TECHNICAL DATA SHEET
DS0135 rev 33

ABB FusionAir Smart Sensor

- Temperature Sensor
- Relative Humidity Sensor
- Volatile Organic Compound Sensor
- CO_2 Sensor
- Virus safe indoor environment functionality
- Touch-free virus safe operation

DESCRIPTION

The **ABB FusionAir Smart Sensor** series provides a slim, compact, and visually appealing room control display with a high-definition capacitive touch backlit LCD display for use with ABB's **Cylon® FLXeon** and **CB Line** BACnet® field controllers. The intelligent temperature and humidity sensor allow users to view and adjust selected parameters within the field controller to which it is connected. Other sensing options available for integration with the **CXpro**^{HD} control strategy are CO_2 or Volatile Organic Compound (VOC) sensing, and contacts for the addition of Passive Infra-Red (PIR) occupancy detection.

The **ABB FusionAir Smart Sensor** display can be used to view control parameters and adjust HVAC, lighting and sunblind set points for the connected controller.

The **ABB FusionAir Smart Sensor** can be installed as part of a multi-sensor application for larger spaces or multiple room connection.

The system can also provide a Safe Indoor Environment against pandemic-causing viruses (such as Covid-19) through offering a patented* safe touch-free user interaction with the sensor which gives clear feedback of the safety status in a room.

ORDERING INFORMATION

FA-T	Analog Temperature sensor
FA-TH	Temperature + RH sensor
FA-THV	Temperature + RH + VOC sensor
FA-THC	Temperature + RH + CO_2 sensor
FA-TH-D	Temperature + RH + Display
FA-THV-D	Temperature + RH + VOC + Display
FA-THC-D	Temperature + RH + CO_2 + Display

TOUCH-FREE AND SAFE USER INTERFACE

Connecting to the sensor via a dedicated **FusionAir** Smart Phone mirroring App provides a remote interface to all **FusionAir** functions (including on **FusionAir** devices without an onboard LCD touchscreen), so that changes can be made without a need to touch the sensor. LED indication gives clear feedback of the safety status in a room under various circumstances considering a virus (such as the Covid-19) specific safety benchmarks and compliance on both indoor "air health and safety" and "physical distancing". The LED colors can be controlled directly by the strategy to indicate the status of a room quickly and easily. One popular option would include the following LED indicators:

Room Status	LED Color
Safe Room	Green
The system is under process to prepare a safe room	Blue
Unsafe Room	Red

APPLICATIONS

Provides temperature and humidity sensing for the following systems:

- Variable Air Volume (VAV) box
- Roof top unit
- Fan coil unit
- Heat pump
- Unit ventilator
- Air Handling Unit (AHU)
- Heating and Cooling Plant
- The controller accommodates available pre-engineered strategies or can be tailored to custom applications using **CXpro**^{HD} programming software.

* patent pending

SPECIFICATIONS

MECHANICAL

OPA Dimensions (H x W x D)	Front: 5 x 3.4 x 0.6 in. (129 x 86 x 15 mm)
Housing Material	Flame retardant ABS
Standard Color	White
Weight (including package)	0.2 Kg

ELECTRICAL

Note: Use Copper or Copper Clad Aluminum 70 °C conductors only.

Terminal Connectors	Max: AWG 12 (3.31 mm^2) Min: AWG 22 (0.355 mm^2)
Supply Requirements	24 V AC ±20 % 50/60 Hz or 12…24 V DC
Power Consumption	Max 3 VA

INTERFACE

Display	LCD with Variable Backlight LCD Printed + 7 segment numbers Remote interface through the **FusionAir** BLE phone App (available from Google Play Store and Apple App Store)
Buttons	7 Capacitive touch regions on screen
Backpanel LED	Programmable RGB Indication **Note:** FA-T (passive) variant does not include LED indication

