

Product Description

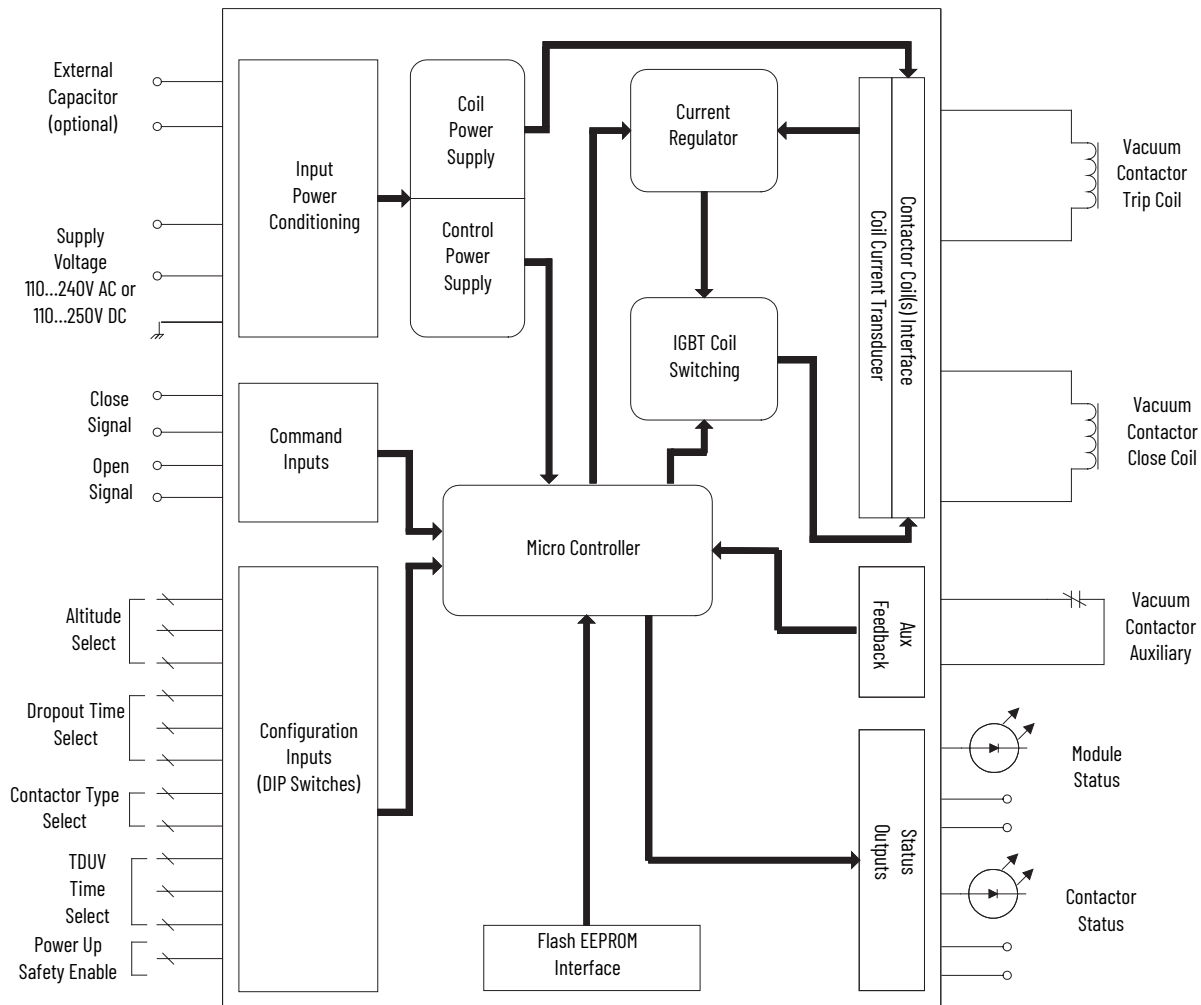
Description

An IntelliVAC™ control module can be used to control Bulletin 1502 450 and 800 A medium voltage vacuum contactors. Both electrically held and mechanically latched contactor types can be controlled with IntelliVAC control modules.

Figure 1 - IntelliVAC Contactor Control Module



Figure 2 - IntelliVAC Block Diagram



IntelliVAC Features

- A range of supply voltage (110...240V AC 50/60 Hz, 110...250V 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 (Bulletin 1502 450 A only) eliminates mechanical compensation required for altitudes above 1000 m (Bulletin 1502 800 A contactors include a user-friendly mechanical altitude adjustment).
- Power loss ride-through (TDUV) allows the vacuum contactor to remain closed during short power loss (may require an optional external capacitor, dependent on ride-through time).
- Anti-kiss and anti-pumping protection ensure that the vacuum contactor close - open sequence occurs as expected, avoiding rapid reclosure 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

See [Chapter 6](#) for part numbers of the various series of modules. The Series Letter is printed on the large label on the right-hand side of the enclosure, beside the part number.

Series A There are two versions of IntelliVAC control. The first type is used to control vacuum contactors that are electrically held, with one electrical coil that is economized electronically. The second is used to control mechanically latched vacuum contactors (this series is no longer available).

Series B There is one version of IntelliVAC, to control electrically held and mechanically latched vacuum contactors (this series is no longer available).

