FIMX8

Air filter monitor

FIMX8 are filter monitors for online observation of air filters in HVAC systems. Their purpose is to provide information on filter status and notify on the level of clogging. They are available with either one or two integrated differential pressure sensors to measure the pressure drop on both sides of the filter. The pressure difference shows how clogged the filter is. The internet connection is based on the integrated Sentera Internet Gateway (SIG-M-2 or SIGWM). Via SenteraWeb measurements can be monitored and Modbus registers can be reset.

Key features

- 1 or 2 differential pressure channels with built-in digital high resolution differential pressure sensor
- Data transmission to and from the Internet via standard Ethernet or Wi-Fi
- Firmware updates via internet (SenteraWeb) or Wi-Fi
- LED indications
- Implemented MQTT protocol
- Configurable filter warning and filter alarm pressure
- Clogged filter notifications are sent by SenteraWeb via SMS or email

Area of use

Online monitoring of air filters in HVAC systems using SenteraWeb

Technical specifications

Power supply		85-264 VAC / 50-60 Hz
Maximum current consumption		25 mA
Ambient conditions	Temperature	-5—60°C
	Relative humidity	5—95 % rH, non-condensing
Protection standard		IP30

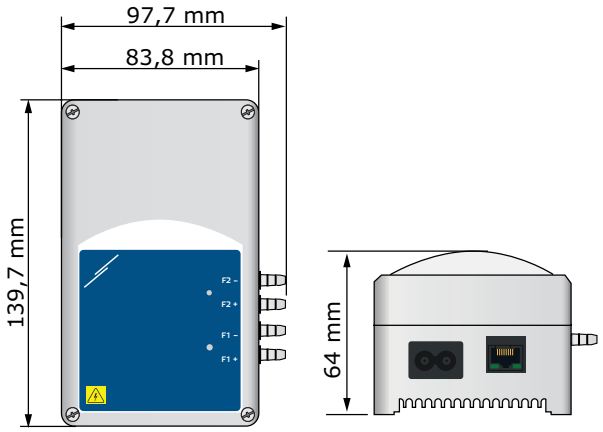
Standards

- EMC directive 2014/30/EU:
  - EN 61000-6-2:2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments Amendment AC:2005 to EN 61000-6-2
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
  - EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
  - EN 55011:2009 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement Amendment A1:2010 to EN 55011
  - EN 55024:2010 Information technology equipment - Immunity characteristics - Limits and methods of measurement
- LVD directive 2014/35/EU:
  - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
  - EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
  - EN 60950-1:2006 Information technology equipment - Safety - Part 1: General requirements Amendments AC:2011, A11:2009, A12:2011, A1:2010 and A2:2013 to EN 60950-1
- Radio equipment directive 2014/53/EU:
  - EN 300 328 V2.1.1 Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
- ETSI EN 301 489-1 V2.1.1 (2017-02) Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
- ETSI EN 301 489-17 V3.1.1 (2017-02) Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- RoHs Directive 2011/65/EU
  - EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

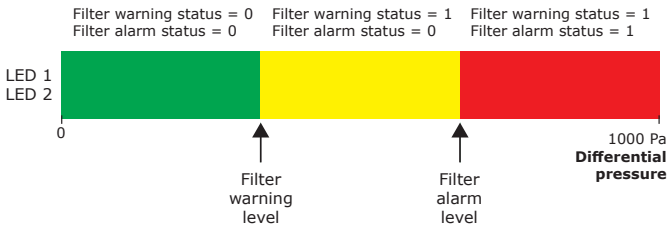
Article codes

Article code	Monitoring of	Wi-Fi	Ethernet LAN connection
FIM18-1K0-WF	1 filter	yes	no
FIM28-1K0-WF	2 filters	yes	no
FIM18-1K0-EW	1 filter	yes	yes
FIM28-1K0-EW	2 filters	yes	yes