COMMUNICATION

Communication Type	RS-485: MAX 328 ft. (100 m)
Controller Support (number of FusionAir units that can be simultaneously connected to each controller)	FBXi Series 10 CBXi Series 10 CBX Series 4 FBVi-2U4-4T 10 CBV-2U4-3T(-N) 4 FBTI-7T7-1U1R 10 FBTI-6T1-1U1R 10 CBT-4T4-2U1R 4 CBT-3T6-5R 4 CBT-4T4-4T 0
Bluetooth	For remote touch-free interface **Note:** FA-T (passive) variant does not include Bluetooth communication

TEMPERATURE SENSOR (ACTIVE VARIANTS)

Type	Sensiron CMOSens® Digital Sensor
Range	14 … 122 °F (-10 … 50 °C)
Accuracy	±0.5 °C (±0.9 °F)

TEMPERATURE SENSOR (PASSIVE VARIANT)

Type	10K3A1
Range	14 … 122 °F (-10 … 50 °C)
Accuracy	±0.2 °C (±0.36 °F)

HUMIDITY SENSOR

Type	Sensiron CMOSens® Technology
Range	0 … 100 % RH
Accuracy	2 %

CO_2 SENSOR

Range	0 … 2,000 ppm
Accuracy	± (40 ppm + 5 % of reading) Automatic calibration algorithm. See MAN0152 for more detail

VOC SENSOR

Note: VOC reading is not displayed by default on the **FusionAir** LCD, but if required can be connected to the Unitless Display input in the FusionAir Smart Sensor Strategy module.

Type	Sensiron SGP40
Measurement Range	0 to 1,000 ppm of ethanol equivalents
Output	1 … 500 where 100 represents average intensity
Limit of detection	< 0.05 ppm of ethanol equivalents or < 10 % of concentration setpoint (whichever is larger)

UNITLESS DISPLAY

An analog input on the connected controller can be mapped to the FusionAir device as a Unit Free value. The point value is directly displayed on the FusionAir LCD without a unit symbol.

ENVIRONMENT

Operating Temperature	0 °C … 50 °C (32 °F … 122 °F)
Relative Humidity	0 % … 90 % RH non-condensing
Storage Temperature	-20 °C to 50 °C (-4 °F to 122 °F)

STANDARDS

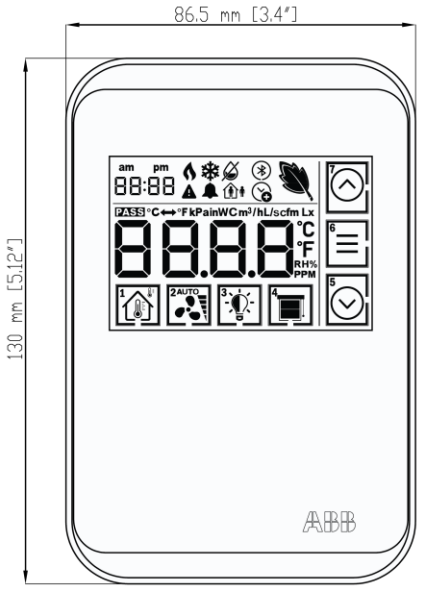
Approvals	UL Listed (CDN & US) UL916 Energy Management Equipment – File No. E176435
FCC Compliance	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment.
Safety	CE Approved

