Code No. LIT-1901082
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Verasys® Application Controller (VAC) Catalog Page

Description

Verasys® Application Controllers are part of the SMART Equipment Controller family. Verasys Application Controllers run pre-engineered applications and provide the inputs and outputs required to monitor and control a wide variety of HVAC equipment.

Verasys Application Controllers operate on an RS-485 BACnet® MS/TP Bus as BACnet Advanced Application Controllers (B-AACs). The controllers integrate into Johnson Controls® and third-party BACnet systems.

Verasys Application Controllers include an integral real-time clock that enables the controllers to monitor and control schedules, calendars, and trends. The controllers can operate for extended periods of time as stand-alone controllers when they are disconnected from the system network.

Refer to the *Verasys System Product Bulletin (LIT- 12012342)* and controller application guides for more information about controllers that have applications loaded in them.

Verasys Application Controllers

Repair parts

If the Verasys Application Controller fails to operate within its specifications, replace the unit. For a replacement unit, contact the nearest Johnson Controls sales representative.

Selection chart

Code number	Description
LC-VAC1000-0	18 point 24 VAC Application Controller with no application loaded
LC-VAC1001-0	18 point 24 VAC Application Controller with lighting controller application loaded
LC-VAC1002-0	18 point 24 VAC Application Controller with input/output controller application loaded
LC-VAC1100-0	18 point 240 VAC Application Controller with no application loaded
LC-VAC3000-0	32 point 24 VAC Application Controller with no application loaded
LC-VLP100-0	16in. x 20in. panel with LC-VAC1001-0 Controller, with 96 VA power supply
LC-VLP110-0	24in. x 24in. panel with LC-VAC1001-0 Controller, with pilot relays, without contactors
LC-VLP120-0	24in. x 36in. panel with LC-VAC1001-0 Controller, with pilot relays, with contactors
LC-IOP200-0	16in. x 20in. panel with LC-VAC1002-0, with 96 VA power supply

Technical specifications

LC-VAC100x-0 (Part 1 of 2)

Product code numbers	LC-VAC100x-0 Verasys 18 point 24 V Application Controller with display
Supply voltage	24 VAC, 20 VAC minimum and 30 VAC maximum, 50/60 Hz, power supply class 2 (North America), Safety Extra-Low Voltage (SELV) (Europe)
Power consumption	20 VA maximum for LC-VAC100x-0 **Note:** VA rating does not include any power supplied to the peripheral devices connected to Binary Outputs (BOs) or Configurable Outputs (COs). This can consume up to 12 VA for each BO or CO; for a possible total consumption of an additional 60 VA maximum.
Ambient conditions	**Operating:** -4°F to 158°F (-20°C to 70°C); 10% to 95% Relative Humidity (RH) noncondensing; Pollution degree 2 **Storage:** -40°F to 185°F (-40°C to 85°C); 5% to 95% RH noncondensing.
Addressing	**BACnet® MS/TP:** Valid field controller device addresses 4–127 Device addresses 0–3 and 128–255 are reserved and not valid field controller addresses. **N2:** Valid field controller device addresses 1 to 255.

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LC-VAC100x-0 (Part 2 of 2)

