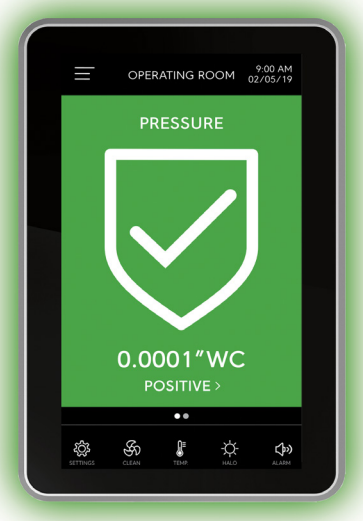
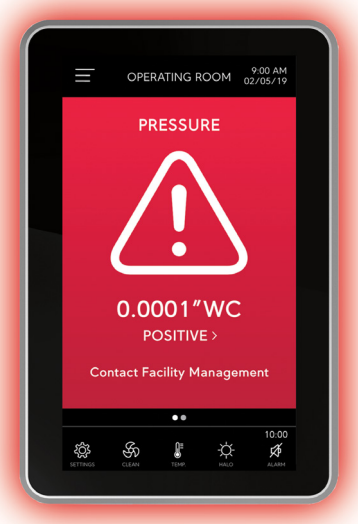
FMS-2000C

Critical Environment Controller

Product Bulletin

LIT-12013350
September 2020





Overview

The FMS-2000C Critical Environment Controller ensures laboratory and healthcare settings are safe for all occupants by continuously verifying room pressure and airflow. It can precisely control and monitor six parameters including differential pressure, temperature, humidity, CO_2, airflow, and air changes per hour. One controller can control or monitor up to four spaces simultaneously for any of the six parameters. This controller has a displayed flow resolution down to 0.0001 in. W.C. and instantly updates as conditions change.

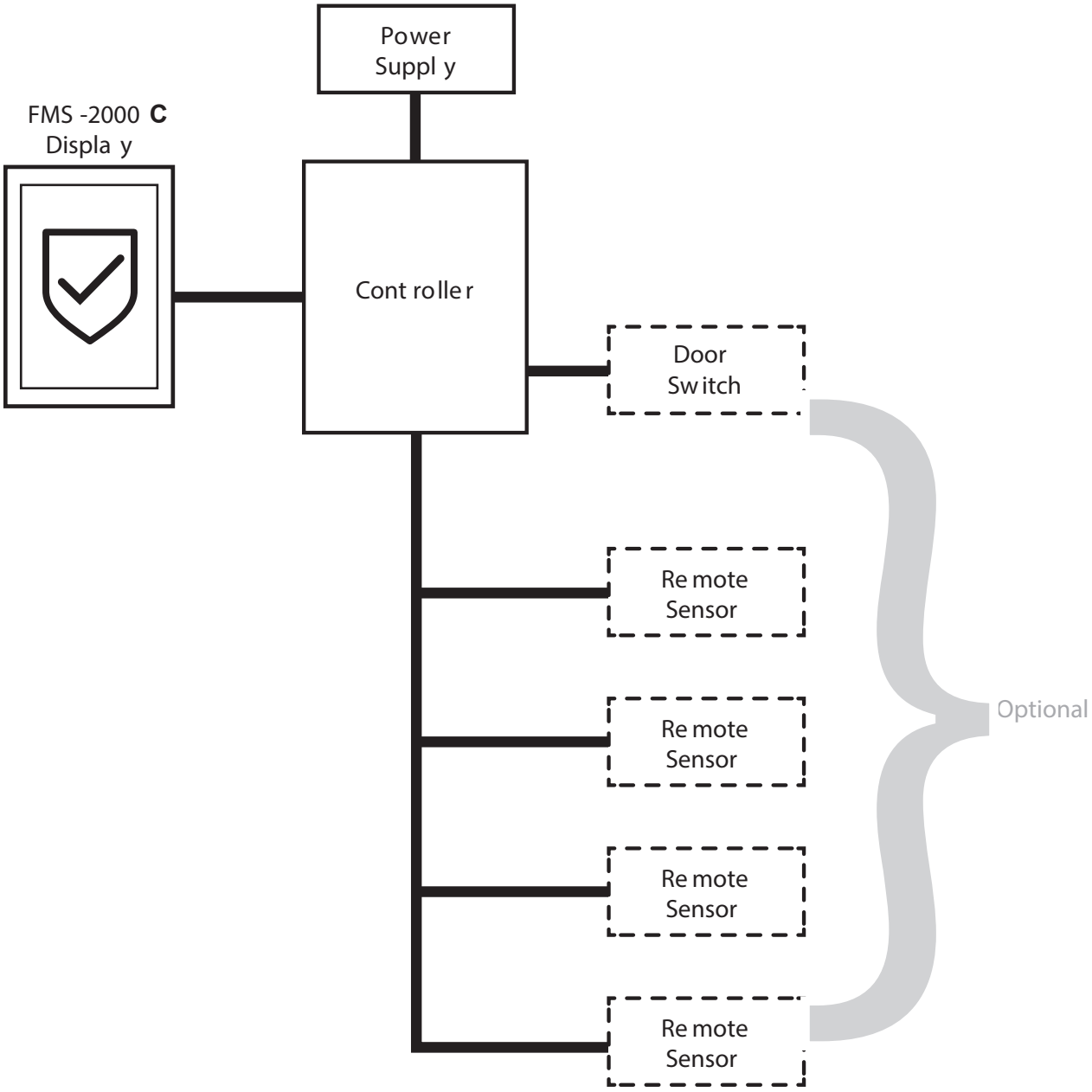
The FMS-2000C provides maximum room status awareness with color coded visual alarms both on screen and with the 360° Safety Halo™ illuminated edge, which allows staff to easily monitor spaces down long corridors. The audible alarm can be muted with one tap to the screen to help reduce audible alarm fatigue. There are two password protected access levels, one for administrators and one for restricted level users, such as nurses.

Features and benefits

Features	Benefits
Parameters	Controls and monitors up to six parameters across four rooms
Connectivity	18 available Input/Output (I/O) resources
Protocols	BACnet® MS/TP and N2 communication
Lighting	360° Safely Halo illuminated edge helps staff monitor spaces down long corridors
Design	Intuitive user interface allows for fast and easy set up
Display	5 in. (127 mm) high definition 720 pixels by 1280 pixels touchscreen display that works with rubber, nitrile, and latex gloves
Non-volatile memory	Saves users settings in case of a power outage
Password protection	Two access levels to prevent unauthorized access
Energy savings	Unoccupied mode reduces air and temperature changes
Maintenance free pressure sensor	Provides highly accurate, long-term stability
Home screen customization	The user can define the parameters displayed
Display override	Display measured values from the other monitored devices within the building management system (BMS)
Global release	Offers a user interface that is translated into 17 languages

Components

Figure 1: Components overview



Repair information

If the FMS-2000C Critical Environment Controller fails to operate within its specifications, replace the unit. For a replacement FMS-2000C, contact the nearest Johnson Controls® representative.

Applications

The following are appropriate environments for the FMS-2000C:

- Airborne infection isolation (AII) rooms - negative pressure
- Protective environments (PE) isolation rooms - positive pressure
- AII and PE rooms with an anteroom
- Operating rooms (ORs)
- Compounding pharmacies
- Pandemic preparedness rooms
- Intensive care units
- Laboratories and vivariums
- Burn units
- Bronchoscopy suites
- Mortuary preparation rooms and autopsy rooms
- Data centres
- Laundry areas
- Indoor growing facilities
- Crime labs

See Table 1 to help you determine whether your application requires the FMS-2000C Critical Environment Controller or the FMS-2000M Critical Environment Monitor.

Table 1: Product guide

Features and capabilities	FMS-2000C	FMS-2000M
Differential pressure control	Y	N
Differential pressure monitoring	Y	Y
Volumetric air flow	Y	Y[1]
Volumetric offset control	Y	N
Temperature control	Y	N
Temperature monitoring	Y	Y[1]
External thermostat integration	Y	N
Relative humidity	Y	Y[1]
Air change rate	Y	Y[1]
CO_2 concentration	Y	Y[1]
BACnet MS/TP communications	Y	Y
Metasys N2 communications	Y	N
Lon communications	N	N
Door switch support	Y	Y
Occupancy switch support	Y	N
Override switch support	Y	N
Analog input override	Y	N
Analog output override	Y	N
Universal analog inputs	4	0
Universal analog outputs	4	0
Digital inputs	4	4[2]
Relay outputs	4	0
Thermistor inputs	2	0
Works with CMS-1655 and CMS-2000Central Monitoring Station	Y	N

[1] Read over the network

[2] Up to four digital inputs. One per sensor. For door switch use only.

Ordering information

Table 2: FMS-2000C Critical Environment Controller ordering guide

Feature	Code letter or number and description	Product code number example: LB-FMS2C-BT21
Product name	LB	LB
Unit	FMS = Flow Monitor Station (FMS)	FMS
Series	2 = 2000 C = Controller	2C
Network	B = BACnet/N2 (Controller included)	B
Mounting style	T = Thin S = Surface	T
Remote sensor[1]	0 = No remote sensors 1 = One remote sensor 2 = Two remote sensors 3 = Three remote sensors 4 = Four remote sensors	2
ISO power	0 = 24 V power supply by others 1 = 120 V to 240 V/24 V 2 = 24 V/24 V	1

[1] If you plan to use third party sensors, select 0.

Technical specifications

Intended use	Indoor use
Overvoltage category	II
Altitude	Up to 2000 m
Pressure range	± 0.2500 in. W.C.
Alarm range	± 0.2500 in. W.C.
Display range	± 0.2500 in. W.C.
Accuracy	± 0.5% full scale
Air flow sensor type	Digital differential pressure features no offset, zero drift and is hysteresis free
Flow control resolution	± 0.0010 in. W.C.
Displayed pressure resolution	± 0.0001 in. W.C.
Control capability	Up to 4 independent spaces
I/O Resources	4 universal inputs (0 mA to 20 mA, 4 mA to 20 mA, 0 VDC to 5 VDC, 0 VDC to 10 VDC) 2 thermistor inputs (NTC Type 2 or 3, 10K at 77° F) 4 digital inputs (active-high or active-low 0 VDC to 5 VDC or 0 VDC to 24 VDC) 4 universal outputs (0 mA to 20 mA, 4 mA to 20 mA, 0 VDC to 5 VDC, 0 VDC to 10 VDC) 4 relay outputs (NO or NC contacts 1A at 24 VDC)
Operating temperature	32°F to 104°F (0°C to 40°C)
Operating humidity	10% to 95% relative humidity, non-condensing
Mounting	Thin mount for shallow wall cavities, surface mount for mounting to standard single-gang wall box
Alarm indication	360° Safety Halo color coded visual, audible alarm
Alarm silence	Touchscreen, auto-reset

Password protection		Up to 50 user passwords with 2 access levels (administrator and restricted)
Communications protocol		BACnet MS/TP (to BAS) 76.8k, 38.4k, 19.2k, 9600 baud, Metasys N2 open
Power requirement		24 VAC (nominal, 21.6 VAC minimum/26.4 VAC maximum), 50/60 Hz 30 VA power supply, Class 2, Limited Energy, or LPS
Power consumption		30 VA maximum
Optional input power supply		Universal 120 VAC/240 VAC-to-24 VAC, 30 VA step-down isolation transformer
		24 VAC-to-24 VAC, 30 VA isolation transformer
Pollution degree		2
Display resolution		720 pixels x 1280 pixels
Pluggable screw terminal blocks		18 AWG to 22 AWG (1.0 mm to 0.6 mm diameter)
Display dimensions (height x width x depth)		5.3 in. x 3.5 in. x 1.17 in. (134.62 mm x 88.9 mm x 29.72 mm)
Mounted depth		0.58 in. (14.73 mm)
Controller dimensions (height x width x depth)		6.56 in. x 5.5 in. x 1.88 in. (166.62 mm x 139.7 mm x 47.75 mm)
Power supply enclosure dimensions (height x width x depth)		5 in. x 4.7 in. 2.3 in. (127 mm x 119.38 mm x 58.42 mm)
Compliance CE	**United States**	UL Listed to UL 61010-1; FCC 47CFR Part 15; BTL Listed
	Canada	cUL Listed to CAN/CSA C22.2 NO. 61010-1; ICES-003
	Europe	CE (EMC Directive) to EN 61326-1
	Australia and New Zealand	RCM Mark (Australian Radiocommunications Act) to EN 61326-1

North American Emissions Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case users will be required to correct the interference at their own expense.

Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information and other terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

Patents

Patents: https://jcipat.com

Single point of contact

APAC	Europe	NA/SA
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Contact information

Contact your local branch office: www.johnsoncontrols.com/locations

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