**Figure 1.1 – IntelliVAC Contactor Control Module**

## Description (cont.)

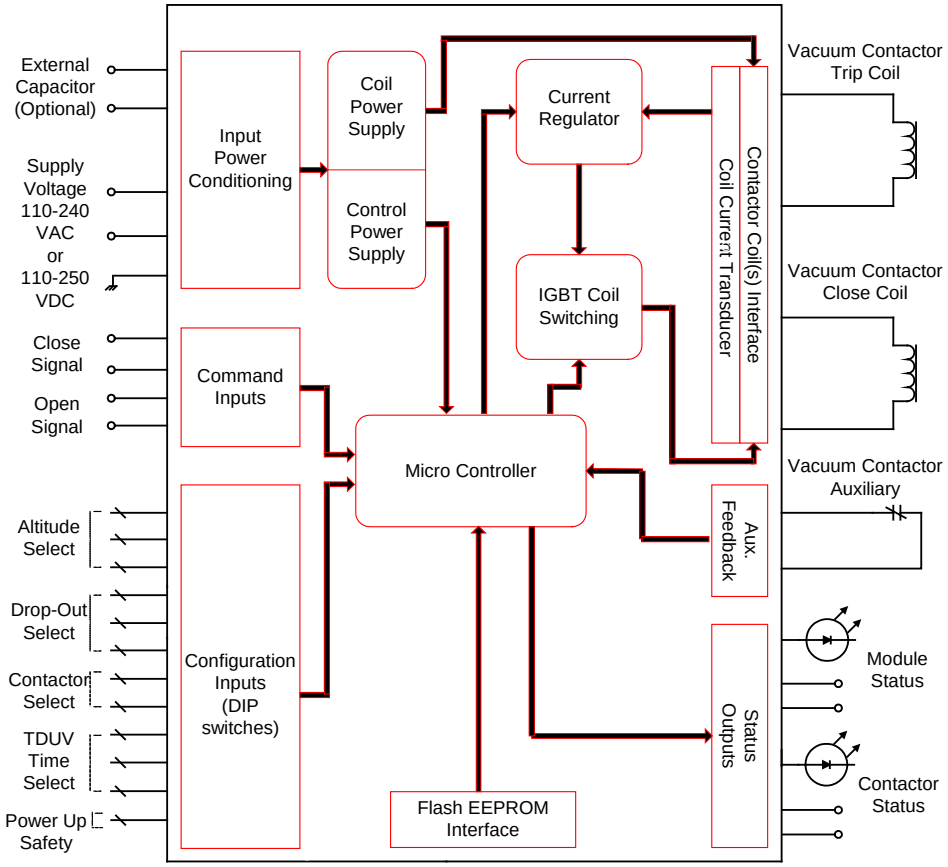


**Figure 1.2 – IntelliVAC Block Diagram**

### IntelliVAC Features

- A wide range of supply voltage (110 – 240 V AC 50/60 Hz, 110 - 250 V DC) allows implementation in multiple applications
- Consistent vacuum contactor pick-up time (at a given supply voltage) ensures repeatable performance
- Selectable vacuum contactor drop-out time improves coordination with upstream power fuses
- Electronic altitude compensation (400 A only) eliminates mechanical compensation required for altitudes above 1,000 meters (800 A contactors include a user-friendly altitude adjustment)

- Power loss ride-through (TDUV) allows the vacuum contactor to remain closed during short power loss (may require an optional external capacitor, dependant on ride-through time)

### IntelliVAC Features (cont.)

- Anti-kiss and anti-pumping protection ensure that the vacuum contactor close – open sequence occurs as expected, avoiding rapid re-closure due to faulty control devices
- Delayed restart protects the vacuum contactor by ensuring that the rated duty cycle is not exceeded
- Temporary jog function (electrically held contactors only) allows the motor to be positioned for process set-up

### IntelliVAC Versions

**Series A** There are two versions of IntelliVAC control. The first type is used to control vacuum contactors that are electrically held, with a single electrical coil that is economized electronically. The second is used to control mechanically latched vacuum contactors.