Communications bus	**BACnet® MS/TP, Modbus and N2 through RS-485:** • 3-wire System Bus between the supervisory controller and field controller • 4-wire Sensor Bus between controller, network sensors and other sensor and actuator devices, includes a lead to source 15 VDC supply power from controller to bus devices • 3-wire one modbus communication half-duplex, master RTU port.
Processor	RX631 Renesas® 32-bit microcontroller
Memory	16 MB flash memory and 8 MB RAM
Input and output capabilities	**Five universal inputs:** Application specific, three available modes: (See application note for wiring diagrams and usage) • Voltage input: 0 VDC to 10 VDC • Current sense input: 4 mA to 20 mA • Resistive inputs/dry contact inputs **Four binary inputs:** Defined as dry contact maintained or pulse counter or accumulator mode. **Three configurable outputs:** User-configurable, two available modes: • Analog output: 0 VDC to 10 VDC, 10 mA • Triac output: 24 VAC, 0.5 A, externally sourced powered **One utility output power port (24~ OUT):** Ability to deliver 24 VAC **Four binary outputs (relays):** Single-pole, single-throw. Dry contacts rated 240 VAC. • UL: 240 VAC 5 A resistive, 1.9 LA/11.1LRA, D300 pilot duty, 70°C/158°F (30,000 cycles) • IEC: 240 VAC 3 A resistive, 3A inductive, Cos=0.6, -4°F to 158°F (-20°C to 70°C) (100,000 cycles) **Note:** Reference all relay commons to the same pole of the supply circuit. **Two BO Triacs:** Output: 24 VAC or 240 VAC, 0.5 A, externally powered Note: Reference all triac commons to the same pole of the supply circuit.
Analog input/Analog output resolution and accuracy	**Analog input:** 12-bit resolution **Analog output**: 15-bit resolution; +/- 200 mV accuracy in 0 VDC to 10 VDC applications
Terminations	Input and output: Fixed spade terminals Sensor, system and modbus: 4-wire and 3-wire pluggable screw terminal blocks Sensor Bus tool port: RJ-12 6-pin modular jack Field install option: Input and output: Fixed solder terminals Sensor, system and modbus: 4-wire and 3-wire pluggable screw terminal blocks Sensor Bus tool port: RJ-12 6-pin modular jack
Mounting	Horizontal on a single 35 mm DIN rail mount is preferred, or screw mount on flat surface with three integral mounting clips on the controller Mount the controller on a wall or DIN rail inside an enclosure rated at least IP20.
Housing	Enclosure material: Polycarbonate Lexan SABIC EXL9330
Dimensions (H x W x D)	6.45 in. x 4.92 in. x 2.08 in. (164 mm x 125 mm x 53 mm) excluding terminals and mounting clips
Weight	0.5 kg (1.1 lb)
Compliance CE	**United States:** cULus Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment FCC Compliant to CRF47, Part 15, Subpart B, Class A
	Canada: cULus Listed, File E107041, CNN PAZX7 CAN/CSA C22.2 No.205, Signal Equipment Industry Canada Compliant, ICES-003
	Europe: Johnson Controls declares that this product is also in compliance with the essential requirements and other relevant provisions of the EMC Directive Declared as Electronic Independently mounted control, suitable for DIN rail mounting. Intended to mount in remote panel. Type 1.C (Micro-interruption), 330 V rated impulse voltage. 125°C ball pressure test.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant

LC-VAC110x-0 (Part 1 of 3)

Product code numbers	LC-VAC110x-0 Verasys 18 point 240 V Application Controller 120/240 VAC with display

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LC-VAC110x-0 (Part 2 of 3)