Series C Updated version of the Series B module (this series is no longer available).

Series D Minor functionality (firmware) enhancements, primarily related to definition and handling of Faults and Warnings (this series is no longer available).

Series E Revised hardware to allow connection to the IntelliVAC Plus or IntelliVAC MC. The removal of the mini Din connector for updating firmware is now updated using the IntelliVAC Plus or IntelliVAC MC boards). New input circuits to reduce thermal output, and decrease sensitivity to leakage current. IntelliVAC Plus and IntelliVAC MC products have been discontinued. This series is no longer available.

Series F Removal of IntelliVAC Plus/MC components and firmware content. Minor functionality (firmware) enhancements, primarily related to improved timing performance and minor corrections for handling of and annunciating faults and warnings.

See [Chapter 6](#) for catalog numbers for each version of IntelliVAC.

IMPORTANT A Series C, D, E, or F IntelliVAC module can be used to replace a Series A or Series B module. When replacing an older series of an IntelliVAC control module with a newer one, the module and contactor status outputs may function differently. See [Contactor Status](#) for more information.

Specifications

Mounting and Connections

The IntelliVAC control modules are mounted using two screws, see [Figure 3 on page 11](#). They are typically located in the low voltage control panel of the medium voltage controller.

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

Configuration

The IntelliVAC control module is easily configured for a wide variety of medium voltage motor and feeder control applications. It is configured using DIP switches which are located within the enclosure (front side). See [Chapter 3](#) for information.

Bulletin 1500/1900 controllers are shipped with IntelliVAC control modules that are pre-configured for the required application. See the documents provided with the order.

Firmware

The IntelliVAC control module has firmware stored in flash EEPROM. This may be updated in the field. Update the IntelliVAC board firmware 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 17](#)).

Table 1 - Firmware Compatibility

IntelliVAC Series Letter	Firmware Version	Compatible with Earlier Versions?
A	2.XXX	No
B		
C		
D	3.XXX	
E	4.XXX	
F	5.XXX	

Table 2 - Electrical Ratings

Main Input Voltage (L1 ... L2/N)	AC - 110...240V rms, +10/-15%, 47...63 Hz DC - 110...250V, +10/-15					
	Description	Contactor Ratings (A)	Control Voltage (AC or DC)	AC Rating	DC Rating	Minimum Voltage (V AC, 47...63 Hz)
Main Input Current (L1 ... L2/N)	Inrush current	450/800	120/240	25 A peak (1/2 cycle)	25 A peak	—
	Idle current (maximum without contactor coil energized)	450/800	120/240	125 mA	35 mA	—
	Hold current ⁽¹⁾ (maximum)	450/800	120/240	300 mA	100 mA	—
	Close current (0.2 s)	450	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 s)	450	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	—	
Minimum IntelliVAC Operational Supply Voltages	Pick-up	450/800	—	—	—	95
	Drop-out	450/800	—	—	—	75
	Trip (mechanical latch)	450	—	—	—	70
Command Inputs ^{(2) (3)}	AC - 75...240V rms DC - 75...250V					
	Maximum on state current for open or close command: 4 mA _{AC} @ 276V AC, 60 Hz, T _A = 60 °C 4.1 mA _{DC} @ 276V DC, T _A = 60 °C Minimum on state current for open or close command: 1.2 mA _{AC} @ 70V AC, 60 Hz, T _A = 60 °C 1.2 mA _{DC} @ 68V DC, T _A = 60 °C Maximum off state current for open or close command: 1 mA @ 50V AC, 60 Hz, T _A = 60 °C 850 µA @ 50V DC, T _A = 60 °C					
Status Output Contacts	AC - 250V rms, 5 A, R load; 2 A (reactive), PF = 0.4 DC - 30V, 5 A, R load; 2 A (reactive), L/R = 7 ms					
Standards and Approvals	CE, cULus, CSA, IEC pending					

(1) Includes idle current.
 (2) T_A = Ambient Temperature
 (3) 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 required. The Series C, D, E, and F IntelliVAC control modules are compatible with most PLC outputs, and have been verified with Rockwell Automation OA type 120V triac outputs. See [Wiring Guidelines](#) for more information.

Table 3 - Mechanical Ratings

Temperature	Operating: 0...60 °C (32...140 °F) ambient at the control module ⁽¹⁾
	Non-operating: -40...+85 °C (-40...+185 °F)
Altitude	-1000...+5000 m (-3280...+16,404 ft)
Pollution	Pollution level II (as defined by UL 840 and IEC 60664-1)
Humidity	95% non-condensing
Shock (Operational)	15 g peak, 11 ms
Vibration (operational)	10...57 Hz, 0.015 in. displacement peak to peak 57...150 Hz, 2.5 g acceleration

(1) Ambient temperature is derated at altitudes above 1000 m (3300 ft). See [Chapter 1](#).

Table 4 - Altitude Derating

Altitude	Maximum Operation Ambient Temperature ⁽¹⁾
-1000...0	60 °C (140 °F)
1...1000	
1001...2000	58 °C (136 °F)
2001...3000	56 °C (133 °F)
3001...4000	54 °C (129 °F)
4001...5000	52 °C (126 °F)

(1) Derate by 2 °C (36 °F) for every 1000 m for high altitude operation.

Figure 3 - Mechanical Dimensions

