

Metasys® Field Controllers LONWORKS® Compatible

DX-9121

Digital Controller N2E

The DX-9121 LONWORKS® Digital Controller, is the ideal digital control solution for multiple chiller or boiler plant control applications, for air handling units or for distributed lighting and related electrical equipment control applications. The controller has both the hardware and software flexibility to adapt to the variety of control requirements in its targeted applications and can extend its input and output point capability by communicating with input/output (I/O) extension modules on an extension bus. The controller provides monitoring and control of all connected points at an integral LED display and keyboard or from a separate DT-9100 display unit. The DT-9100 display unit, with a text and graphic LCD screen and keypad, provides a standard and customized presentation of data according to the application and customer requirements. Both the DX-9121 controller and the DT-9100 display unit can be mounted within an electrical enclosure or in a cabinet door, and the DT-9100 display unit can also be mounted directly onto the controller within a panel, on a wall or can be used as a portable device. Additionally, each controller can share data with other DX-9121 controllers on the same N2E bus. When the N2E bus is integrated into a Metasys® system, point and control information is available throughout the network and at all Metasys operator workstations.



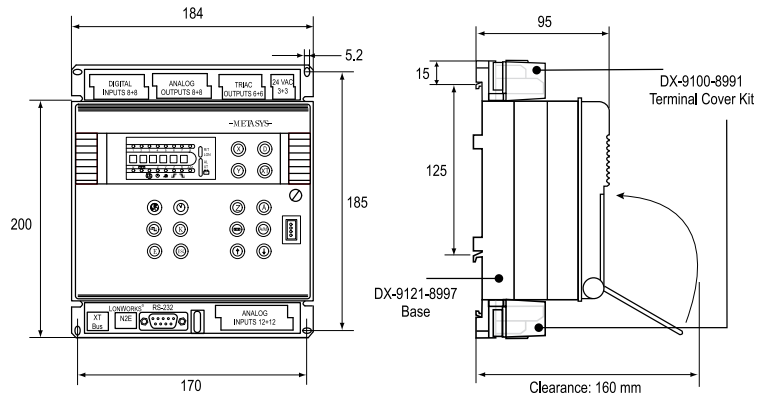
Model with LED display
and Keyboard in Cabinet Door
Mounting Frame



Black Box Model
on Panel Mounting Base

Features

- LONWORKS® network communications (Metasys N2E)
- Dynamic data access capabilities with NCM and Metasys system network
- Full set of control algorithms in software modules
- Graphic configuration tool
- Standalone control
- Real-time clock and time programs
- Trend data storage
- Extension bus for additional I/O points
- Extension modules for a variety of analog and digital I/O combinations
- Model with integral display and control panel
- Text and graphic display unit (DT-9100)
- Extension modules with manual override switches



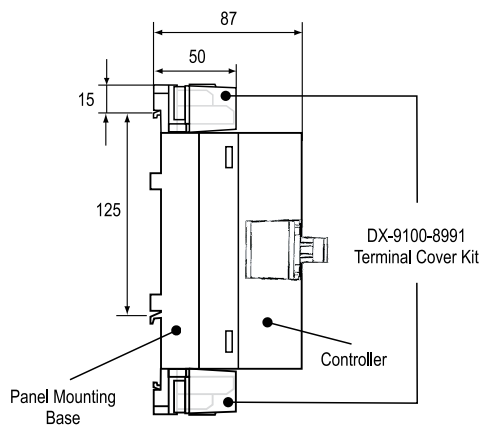
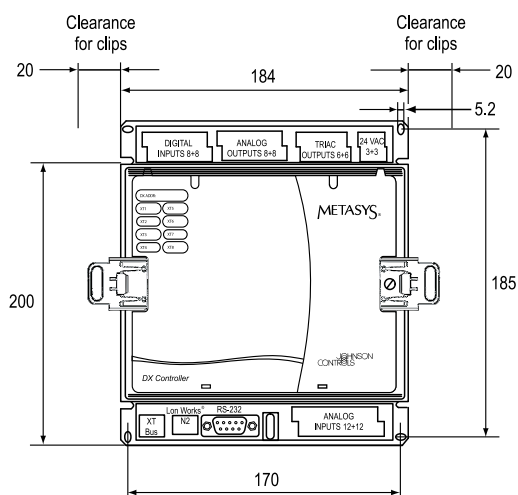
Dimensions in mm