Supply voltage	120/240 VAC, 50/60 Hz, power supply Class 1 (North America), SELV (Europe)
Power consumption	20 VA maximum for LC-VAC110x-0 **Note:** VA rating does not include any power supplied to the peripheral devices connected to BOs or COs. This can consume up to 12 VA for each BO or CO; for a possible total consumption of an additional 60 VA, maximum.
Ambient conditions	**Operating:** -4°F to 158°F (-20°C to 70°C); 10% to 95% RH noncondensing; pollution degree 2 **Storage:** -40°F to 185°F (-40°C to 85°C); 5% to 95% RH noncondensing.
Addressing	**BACnet® MS/TP:** Valid field controller device addresses 4–127 Device addresses 0–3 and 128–255 are reserved and not valid field controller addresses. **N2:** Valid field controller device addresses 1 to 255
Communications bus	**BACnet® MS/TP, Modbus and N2 through RS-485:** • 3-wire System Bus between the supervisory controller and field controller • 4-wire Sensor Bus between controller, network sensors, and other sensor and actuator devices, includes a lead to source 15 VDC supply power from controller to bus devices • 3-wire one modbus communication half-duplex, master RTU port.
Processor	RX631 Renesas® 32-bit microcontroller
Memory	16 MB flash memory and 8 MB RAM
Input and output capabilities	**Five universal inputs:** User-configurable, three available modes: (See application note for wiring diagrams and usage) • Voltage input: 0 VDC to 10 VDC • Current sense input: 4 mA to 20 mA • Resistive inputs and dry contact inputs **Four binary inputs:** Defined as dry contact maintained or pulse counter and accumulator mode **Three configurable outputs:** User-configurable, two available modes: • Analog Output: 0 VDC to 10 VDC, 10 mA • Triac Output: 24 VAC, 0.5 A, externally sourced powered. **One utility output power port:** Ability to deliver 24 VAC **Four binary outputs (relays):** Single-pole, single-throw. Dry contacts rated 240 VAC. • UL: 240 VAC, 5 A resistive, 1.9 LA/11.1LRA, D300 pilot duty, 70°C/158°F, 30,000 cycles • IEC: 240 VAC, 3 A resistive, 3 A inductive, Cos=0.6, -4°F to 158°F (-20°C to 70°C), 100,000 cycles. **Note:** Reference all relay commons to the same pole of the supply circuit. **Two BO Triacs:** Output: 24 VAC or 240 VAC, 0.5 A, externally powered Note: Reference all triac commons to the same pole of the supply circuit.
Analog input/Analog output resolution and accuracy	**Analog input:** 12-bit resolution **Analog output:** 15-bit resolution, +/- 200 mV accuracy in 0 to 10 VDC applications
Terminations	Input/output: Fixed spade terminals Sensor, system and modbus: 4-wire and 3-wire pluggable screw terminal blocks Sensor Bus tool port: RJ-12 6-pin modular jack **Field install option:** Input and output: Fixed solder terminals Sensor, system and modbus: 4-wire and 3-wire pluggable screw terminal blocks Sensor Bus tool port: RJ-12 6-pin modular jack
Mounting	Horizontal on a single 35 mm DIN rail mount is preferred, or screw mount on flat surface with three integral mounting clips on controller. Mount the controller on a wall or DIN rail inside an enclosure (rated at least IP20).
Method to provide earthing (Grounding)	Functional earthing: Terminal W44
Housing	Enclosure material: Polycarbonate Lexan SABIC EXL9330
Dimensions (H x W x D)	7.48 in. x 4.92 in. x 2.28 in. (190 mm x 125 mm x 58 mm) excluding terminals and mounting clips
Weight	1.1 lb (0.5 kg)

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LC-VAC110x-0 (Part 3 of 3)

Compliance CE	**United States:** cULus Listed, File E107041, CCN PAZC, UL 916, Energy Management FCC Compliant to CRF47, Part 15, Subpart B, Class A
	Canada: cULus Listed, File E107041, CNN PAZX7 CAN/CSA C22.2 No.205, Signal Equipment Industry Canada Compliant, ICES-003
	Europe: Johnson Controls declares that this product is also in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive Declared as Electronic Independently mounted control, suitable for DIN rail mounting. Intended to mount in remote panel. Type 1.C (Micro-interruption) for relays, 2,500 V rated impulse voltage. 125°C ball pressure test.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant

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LC-VAC300x-0 (Part 1 of 2)