**Series B** There is a single version of IntelliVAC, to control both electrically held and mechanically latched vacuum contactors.

**Series C** Updated version of the Series B module.

**Series D** Minor functionality (firmware) enhancements (primarily related to definition and handling of Faults and Warnings).

Refer to Chapter 6, for catalog numbers for each version of IntelliVAC.

**Note:** A Series C or Series D IntelliVAC module can be used to replace a Series A or Series B module. When replacing an older series of IntelliVAC with a newer one, note that the Module and Contactor Status outputs may function differently. Refer to publication 1503-UM051_-EN-P and/or Chapter 5 of this document, and make any necessary changes to the control circuit.

## Specifications

### Mounting and Connections

The IntelliVAC control modules are mounted using two (2) screws (see Figure 1.3). They are typically located in the low voltage control panel of the medium voltage controller (Bulletin 1500/1900 controllers, in the case of Rockwell Automation).

IntelliVAC is interfaced to the Bulletin 1502 vacuum contactors using a "quick" connector, located at the module, a wire harness and "quick" connector at the contactor. Control power and other control circuit connections are similarly achieved with "quick" connectors.

### Configuration

IntelliVAC is easily configured for a wide variety of medium voltage motor and feeder control applications. It is configured using DIP switches, located within the enclosure (front side). Please refer to Chapter 4 for information.

Bulletin 1500/1900 controllers are shipped with IntelliVAC pre-configured for the required application. Please refer to the documents provided with the order.

### Firmware

IntelliVAC has firmware stored in flash EEPROM; therefore, this may be updated in the field (if necessary). The IntelliVAC board firmware is updated using the mini-DIN connector, which is accessible inside the enclosure.

The firmware version supplied with the module is displayed on top of the DIP switches (see Figure 4.1).

Series C modules use only version 2.003 application firmware. This firmware is also compatible with the Series A and B modules. Series D modules use only version 3.001 or 3.002 application firmware. This firmware is **not** compatible with any other Series Letter modules.

Refer to Chapter 6 for part numbers of the various series of modules. The Series Letter of the module is printed on the label on the cover of the module, beside the part number.

**Table 1.A – Electrical Ratings**

| | | | | | |
|---|---|---|---|---|---|
| **Main Input Voltage (L1 to L2/N)** | **AC – 110 to 240 V rms, +10/-15%, 47 to 63 Hz**<br>**DC – 110 to 250 V, +10/-15%** | | | | |
| **Main Input Current (L1 to L2/N)** | **Description** | **Contactor Ratings (Amps)** | **Control Voltage (AC or DC)** | **AC Rating** | **DC Rating** |
| | Inrush Current | 400/800 | 120/240 | 25 A peak (1/2 cycle) | 25 A peak |
| | Idle Current (Maximum without contactor coil energized) | 400/800 | 120/240 | 125 mA | 35 mA |
| | Hold Current ⊄ (maximum) | 400/800 | 120/240 | 300 mA | 100 mA |
| | Close Current ⊄ (0.2 sec) | 400 | 120 | 4.6 A | 3.6 A |
| | | | 240 | 3.4 A | 3.3 A |
| | | 800 | 120 | 11.3 A | 4.8 A |
| | | | 240 | 8.9 A | 4.5 A |
| | Trip Current (latch) ⊄ (0.2 sec) | 400 | 120 | 7.0 A | 3.7 A |
| | | | 240 | 3.6 A | 2.0 A |
| | | 800 | 120 | 7.0 A | 3.3 A |
| | | | 240 | 4.3 A | 1.9 A |
| **Command Inputs** ⊇⊂ | AC – 100 to 240 V rms<br>DC – 50 to 250 V<br>Maximum on state current for open or close command:<br>$9mA_{AC}$ @ 250 V AC, 60Hz, $T_A$ = 60°C<br>$9mA_{DC}$ @ 250 V DC, $T_A$ = 60°C<br>Minimum on state current for open or close command:<br>$2mA_{AC}$ @ 100 V AC, 60Hz, $T_A$ = 60°C<br>1.2 mA @ 50 V DC, $T_A$ = 60°C<br>Maximum off state current for open or close command:<br>700 µA @ 20 V AC, 60 Hz, $T_A$ = 60°C<br>900 µA @ 30 V DC, $T_A$ = 60°C | | | | |
| **Status Output Contacts** | AC – 250 V rms, 5 A, R load; 2 A (reactive), PF = 0.4<br>DC – 30 V, 5 A, R load; 2 A (reactive), L/R = 7 ms | | | | |
| **Standards and Approvals** | CE, cULus, CSA, IEC pending | | | | |

