

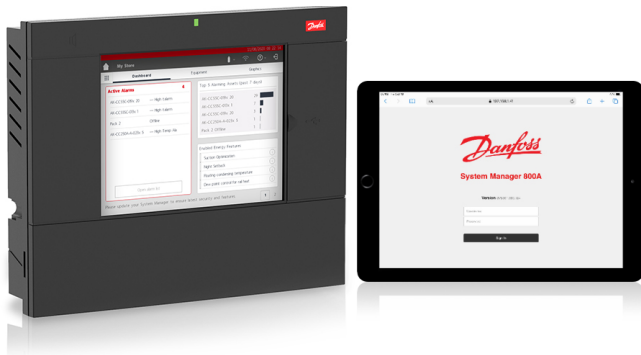
ENGINEERING  
TOMORROW



## Data Sheet

# System manager Type **AK-SM 800A series**

Global control and supervisory solution for food retail industry.



The System Manager controller from Danfoss is the global control and supervisory solution for food retail industry. The System Manager uses the latest technology to provide maximum benefit to the end user, both in terms of energy saving optimization, control options and full web user access.

Designed specifically for the food retail and food processing / handling market, the System Manager provides comprehensive functionality and support tools to cover small to large stores.

## Features

### **Designed and created for Food Retail**

- Built-in HVAC, light and compressor control for a flexible system design.

### **4 versions**

- AK-SM 820A (Small store)
- AK-SM 850A (Refrigeration)
- AK-SM 880A (Full store)
- AK-SM 880A TP78 (Retrofit)

### **Connectivity**

- x3 USB port connections
- Mobile device support for built in Utilities

### **Multiple Fieldbus Connections**

- Dedicated fieldbus tailored for Food retailers (LON, Modbus, Ethernet)

### **IT Security Best Practice**

- Secure web connection (HTTPS), Secure e-mail, Encrypted data and secure software update packages

### **Enhanced User Interface**

- Color touch screen
- New HTML5 based web browser support
- Duplicate to what is described in connectivity above
- Updated User Interface and Quick Link menus help navigate faster through the system

### **Secure Wi-Fi Access Point**

- Direct connection from your device through the integrated Wi-Fi access point for extended connectivity.

### **Faster processing power**

- Responsive system performance provided through a Linux operating system and upgraded processor family.

### **Expanded data collection**

- Extended log point collection for future view, export or sync with cloud.

### **Full Web browser interface**

- All browser-based (HTML5) for online access through StoreView Browser 5.

### **Cloud integration**

- Operational efficiency through the Alsense Food Retail cloud platform and connected services.
- Open data access for enterprise systems

## Product specification

### Facts

#### Product highlights

- All new Electronics platform supporting new Operating System (based on Linux)
- Implementation of IT industry standard security protocols (HTTPS, SSL/TLS 1.2, WPA2 encryption)
- Full HTML5 web browser, known as StoreView Browser 5 (SvB5)
- New Utilities App (integrated in SvB5)
- Support of Mobile devices (Utilities App only)
- Retro-fit ready – includes EoL and legacy control functions supporting smooth upgrade path
- Extended History logging
- Secure Wi-Fi Access point – for site connection without disrupting WAN network

#### Design features

- Enhanced UI - new yet familiar touch screen
- Additional USB connections supporting flash drives.
- Built-in Wi-Fi access point

#### Hardware capability features

- Quad core processor
- Fieldbus support Lon RS485, Lon TP78, Modbus, SNMP
- Future utilization 2nd Ethernet, 2nd Modbus, CANbus
- Connections (Ethernet, USB, Wi-Fi Access point, Alarm relays)

### Technical data

Table 1: Technical data

AK-SM 800A version comparison	AK-SM 820A Small store	AK-SM 850A Refrigeration	AK-SM 880A Full
<b>Refrigeration Control</b>			
All AK-SM 800A variants come with Centralized I/O and Pack / Case control options. EKC AK2 SLV FC102	Max. 32 generic device support	Max. 120 generic support	Max. 120 generic support
<b>Lighting Control</b>			
All AK-SM 800A variants come with built in lighting control via I/O modules. The number of zones differ.	10	30	30
<b>HVAC</b>			
Only the AK-SM 820A and AK-SM 880A support built in HVAC control via I/O	10	n/a	45
<b>Alarms</b>			
Capacity	500	500	500
Miscellaneous points (via IO modules)			
Relay (R), Sensor (S), ON / OFF (O / F), Variable (V)	R=20, S=20, O / F=20, V=20	R=70, S=80, O / F=70, V=70	R=70, S=80, O / F=70, V=70
<b>Master control</b>			
Po Optimization, Master Schedules, AKC ON Note: Adaptive De-frost not currently supported	Yes	Yes	Yes
<b>Misc Calculations</b>			
Boolean Logic statements	96	96	96
<b>History</b>			
The AK-SM 800A has the ability to record datapoints for history and view.	3000 total points	3000 total points	3000 total points
<b>Leak Detectors</b>			
Refrigerant gas detectors (connected via AK I/O)	10	50	50
<b>Energy Meters</b>			
Pulse Input (via I/O module), Carlo Garvazi, Wattnode, Wattnode Plus MODBUS, Veris MODBUS	32	80	80