Ordering Codes	Analog Inputs	Binary Inputs	Analog Outputs	Binary Outputs	Panel with LED Display	Power Supply	Communication Bus
DX-9121-8004	8	8	8	6	NO (Black Box)	24 VAC ±10%, 50/60 Hz	FTT
DX-9121-8454					YES		
	Jumper Selectable ■ RTD (1KΩ NI) ■ 0-10 VDC Transmitter ■ 0-20 mA Transmitter (4 max.)	Dry Contacts	Jumper Selectable ■ 0-10 VDC ■ 0-20 mA (4)	24 VAC Triacs at 0.5 amps			

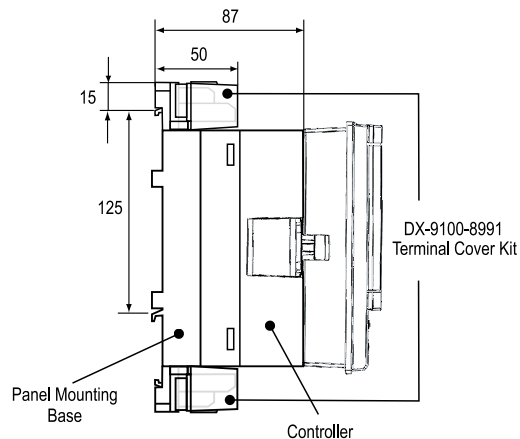
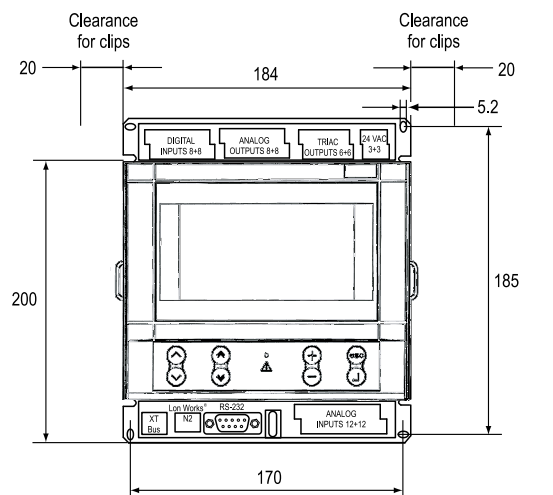
Note

Refer to DX-9200 Technical Bulletin for details of the LONWORKS network interface specifications. LONWORKS® is a Registered Trade Mark of Echelon Corp.

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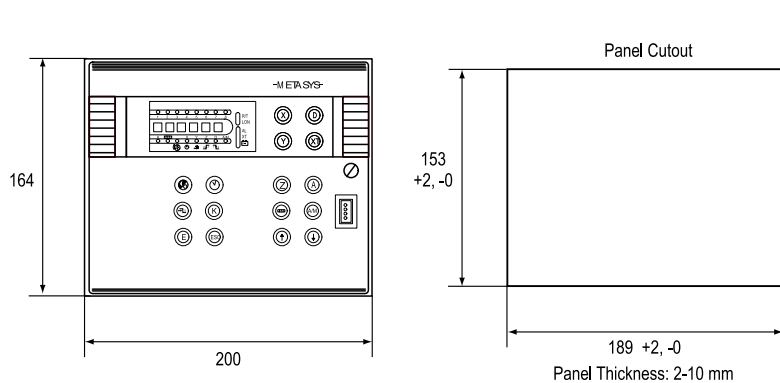


Black Box Controller DX-9121-8004
Dimensions in mm

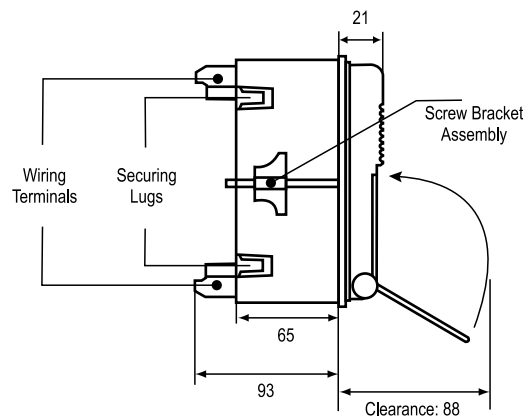


Black Box Controller DX-9121-8004
with LCD Display DT-9100-8204
Dimensions in mm

Installation Details of the DX-9121-8454 Controller with Cabinet Door Mounting Frame