⊇ $T_A$ = Ambient Temperature

⊄ Includes idle current.

⊂ Ensure compatibility of IntelliVAC input ratings with those of circuit components activating these inputs. Consider means of isolating/loading these signals, as required (using interposing relays or load resistors.) Consult factory for assistance, if needed. The Series C and D IntelliVACs are compatible with most PLC outputs, and have been verified with Rockwell Automation OA type 120V triac outputs. See Chapter 3, Wiring Guidelines.

## Specifications (cont.)

**Table 1.B – Mechanical Ratings**

| | |
|---|---|
| **Temperature** | Operating: 0° to 60°C ambient at the control module ❶ |
| | Non-Operating: -40° to 85°C |
| **Altitude** | -1000 to 5000 meters |
| **Pollution** | Pollution level II (as defined by UL 840 and IEC 60664-1) |
| **Humidity** | 95% non-condensing |
| **Shock and Vibration (Operational)** | Shock – 15 g peak, 11 milliseconds |
| | Vibration – 10 to 57 Hz, 0.015 inch displacement peak to peak<br>– 57 to 150 Hz, 2.5 g acceleration |

❶ Ambient temperature is derated at altitudes above 1,000 meters (3,300 feet). Please refer to Table 1.C.

**Table 1.C – Altitude Derating**

| Altitude | Maximum Operating Ambient at the control module (°C) ❶ |
|---|---|
| -1000 to 0 | 60 |
| 1 to 1000 | 60 |
| 1001 to 2000 | 58 |
| 2001 to 3000 | 56 |
| 3001 to 4000 | 54 |
| 4001 to 5000 | 52 |

❶ Derate by 2°C / 1000 m for high altitude operation

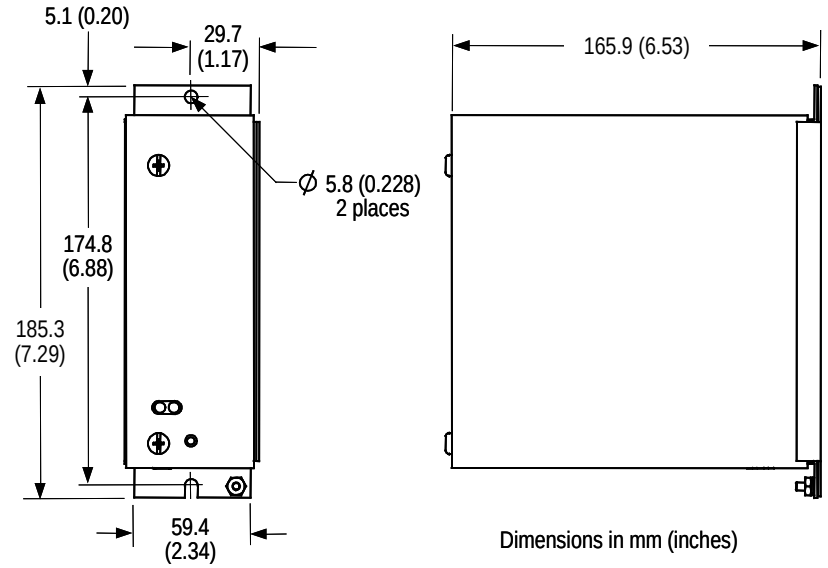


**Figure 1.3 – Mechanical Dimensions**