## Specifications

Table 2: Specifications

<b>Data communication</b>			
Ethernet (WAN/Host network)	1		
<b>USB</b>	2 (Host) + 1 (800 mA)		
Wi-Fi (Point-to-point access)	1		
Alarm relays	2 Contact voltage: up to 240 V, Current rating: max. 5 Amp for AC-1 (Ohmic load), Max. 3 Amp for AC-15(inductive load)		
<b>Field Bus Support</b>			
RS485 Modbus	2 (2nd Modbus future)		
RS485 LON	1		
TP78	4 (optional code #)		
CANbus	1 (future)		
Ethernet	1 (future)		
<b>Hardware specifications</b>			
Enclosure	IP20		
Dimensions (WxDxH)	295 mm (11.6") x 65 mm (2.5") x 235 mm (9.3")		
Weight (gross)	2,408 kg		
<b>WiFi transmitter</b>			
WiFi Type	Wi-Fi Access Point		
Transmitter type	Wi-Fi 2.4 GHz / 5 GHz (IEEE 802.11a/b/g/n/ac )		
Transmit Frequency	2412 – 2472 MHz, 4900 – 5925 MHz (frequencies limited by Software)		
Receive Frequency	2412 – 2472 MHz, 4900 – 5925 MHz		
Antenna Gain	2.4 GHz gain: 1.8 dBi, 5 GHz gain: 4.9 dBi		
<b>Communication standards</b>	<ul style="list-style-type: none"> <li>• Modbus</li> <li>• Lonworks</li> <li>• Danbus (via PI-200)</li> <li>• SNMP</li> </ul>		
<b>Ports open</b>	<b>Use</b>	<b>Port no.</b>	<b>User configurable</b>
HTTPS	Web communications	443	Yes
Service tool (AK-ST500)	Service tool communications	1041, 254	No
SNMP	SNMP communications	5136	No
PI200	PI200 communications	1041	Yes
Local host	Local processes monitoring	2812	No
Host network	Host network communication	5003, 5004,5005, 5006	No

## Security

### Remote encrypted Communications

- HTTPS Web browser support (Chrome / Safari / Edge (Chromium))
- HTTPS XML

### Communication Ports

- 443 HTTPS (user configurable)
- Wi-Fi Access Point

### System Passwords / User access

- All passwords stored in encrypted format
- User authentication required for unit access (no view only mode)
- Passwords comply with min 8 characters (1 capital, 1 special character, 1 numeral)
- User accounts and passwords not stored in system application database
- Password reset via authenticated unit check and issue of temporary code
- Danfoss does not have access nor can view passwords

### Software update

- System software (application/device files/OS) stored and distributed via Danfoss software server
- Software payloads have digital signature to ensure authentic source

### E-mail alarm notifications

- SSL/TSL 1.2

### Wi-Fi User Wireless access point (point to point connection to unit)

- WPA2 encryption
- Default state off, enabled only via authorized users for 120 mins
- Isolated from WAN / Host network
- Password protected SSID associated with unit host #, password

### General

- Access to USB application functions (USB flash drive) based on user authentication level/permission
- Factory set Linux OS firewall enabled - all non -required ports closed
- Linux OS updates available via Danfoss secure update server
- FTP - not available nor used in system
- Linux firewall between wireless access point and host network
- Linux firewall between Ethernet 0 and Ethernet 1

## Ordering

Table 3: Ordering

Type	Description	Options	Code no.
AK-SM 820A	C-Store (Refrigeration / HVAC / Lighting)	Convenience Store version with 32 device capacity	080Z4024
AK-SM 850A	Refrigeration (including lighting)	Refrigeration version with 120 device capacity	080Z4021
AK-SM 880A	Full (Refrigeration / HVAC / Lighting)	Smart store version with 120 device capacity	080Z4028
AK-SM 880A	TP78	Smart store version with 120 device capacity	080Z4029

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