Front View



Side View

DX-9121 **Digital Controller N2E**

DT-9100 Display Unit

Ordering Codes	Description	
DT-9100-8204	Display unit with panel mounting kit for DX-9121-8004	24 VAC $\pm 10\%$, 4VA 50/60Hz or 9 to 12 VDC, 2 VA
DT-9100-8902	Display unit wall mounting kit	
DT-9100-8901	12 VDC power supply for 230 VAC source	

Software and Accessories

Ordering Codes	Description
DX-9121-8997	Panel Mounting Base with Terminal Covers for DX-9121-8004 and DX-9121-8454
DX-9121-8996	Cabinet Door Mounting Frame for DX-9121-8454
DC-9100-8905	Access protection key for DX-9121-8454
DXDC-BAT-KIT	Replacement battery kit
BAT-CR2032	Coin battery replacement

Note

For DX Configuration Tools Software contact your local Johnson Controls office.

Metasys® Field Controllers LONWORKS® Compatible

DX-9200

Digital Controller

The LONWORKS® compatible digital controller, DX-9200 Series, is the ideal digital control solution for air handling unit or distributed lighting and related electrical equipment control applications. The controller has both the hardware and software flexibility to adapt to the variety of control requirements in its targeted applications and can extend its input and output point capability by communicating with input/output (I/O) modules on an extension bus.

The controller provides monitoring and control of all connected points at an integral LED display and keyboard or from a separate DT-9100 display unit. The DT-9100 display unit, with a text and graphic LCD screen and keypad, provides a standard and customized presentation of data according to the application and customer requirements. Both the DX-9200 controller and the DT-9100 display unit can be mounted within an electrical enclosure or in a cabinet door, and the DT-9100 display unit can also be mounted directly onto the controller within a panel, on a wall or can be used as a portable device. Additionally, the controller can share data with other LONMARK® compatible devices on the same LONWORKS network. When the LONWORKS network is integrated into a Metasys® system, point and control information is available throughout the network and at all Metasys operator workstations.



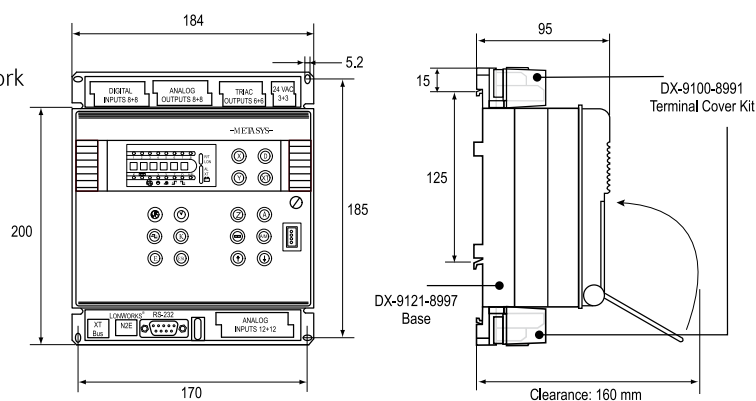
Model with LED display and Keyboard in Cabinet Door Mounting Frame



Black Box Model on Panel Mounting Base

Features

- LONWORKS® compatible network variable interface FTT
- Integration into Metasys system network via NAE
- Dynamic data access capabilities with Metasys system network
- Full set of control algorithms in software modules
- Graphic configuration tool software
- Standalone control of HVAC and other equipment
- Real-time clock and time programs
- Extension bus for additional I/O points
- Extension modules for a variety of analog and digital I/O combinations
- Model with integral display and control panel
- Text and graphic display unit (DT-9100)
- Extension modules with manual override switches