INPUTS

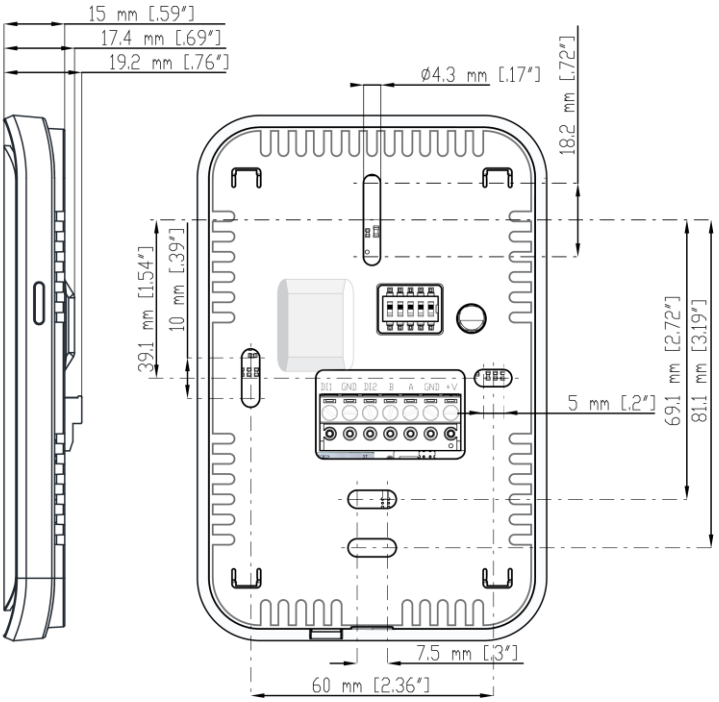
Digital Inputs	Digital Volt-Free contact, 1.1 mA contact-wetting current
	Switch

For further detail about these products, see product manual *MAN0152 ABB FusionAir Smart Sensor*

