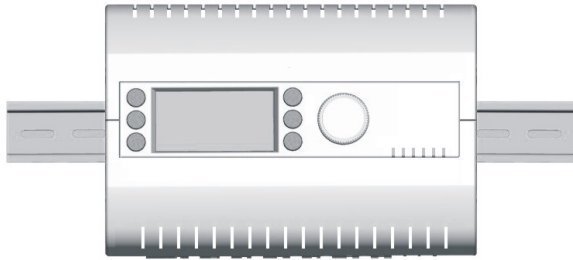# MultiValent Controller – MVC

HONEYWELL EXCEL 5000 OPEN SYSTEM

SPECIFICATION DATA

GENERAL

Honeywell's **M**ulti**V**alent **C**ontroller (MVC) provides a highly cost-effective solution for multivalent applications. It is available in different versions:

- without an integrated user interface;
- with an integrated user interface;
- with a variety of I/O mixtures.

For special versions, please contact Honeywell.

The MVC controller system can be enhanced with:

- the Excel Touch, a touch screen user interface;
- ZIO wall modules communicating via 2-wire Sylk bus;
- evotouch and CM700 / 900 wireless wall modules (868 MHz);
- communication between different controllers via C-Bus.

The versatile mounting concept (with patented panel-door mounting design and mechanism), removable terminals, and wiring test functionality minimize installation and commissioning effort and time.

The MVC is freely programmable and can be used for a wide variety of applications.

The MVC application can be easily adapted to specific scenarios and customer needs through the use of Honeywell's application library. The application library provides a wide range of energy management functions, including optimum start/stop, night purge, and maximum load demand as well as heating, cooling, ventilation, and air conditioning functions.

FEATURES

- I/O mix: 1 triac output, 8 relay outputs, 4 analog outputs, 4 binary inputs, 2 PT1000 inputs, and 8 universal inputs;
- Triac output supporting pump speed control;
- Optional user interface (see section "HMI" on pg. 5)
- Communication interfaces:
  - OpenTherm^{TM} interface for wireless wall modules;
  - Sylk bus interface for 2-wire wall modules;
  - C-Bus interface;
  - Modbus RTU Master or Modbus RTU Slave interface(s);
  - Panel Bus interface (MVC-xxx-xPxxxx);
  - Interface for connection of PC or touch panel.
- **Flexible mounting options:** Fits into small housings and supports DIN-rail, wall, and panel/door mounting;
- Choice of removable terminal plugs, i.e., state-of-the-art push-in terminals or screw-type terminals;
- 2 LEDs / push buttons for customer / application-specific functionality and four additional status LEDs;
- Configurable safety position for outputs (in case of loss of communication with I/O modules);
- Configurable sensor safety value (in case of sensor short / sensor break);
- Real-time clock, run-time counter;
- Trend data buffer, alarm history buffer, clear-text alarms;
- 18-character user address;
- Super capacitor-buffered SRAM memory;
- Flash EPROM back-up on board.

MVC Controller Models

The MVC Controller family consists of five models, all with the same mix of I/Os (see section "Features") and LEDs.

Table 1. Overview of MVC Controller versions

OS no.	description
MVC-80H-CPSW1A	MVC (without HMI): B-port (RJ45), Modbus Master plus C-Bus or Modbus Master plus Panel Bus or Modbus Slave plus Panel Bus, Sylk (for 2-wire wall module), OpenTherm^{TM} 2-wire connection (for RF bridge)
MVC-80M-CPSW1A	MVC (with HMI): B-port (RJ45), Modbus Master plus C-Bus or Modbus Master plus Panel Bus or Modbus Slave plus Panel Bus, Sylk OpenTherm^{TM} 2-wire connection
MVC-40M-CPSW1A	MVC (with HMI): B-port (RJ45), Modbus Master plus C-Bus or Modbus Master plus Panel Bus or Modbus Slave plus Panel Bus, Sylk, OpenTherm^{TM} 2-wire connection
MVC-80M-CMSW1A	MVC (with HMI): B-port (RJ45), Modbus Slave plus C-Bus, Sylk, OpenTherm^{TM} 2-wire connection
MVC-40M-CMSW1A	MVC (with HMI): B-port (RJ45), Modbus Slave plus C-Bus, Sylk, OpenTherm^{TM} 2-wire connection

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Table 10. Pluggable Panel Bus I/O Module specifications