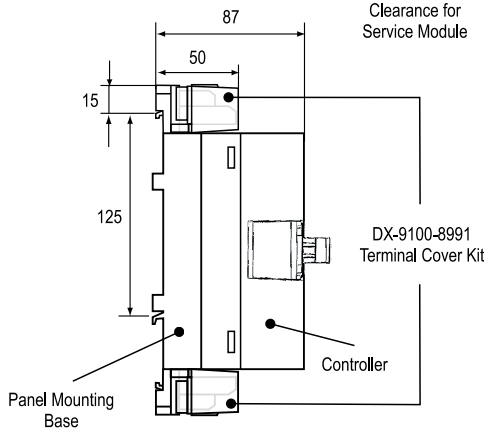
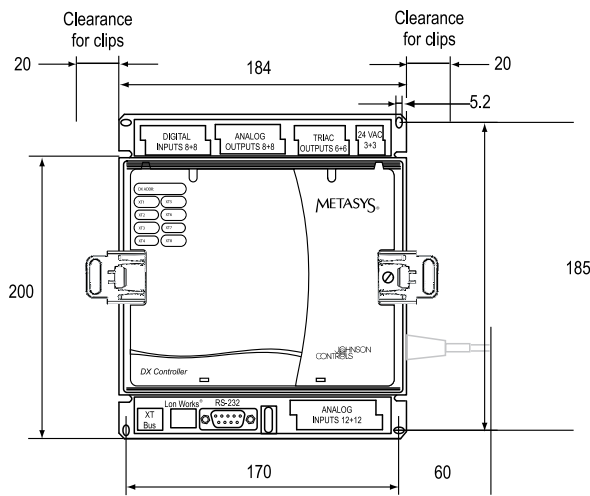
Dimensions in mm

Ordering Codes	Analog Inputs	Binary Inputs	Analog Outputs	Binary Outputs	Panel with LED Display	Power Supply	Application
DX-9200-8004-A	8	8	8	6	NO (Black Box)	24 VAC ±10%, 50/60Hz	Room and light control
DX-9200-8004-D							Air handling control
DX-9200-8454-A					YES		Room and light control
DX-9200-8454-D							Air handling control
	Jumper Selectable ■ RTD(1KQ NI) ■ 0-10 VDC Transmitter ■ 0-20 mA Transmitter (4 max.)	Dry Contacts	Jumper Selectable ■ 0-10 VDC ■ 0-20 mA (4)	24 VAC Triacs at 0.5 amps			

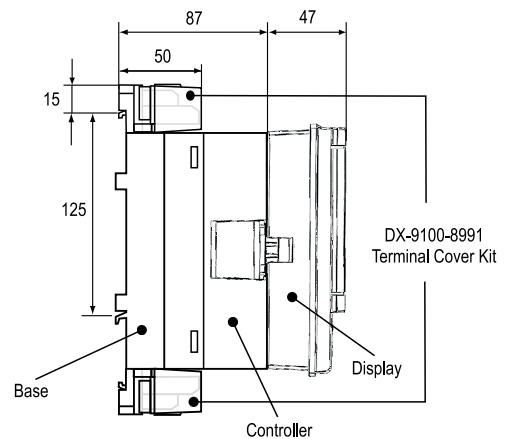
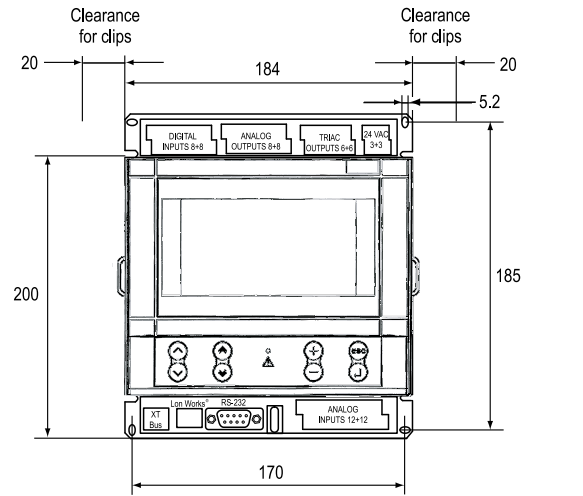
Note

Refer to DX-9200 Technical Bulletin for details of the LONWORKS network interface specifications. LONWORKS® is a Registered Trade Mark of Echelon Corp.

