>8 Isolated Channel Current Output</td>
</tr>
<tr>
<td></td>
<td>0-20mA (Default), 4-20mA</td>
</tr>
</tbody>
</table>

### Per Channel Setup

<table>
<thead>
<tr>
<th>MAQ20-VO</th>
<th>Output Drive (Max Load)</th>
<th>Over-range</th>
<th>Compliance</th>
<th>Load Range</th>
<th>Over-range</th>
<th>Current Limit</th>
<th>Output Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mA ȍ at 10V</td>
<td></td>
<td>21.5mA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10V</td>
<td></td>
<td>26mA</td>
<td></td>
</tr>
</tbody>
</table>

### Module Description

#### MAQ20-VO

- Analog Output Module; Voltage, 8-ch
- Module Description: 8 Isolated Channel Voltage Output 0-2.5V, 0-5V, 0-10V, ±2.5V, ±5V, ±10V (Default)
- Terminal Block Position (top to bottom): CH0 +OUT, 2 CH0 -OUT, 3 CH1 +OUT, 4 CH1 -OUT, 5 SHIELD, 6 CH2 +OUT, 7 CH2 -OUT, 8 CH3 +OUT, 9 CH3 -OUT, 10 SHIELD, 11 CH4 +OUT, 12 CH4 -OUT, 13 CH5 +OUT, 14 CH5 -OUT, 15 SHIELD, 16 CH6 +OUT, 17 CH6 -OUT, 18 CH7 +OUT, 19 CH7 -OUT, 20 SHIELD

#### MAQ20-IO

- Analog Output Module; Current mA, 8-ch
- Module Description: 8 Isolated Channel Current Output 0-20mA (Default), 4-20mA
- Terminal Block Position (top to bottom): CH0 +OUT, 2 CH0 -OUT, 3 CH1 +OUT, 4 CH1 -OUT, 5 SHIELD, 6 CH2 +OUT, 7 CH2 -OUT, 8 CH3 +OUT, 9 CH3 -OUT, 10 SHIELD, 11 CH4 +OUT, 12 CH4 -OUT, 13 CH5 +OUT, 14 CH5 -OUT, 15 SHIELD, 16 CH6 +OUT, 17 CH6 -OUT, 18 CH7 +OUT, 19 CH7 -OUT, 20 SHIELD

### Notes:

- Contact factory or your local Dataforth sales office for maximum values.
- Includes linearity, hysteresis and repeatability.

## Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAQ20-VO</td>
<td>Analog Output Module; Voltage, 8-ch</td>
</tr>
<tr>
<td>MAQ20-IO</td>
<td>Analog Output Module; Current mA, 8-ch</td>
</tr>
</tbody>
</table>

### Environmental

- Operating Temperature: -40°C to +85°C
- Storage Temperature: -40°C to +85°C
- Relative Humidity: 0 to 95% Noncondensing

### Certifications

- Heavy Industrial CE Compliant
- UL/CUL Listing Pending
- (Class I, Division 2, Groups A, B, C, D)
- ATEX Compliance Pending

---

**For output connections and full details on module operation, refer to MA1042 – MAQ20 Voltage and Current Output Module Hardware User Manual, available for download at:**

[www.dataforth.com/maq20_download.aspx](http://www.dataforth.com/maq20_download.aspx)