	AI module	AO modules	BI module	RO modules	FO module
order no.	XF821A	XF822A, XFR822A	XF823A	XF824A, XFR824A	XFR825A
no. of I/Os	8 analog inputs	8 analog outputs	12 binary inputs	6 relay outputs	3 floating outputs
charac-teristics	Linear Graph 0..10 Vdc with pull-up, 0(2)…10 Vdc without pull-up <u>NTC20kΩ (-50…+150 °C, default)</u> <u>NTC10kΩ (-30…+100 °C)</u> PT_{1000-1} (-50…150°C) PT_{1000-2} (0…400°C) NI1000TK5000 (-30…+130 °C) PT_{3000} (-50…150°C) $BALCO_{500}$ (-30…120°C) Also configurable as: ▪ binary inputs ▪ Linear graph (0…10 V with pull-up) **Features:** ▪ 16-bit resolution ▪ configurable offset per input ▪ auxiliary voltage: 10 Vdc, I_{max} = 5 mA	<u>0…11 Vdc / ± 1 mA</u> Also configurable as: floating outputs or binary outputs (0 V / 10 V) **Features:** ▪ 8-bit resolution (default) ▪ Safety position (remain, 0%, 50%, 100%) ▪ red LED per output ▪ light intensity follows output level in auto **Version with manual override (R):** ▪ 1 potentiometer per output ▪ auto feedback signal (mode + value) ▪ blinking in manual override position	<u>static binary inputs (default: dry contact)</u> Also configurable as: totalizers (20 Hz) **Features:** ▪ 1 LED per input ▪ Color mode can be set per input to OFF/yellow or green/red using CARE	<u>relay outputs (default)</u> **Features:** ▪ Changeover relays ▪ Voltage: 19…250 Vac, 1…29 Vdc, P>50 mW ▪ max. total current: 12 A ▪ current per relay: N.O.: 4(4) A ac. or 4(1) A dc, N.C.: 2(1) A ac or 4(1) A dc ▪ Safety position (remain, 0%, 100%) ▪ yellow LED per output **Version with manual override (R):** ▪ 1 switch per output ▪ auto feedback signal (mode + value) ▪ blinking in manual override position	<u>floating outputs</u> **Features:** ▪ 2 relays per floating output ▪ Voltage: 19…250 Vac, 1…29 Vdc, P>50 mW ▪ max. total current: 12 A ▪ current per relay: N.O.: 4(4) A ac or 4(1) A dc, N.C.: 2(1) A ac or 4(1) A dc ▪ 1 potentiometer per floating output ▪ 2 LEDs per output: green: relay 1 closed, red: relay 2 closed ▪ blinking in manual override position ▪ auto feedback signal (mode + value)

NOTE: All pluggable Panel Bus I/O Modules are protected against short circuit, 24 Vac +20% and 30 Vdc.

Manual Overrides as per EN ISO 16484-2:2004

The manual override switches and potentiometers of the output modules (…R822A, …R824A, and XFR825A) support direct operation as per EN ISO 16484-2:2004, section 5.4.3 "Local Priority Override/Indicating Units."

Specifically, the positions of the manual override switches and potentiometers directly control the outputs – independently of the MVC Controller and HMI. When a manual override switch or potentiometer is not in its default position ("auto"), the corresponding output LED will blink continuously, and the output module will send a feedback signal with the status "manual override" and the given override position to the MVC Controller (which will then also store this information in its alarm memory).

NOTE: When updating the firmware of output modules, their outputs are turned OFF – regardless of the position of their manual override switches and/or potentiometers.

Table 11. Mixed Panel Bus I/O module (MVC-IO830A) specifications

	analog inputs	analog outputs	binary inputs	relay outputs
no. of I/Os	8 analog inputs	8 analog outputs	12 binary inputs	6 relay outputs
charac-teristics	Linear Graph 0..10 Vdc with pull-up, 0(2)…10 Vdc without pull-up <u>NTC20kΩ (-30…+110 °C, default)</u> **Features:** ▪ 10-bit resolution ▪ configurable offset per input	<u>0…11 Vdc / ± 1 mA, default</u> Also configurable as: binary outputs (0 V / 10 V) **Features:** ▪ 10-bit resolution (default) ▪ Safety position (remain, 0%, 50%, 100%)	<u>static binary input (default: dry contact)</u> ON: < 1.6 kΩ OFF: > 90 kΩ Also configurable as: totalizers (15 Hz) **Features:** ▪ 1 yellow LED per input	<u>relay outputs (default)</u> **Features:** ▪ Voltage: 24 Vac/dc, P>50 mW ▪ max. total current: 3 A (ac or dc) ▪ current per relay: 500 mA ▪ normally-open contacts: P > 50 mW, voltage: 24 V (ac or dc) ▪ yellow LED per output

NOTE: All mixed Panel Bus I/O Modules are protected against short circuit, 24 Vac +20% and 30 Vdc.