DX-9200 Digital Controller

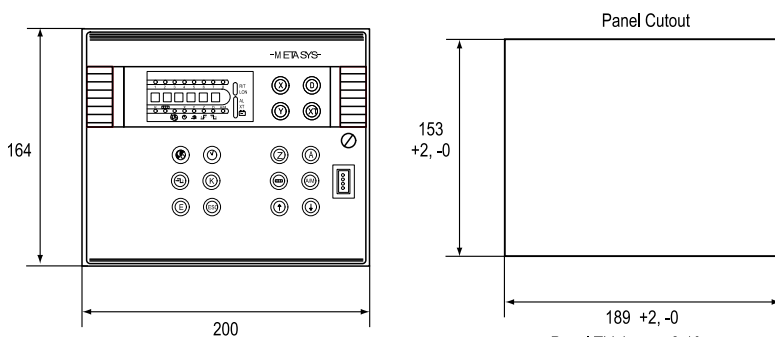


Black Box Controller DX-9200-8004-x
Dimensions in mm

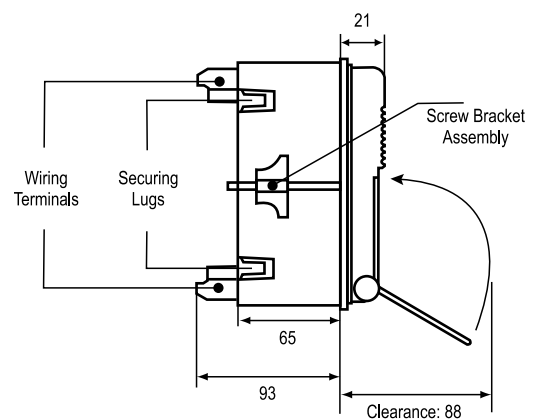


**Black Box Controller DX-9200-8004-x
with LCD Display DT-9100-8204**
Dimensions in mm

Installation Details of the DX-9200-8454-x Controller with Cabinet Door Mounting Frame



Front View



Side View

BUILDING AUTOMATION SYSTEMS

Electronic Control Devices

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DX-9200

Digital Controller

DT-9100 Display Unit

Ordering Codes	Description	
DT-9100-8204	Display unit with panel mounting kit for DX-9200-8004-x	24 VAC $\pm 10\%$, 4VA 50/60Hz or 9 to 12 VDC, 2 VA
DT-9100-8902	Display unit wall mounting kit	
DT-9100-8901	12 VDC power supply for 230 VAC source	

Software and Accessories

Ordering Codes	Description
DX-9200-8997	Panel Mounting Base with Terminal Covers for DX-9200-8454-x and DX-9200-8004-x
DX-9200-8996	Cabinet Door Mounting Frame for DX-9200-8454-x
DC-9100-8905	Access protection key for DX-9200-8454-x
DXDC-BAT-KIT	Replacement battery kit
BAT-CR2032	Coin battery replacement

Note

For DX Configuration Tools Software contact your local Johnson Controls office.

Metasys® Field Controllers N2 Bus

DX-9100

Extended Digital Controller

The DX-9100 Digital Controller is the ideal digital control solution for multiple chiller or boiler plant control applications, for air handling units or for distributed lighting and related electrical equipment control applications. As a standalone controller, the DX has both the hardware and software flexibility to adapt to the control requirements in its targeted applications. Along with its outstanding control flexibility, the controller can extend its input and output point capability by communicating with input/output (I/O) extension modules on an extension bus. The controller provides monitoring and control of all connected points at an integral LED display and keyboard or from a separate DT-9100 display unit. The DT-9100 display unit, with a text and graphic LCD screen and keypad, provides a standard and customized presentation of data according to the application and customer requirements. Both the DX-9100 controller and the DT-9100 display unit can be mounted within an electrical enclosure or in a cabinet door, and the DT-9100 display unit can also be mounted directly onto the controller within a panel, on a wall or can be used as a portable device. When the DX controller is integrated into a Metasys® system, point and control information is available throughout the network and at all Metasys operator workstations.



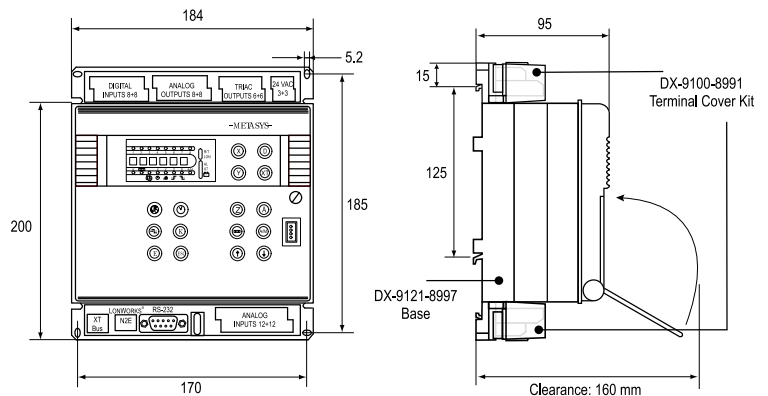
Model with LED display and Keyboard in Cabinet Door Mounting Frame