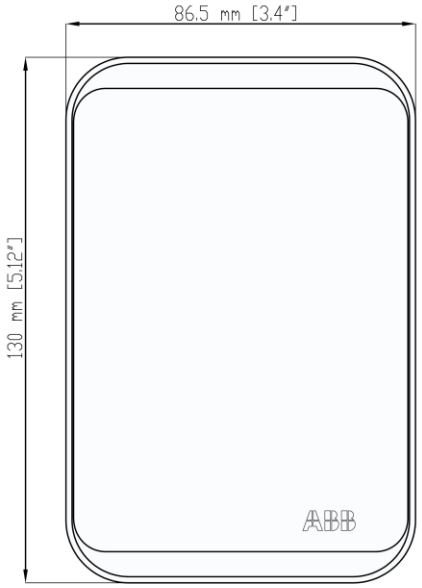
DIMENSIONS



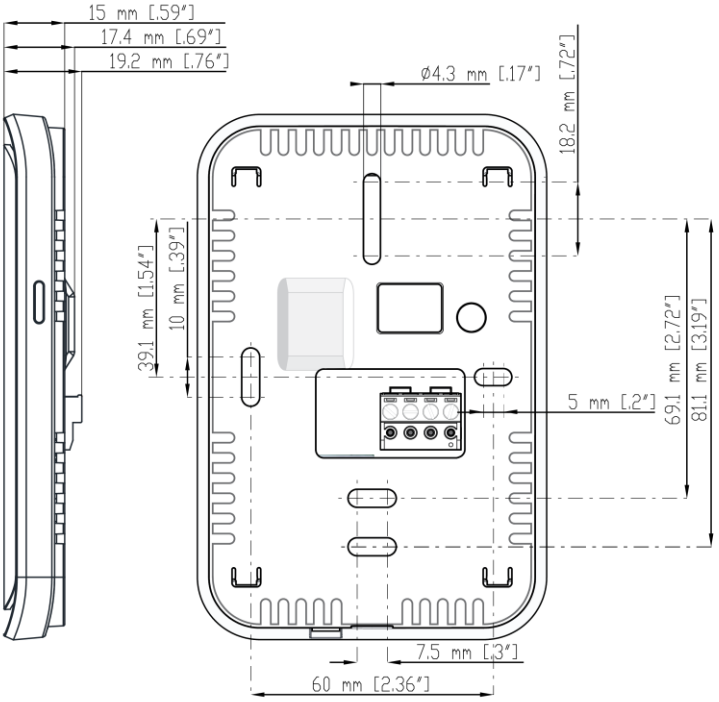
FA-TH-D, FA-THV-D, FA-THC-D



FA-TH, FA-TH-D, FA-THV, FA-THV-D, FA-THC, FA-THC-D

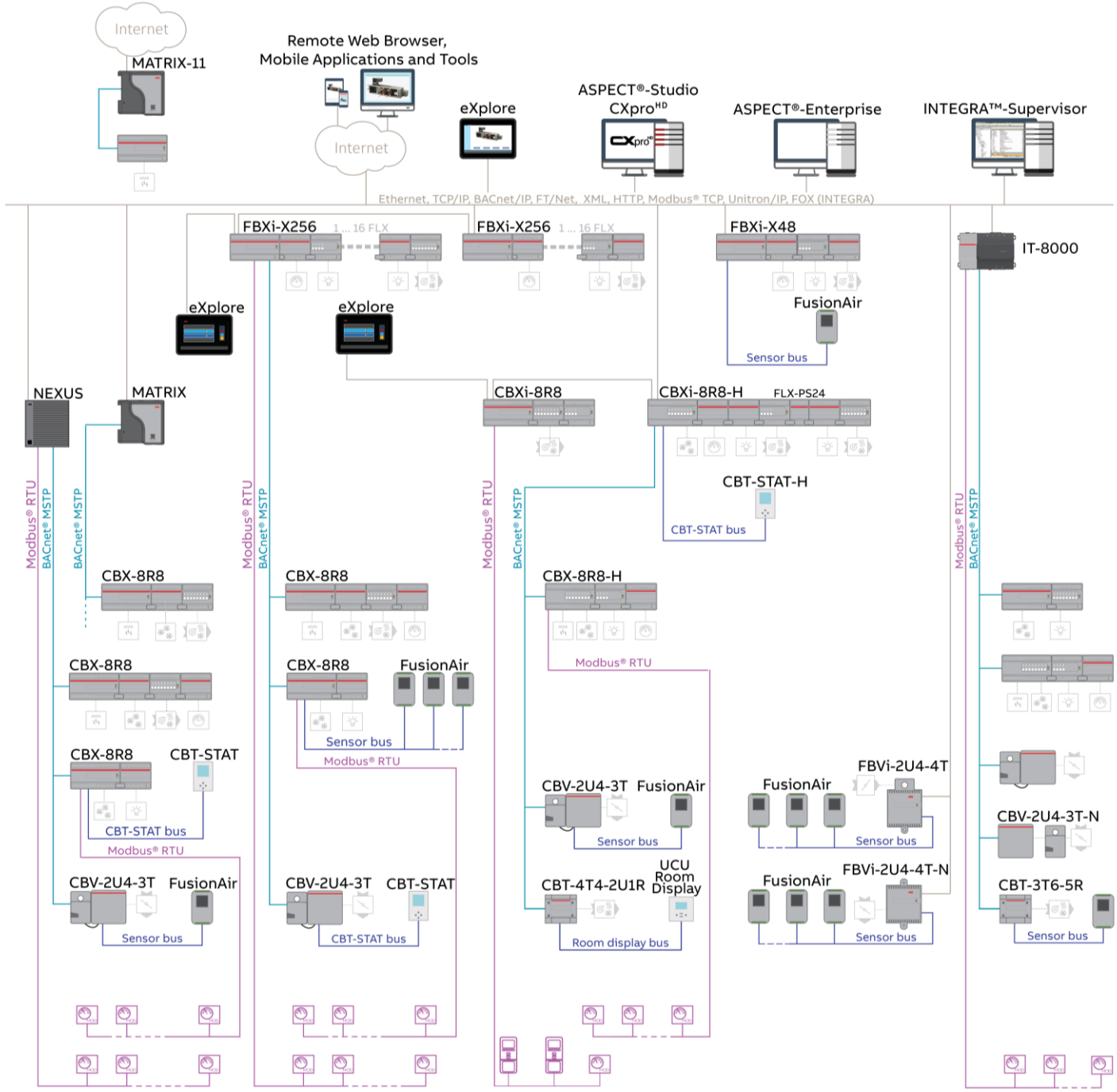


FA-T, FA-TH, FA-THV, FA-THC,



FA-T

SYSTEM ARCHITECTURE



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