Fixing and dimensions



Operational diagram



** For product versions FIM28-1K0-WF and FIM28-1K0-EW*

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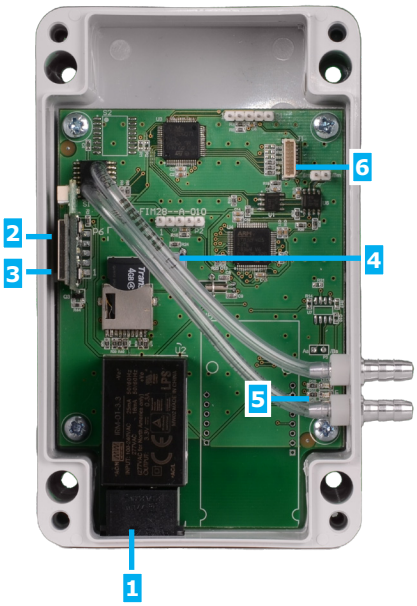
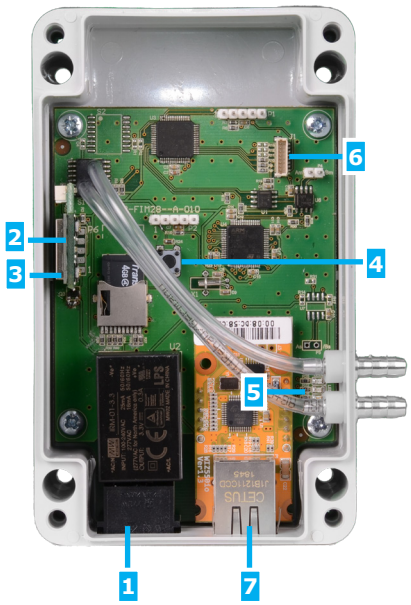
Settings and indications

FIM18-1K0-WF



FIM18-1K0-EW



1 - Power supply			85—264 VAC / 50—60 Hz
2 - Wi-Fi module			Both the EW and WF product versions feature Wi-Fi connection. The EW version also features LAN connection
3 - Reset tact switch for Wi-Fi (for both EW and WF versions)			In case of connection problems or to stop Wi-Fi connection: press RST and hold it until the blue LED on the Wi-Fi module lights up. When the LED goes out, Wi-Fi connection is broken. If necessary, you can reconnect to any network via the SenteraWeb configuration page: http://192.168.1.123
4 - Internet connection reset button		**FIM18-1K0-EW** **FIM28-1K0-EW**	Reset button for Ethernet LAN module only
		FIM18-1K0-WF **FIM28-1K0-WF**	Reset button for Wi-Fi module
5 - LED indication			For communication status
6 - LED connection			For LEDs on cover (indicating pressure level)
7 - RJ45 socket			Ethernet connection (EW only)

LED Indications on PCB		LED Indications on cover	
Green LED1	Solid on for power OK and successful connection to the MQTT Broker of Sentera – ready to be used in installations, currently active internet connection (the gateway successfully communicates with the Sentera Webserver).	Green	Pressure level is lower than specified filter warning level.
Green LED2	Short blink when Web Server is sending data to gateway. Slow blink when in bootloader mode.	Yellow	Pressure level is higher than specified filter warning level but lower than filter alarm level.
		Red	Pressure level is higher than filter alarm level.
Red LED3	Solid on indicates system error (connection to SenteraWeb has been lost).	Pink	No communication with pressure sensor.
		Bootloader mode	LED F1 is alternately blinking blue and green. It blinks red during programming.