Black Box Model on Panel Mounting Base

Features

- Full set of control algorithms in software modules
- Graphic configuration tool
- Standalone control
- Real-time clock and time programs
- Trend data storage
- Extension bus for additional I/O points
- Extension modules for a variety of analog and digital I/O combinations
- Model with integral display and control panel
- Text and graphic display unit (DT-9100) – for one or up to eight DX controllers on N2 Bus network
- Extension modules with manual override switches
- N2 Bus communications
- Dynamic data access capabilities with Metasys system network



Dimensions in mm

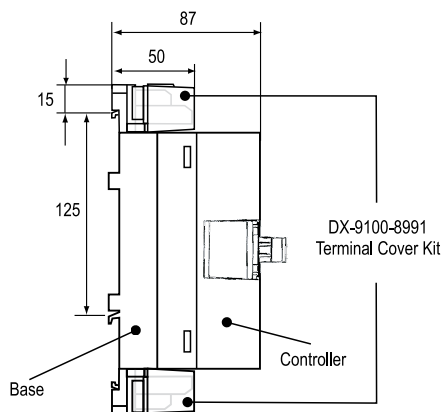
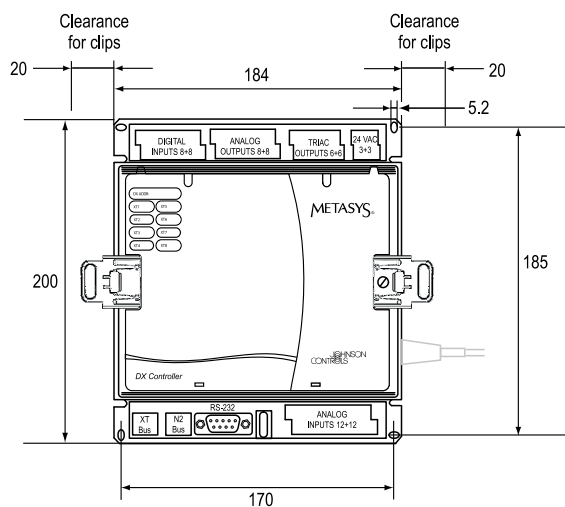
Ordering Codes	Analog Inputs	Binary Inputs	Analog Outputs	Binary Outputs	Panel with LED Display	Power Supply	Communication Bus
DX-9100-8454	8	8	8	6	YES	24 VAC ±10%, 50/60 Hz	N2
DX-9100-8004					NO (Black Box)		

Note

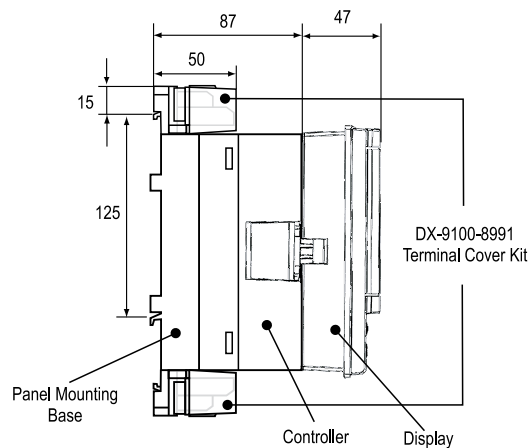
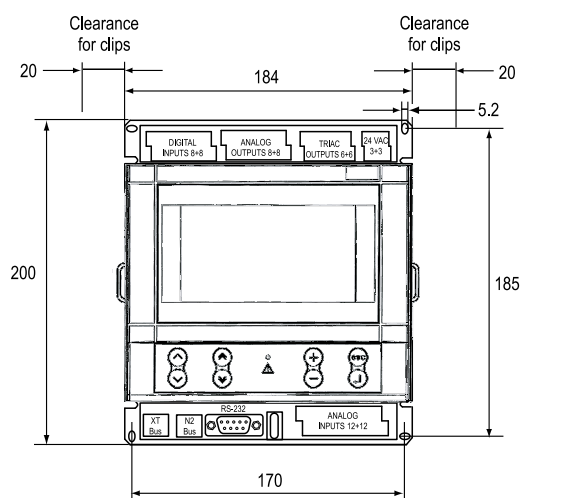
Refer to DX-9100 Technical Bulletin for details of the N2 Bus installation specifications.