Product code numbers	LC-VAC300x-0 Controller 24 V with display
Supply voltage	24 VAC, 20 VAC minimum/30 VAC maximum, 50/60 Hz, power supply class 2 (North America), SELV, Europe.
Power consumption	**20 VA maximum** **Note:** VA rating does not include any power supplied to the peripheral devices connected to BOs or COs. This can consume up to 12 VA for each BO or CO; for a possible total consumption of an additional 60 VA, maximum.
Ambient conditions	**Operating:** -4°F to 158°F (-20°C to 70°C); 10% to 95% RH noncondensing; pollution degree 2. **Storage:** -40°F to 185°F (-40°C to 85°C); 5% to 95% RH noncondensing
Addressing	**BACnet® MS/TP:** Valid field controller device addresses 4–127 Device addresses 0–3 and 128–255 are reserved and not valid field controller addresses. **N2:** Valid field controller device addresses 1 to 255
Communications bus	**BACnet® MS/TP, Modbus and N2 through RS-485:** • 3-wire System Bus between the supervisory controller and field controller addresses • 4-wire Sensor Bus between controller, network sensors and other sensor and actuator devices, includes a lead to source 15 VDC supply power from controller to bus devices • 3-wire one Modbus communication half-duplex, master RTU port
Processor	RX631 Renesas® 32-bit microcontroller
Memory	16 MB flash memory and 8 MB RAM
Input and output capabilities	**Six Universal Inputs:** User-configurable, three available modes: (See application note for wiring diagrams and usage) • Voltage input: 0 VDC to 10 VDC • Current sense input: 4 mA to 20 mA • Resistive inputs and dry contact inputs **12 Binary Inputs:** Defined as dry contact maintained or pulse counter and accumulator mode **Four Configurable Outputs:** User-configurable, two available modes: • Analog Output: 0 VDC to 10 VDC, 10 mA • Triac Output: 24 VAC, 0.5 A, externally sourced powered **One Utility Output Power Port (24~ OUT):** Ability to deliver 24 VAC **Four BO relays:** Single-pole, single-throw. Dry contacts rated 240 VAC • UL: 240 VAC 5A resistive, 1.9 LA/11.1LRA, D300 pilot duty, 158°F/70°C, 30,000 cycles • IEC: 240 VAC 3A resistive, 3A inductive, Cos=0.6, 4°F to 158°F (-20°C to 70°C), 100,000 cycles **One BO relays:** Single-pole, double-throw, dry contacts rated 240 VAC • UL: 240 VAC 5A resistive, 1.9 LA/11.1LRA, D300 pilot duty, 158°F/70°C, 30,000 cycles • IEC: 240 VAC 3A Resistive, 3A inductive, Cos=0.6, -4°F to 158°F (-20°C to 70°C) 100,000 cycles **One PWM Output Port:** 5 V, 12 V, 15 V selectable PWM output voltage, 10 mA maximum continuous current, 100 Hz **Note:** Reference all relay commons to the same pole of the supply circuit. **Four BO Triacs:** Output: 24 VAC or 240 VAC, 0.5 A, externally powered **Note:** Reference all triac commons to the same pole of the supply circuit.
Analog input/Analog output resolution and accuracy	Analog Input: 12-bit resolution Analog Output: 15-bit resolution, +/- 200 mV accuracy in 0 VDC to 10 VDC applications
Terminations	Input/Output: Fixed spade terminals Sensor/System/Modbus: 4-wire and 3-wire pluggable screw terminal blocks Sensor Bus tool port: RJ-12 6-pin modular jack **Field install option:** Input/output: Fixed solder terminals Sensor/System/Modbus: 4-wire and 3-wire pluggable screw terminal blocks Sensor Bus Tool Port: RJ-12 6-pin modular jack
Mounting	Horizontal on a single 35 mm DIN rail mount (preferred), or screw mount on flat surface with three integral mounting clips on controller. Mount the Verasys Controllers on a wall or DIN rail inside an enclosure, rated at least IP20.
Housing	Enclosure material: Polycarbonate LEXAN® SABIC EXL9330
Dimensions (H x W x D)	8.66 in. x 4.92 in. x 2.28 in. (220 mm x 125 mm x 58 mm)

Verasys® Application Controller (VAC) Catalog Page (Continued)

LC-VAC300x-0 (Part 2 of 2)

Weight	1.1 lb (0.5 kg)
Compliance	**United States:** cULus Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment FCC Compliant to CRF47, Part 15, Subpart B, Class A
	Canada: cULus Listed, File E107041, CNN PAZX7 CAN/CSA C22.2 No.205, Signal Equipment Industry Canada Compliant, ICES-003
	Europe: Johnson Controls declares that this product is also in compliance with the essential requirements and other relevant provisions of the EMC Directive and Declared as Electronic Independently mounted control, suitable for DIN rain mounting. Intended to mount in remote panel. Type 1.C (Micro-interruption), 330 V rated impulse voltage. 125°C ball pressure test.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant