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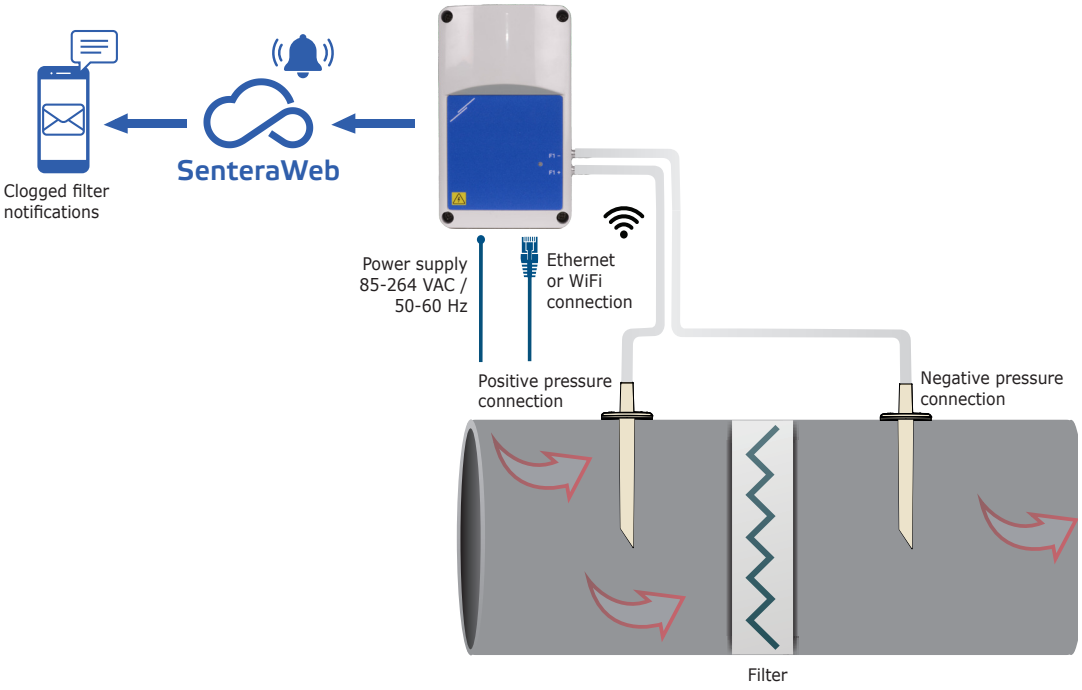
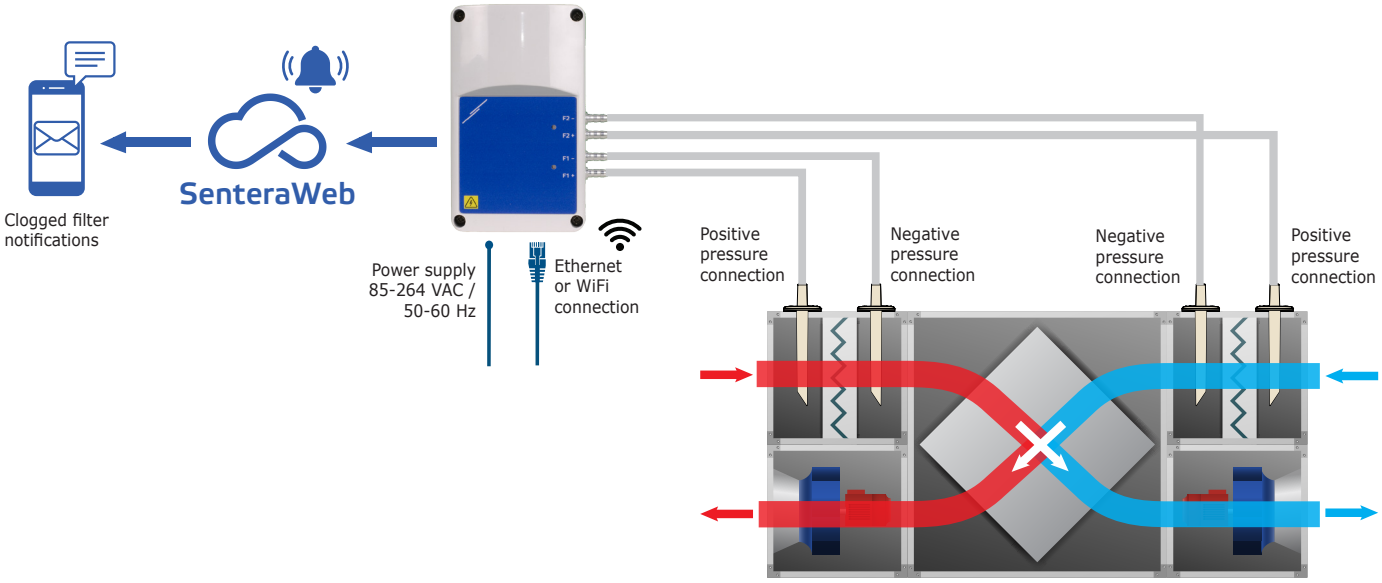
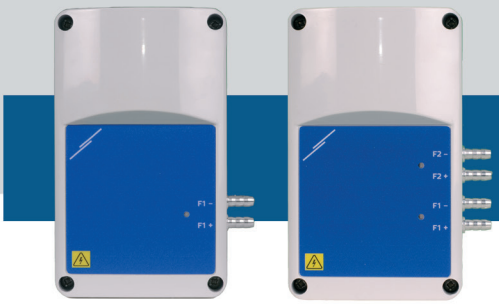
Application example

FIM18-1K0-XX



FIM28-1K0-XX





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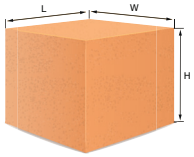
Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
FIM18-1K0-WF	Unit (1 pc.)	170	95	90	0,34 kg	0,42 kg
FIM28-1K0-WF	Unit (1 pc.)	170	95	90	0,345 kg	0,425 kg
FIM18-1K0-EW	Unit (1 pc.)	170	95	90	0,35 kg	0,43 kg
FIM28-1K0-EW	Unit (1 pc.)	170	95	90	0,355 kg	0,435 kg

Global trade item numbers (GTIN)

Packaging	Unit (1)	Box (24)	Pallet (672)
FIM18-1K0-WF	05401003018750	05401003504307	05401003701386
FIM28-1K0-WF	05401003018774	05401003504321	05401003701409
FIM18-1K0-EW	05401003018743	05401003504291	05401003701379
FIM28-1K0-EW	05401003018767	05401003504314	05401003701393