DX-9100

Extended Digital Controller

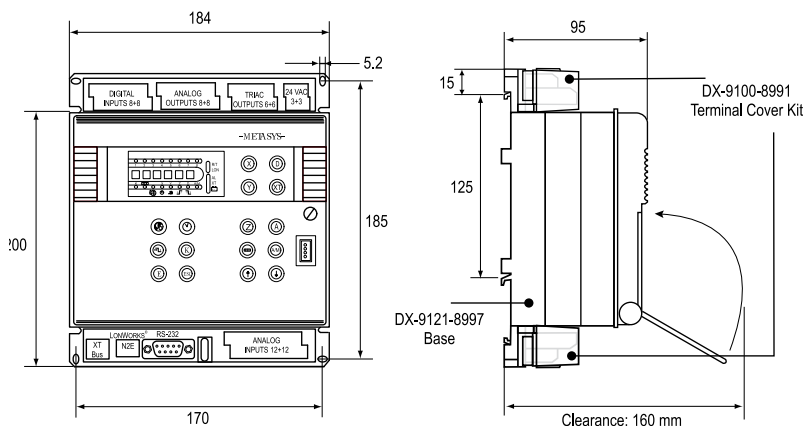


Black Box Controller DX-9100-8004
Dimensions in mm

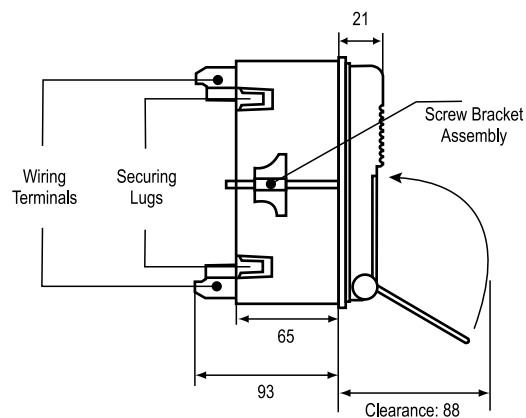


Black Box Controller DX-9100-8004
with LCD Display DT-9100-8204
Dimensions in mm

Installation Details of the DX-9100-8454 Controller with Cabinet Door Mounting Frame



Front View



Side View

DX-9100 Extended Digital Controller

DT-9100 Display Unit

Ordering Codes	Description	
DT-9100-8204	Display unit with panel mounting kit for DX-9100-8004	24 VAC $\pm 10\%$, 4 VA 50/60 Hz or 9 to 12 VDC, 2 VA
DT-9100-8902	Display unit wall mounting kit	
DT-9100-8901	12 VDC power supply for 230 VAC source	

Software and Accessories

Ordering Codes	Description
DX-9100-8997	Panel Mounting Base with Terminal covers for DX-9100-8454 and DX-9100-8004
DX-9100-8996	Cabinet Door Mounting Frame for DX-9100-8454
DC-9100-8905	Access protection key for DX-9100-8154 and DX-9100-8454
DXDC-BAT-KIT	Replacement battery kit
BAT-CR2032	Coin battery replacement

Note:

For DX Configuration Tools Software contact your local Johnson Controls office.

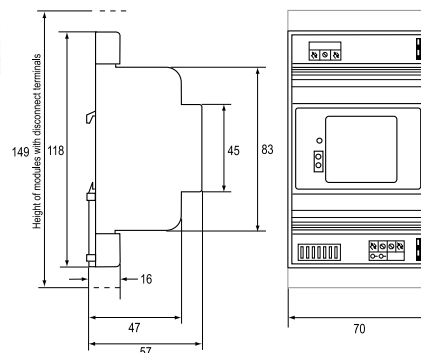
Metasys® Field Controllers N2 Bus

XTM-905 / XT-9100 and XP / XT -910x

Extension Module and Expansion Modules

Extension Modules (XT-9100/XP910x or XTM-905/XPx) are submodules that provide various combinations of analog and binary input/output points. They may be mounted next to the DX-9100, DX-9121 or DX-9200 controller on the same DIN rail, or remotely, up to 1200 meters from the controller.

Up to eight submodule combinations can connect to the XT Bus of the DX controller, providing up to 64 additional I/O points. The XT Bus has the same physical characteristics as the Metasys N2 Bus.



Dimensions in mm

XT-9100 and XT-910x Expansion Modules

Ordering Codes	Analog Inputs	Binary Inputs	Analog Outputs	Binary Outputs		Supply Voltage	Override
	0-10 V, 0/4-20 mA, Ni 1000, Pt1000, A99	Voltage free	0-10 V, 0-20 mA	Relay 250 VAC, 3A	Triac 24 VAC, 0.5 A		
XT-9100-8304	Extension Module for XP module connection to DX module					24 VAC ±10%, 50/60Hz	---
XP-9102-8304	6	---	2	---	---		
XP-9103-8304	---	---	---		8		
XP-9104-8304		4			4		
XP-9105-8304		8			---		
XP-9106-8304		---		4			

XTM-905/XPx Modules

Ordering Codes	Analog Inputs	Binary Inputs	Analog Outputs	Binary Outputs		Supply Voltage	Override
	0-10 V, 0/4-20 mA, Ni 1000, Pt1000, A99	Voltage free	0-10 V, 0-20 mA	Relay 250 VAC, 3A	Triac 24 VAC, 0.5A		
XTM-905-5	Extension Module for XPx expansion modules connection to DX module					24 VAC, +15% 50-60 Hz	---
XPA-421-5	4	---	---	---	---		Option on outputs
XPA-442-5	---	---	4				
XPA-821-5	6	---	2				
XPB-821-5	---	8	---	2 (momentary)			
XPM-401-5		4		3 (mech. latch)			
XPL-401-5				3 (electric latch)			
XPE-401-5				4 (electric latch)			
XPE-404-5							
XPT-401-5		---		4			
XPT-861-5				8	---		

Accessories (order separately)

Ordering Codes	Description
TR-9100-8101	Transformer 230 V AC / 24 V AC, 9 VA

Metasys® Field Controllers N2 Bus

VMA1400

Variable Air Volume Controller

The Variable Air Volume Modular Assembly (VMA) is a family of configurable digital controllers. Differing models in the VMA1400 series combine a controller, pressure sensor and/or actuator housed in one pre-assembled unit.

The VMA1400 series is available in four models:

- Cooling Only (VMA1410)
- Cooling with Reheat and/or Fan (VMA1420)
- External Actuator (VMA1430)

The VMA1410, 1420, 1430 are designed for pressure-independent, single duct systems. The VMA1420 and VMA1430 can also be used with parallel or series fan powered boxes, supply/exhaust applications, and dual duct systems.



Features

- Easy-to-handle unit with a compact footprint
- Pre-wired controller with pressure sensor and actuator for reduced installation time
- Fast response actuator that drives the damper from full open to full closed (90°)
- Continuous loop tuning through proportional adaptive algorithms using patented P-Adaptive and Pattern Recognition Adaptive Control (PRAC)

Ordering Codes	Inputs / Outputs	Point	Rating	Model			Description
				1410	1420	1430	
Analog Inputs							
AP-VMA1410-0	Zone temperature	AI-1	1K Ni,Si, Pt, or 2.25 K NTC	•	•	•	Integrated VAV Controller/Actuator/Pressure sensor (cooling only)
	Zone setpoint	AI-2	1.6 Kohm pot.meter	•	•	•	
	Sideloop (humidity, dew point)	AI-3	0..10 VDC	---	•	•	
AP-VMA1420-0	Supply air temp. or supplemental heat temp.	AI-4	1K Ni,Si, Pt, or 2.25 K NTC	•	•	•	Integrated VAV Controller/Actuator/Pressure sensor (w/ Reheat and Fan-Powered)
AP-VMA1430-0	Velocity pressure	internal	0...374 pa	•	•	•	Integrated VAV Controller/Pressure sensor (w/ Reheat and Fan-Powered)
	Binary Inputs						
	Tempory occupied/Standby	BI-1	Dry contact	•	•	•	
	Occupied	BI-2		•	•	•	
	Off or window or shutdown	BI-3		---	•	•	
	Analog Outputs						
	Proportional heat	AO-1 AO-2	0...10 VDC at 10 mA	---	•	•	
	Binary Outputs						
	Lights, Fan, Box Heat-Valve or 1-3 stage Electric, Supplement Heat-Valve or Single Stage Electric Box Heat, External Damper Actuator,	BO-1 BO-2 BO-3 BO-4 BO-5	24 VAC at 0.5 A each	---	•	•	
	Stepper Motor with Position Actuator	Internal	2-phase Stepper	•	•	---	