



AK-SC255 Fact Sheet

Version 'R' Software
Software version 02_085



What's in the Box?

1x AK-SC255 (either Box or DIN rail screen-less version)



What are the different part numbers?

- 080Z2000 AK-SC255 Box, Color, TP78 Refrigeration
- 080Z2001 AK-SC255 Box, Color, TP78 Lighting, HVAC
- 080Z2002 AK-SC255 Box, Color, TP78 Refrigeration, Lighting, HVAC
- 080Z2082 AK-SC255 No Display TP78, Refrigeration, Lighting, HVAC

Recommended Individual Controller capacity(s) per AK-SC255 - *Generic + I/O*

Type	Capacity	Configuration
Type AK2-CC303a or Type EKC (SNMP, Lonworks)	60 99	Max configured evap sections 150 1 controller per evap section

**Recommended Remote AK2 I/O capacity or General purpose devices (Wattnode, Access I/O...)
(In addition to controllers)**

AK2 CM (Communication Module)	10	
AK2 I/O	64 points	Analog (General I/O, HVAC, Lighting)
AK2 I/O	64 points	Digital (General I/O, HVAC, Lighting)

Recommended Individual Controller capacity(s) per AK-SC255 - *Centralized 255 I/O*

Type	Capacity	Configuration
AK2 I/O and AK2 I/O	256 points 256 points	Analogue / Digital Inputs Digital Output

**Recommended Remote AK2 I/O capacity or General purpose devices (Wattnode, Access I/O...)
(In addition to controllers)**

AK2 CM (Communication Module)	30
Max Nodes (inc AK2 CM)	120

Available Network Protocols

Ethernet Port (used for LAN/WAN network connections, host network, remote AKA65 software tool)

RS485 Host Bus (Host network - multiple AK-SC255 units OR EKA 167 Modbus Display)

RS232 Port (used for local AKA 65 software tool connection)

Modem Port (used for serial modem)

LonWorks TP78 (used for AK I/O modules)

Power KWh Meter Pulse input capacity

AK2-XM107A Pulse Module, Max 80 inputs

Expansion Capacity (host network)

Max 10 AK-SC255 units in host network formation

History Data points

600

History Capacity

8 MB

System processor & memory

PowerPC CPU 64MB dynamic RAM

UL Listed

File number E166834

Remote connection software

AKA65 v5.2 : Modem
Ethernet
Serial

Current Supported Controller devices

In order to correctly manage control devices, specific controller support files known as EDF files are required in the AK-SC255. The list below describes all the current controllers the AK-SC255 will support 'out of the box'. This list will continue to grow with additional controller support added on a regular basis.

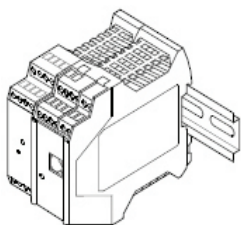
Controllers not on this list can also be accommodated in the AK-SC255 but will be issued on a restricted basis via the factory and will remain as beta until factory & field tests have been completed.

DT0012XX.edf	DISTECH	2.081 and higher
CARRIER.edf	CARRIER	2.081 and higher
80Z0121a.edf	AK-CC750	2.081 and higher
DT000016.edf	DISTECH	2.081 and higher
DT001216.edf	DISTECH	2.081 and higher
084B8521.edf	EKC202A	2.081 and higher
084B8522.edf	EKC202B	2.081 and higher
084B8523.edf	EKC202C	2.081 and higher
084B8531.edf	EKC202A	2.081 and higher
084B8532.edf	EKC202B	2.081 and higher
084B8533.edf	EKC202C	2.081 and higher
084B8536.edf	EKC202D	2.081 and higher

Recommended Modem Support

Zoom V.92 56k Modem (Model 3049)

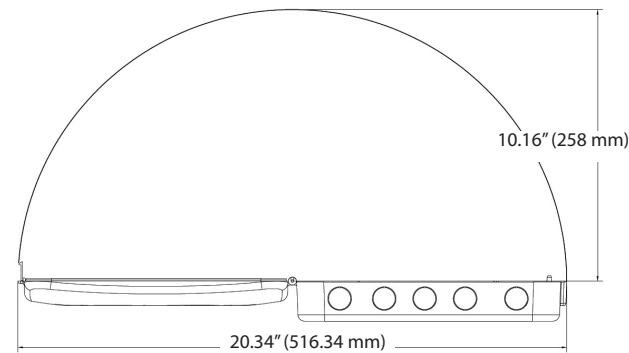
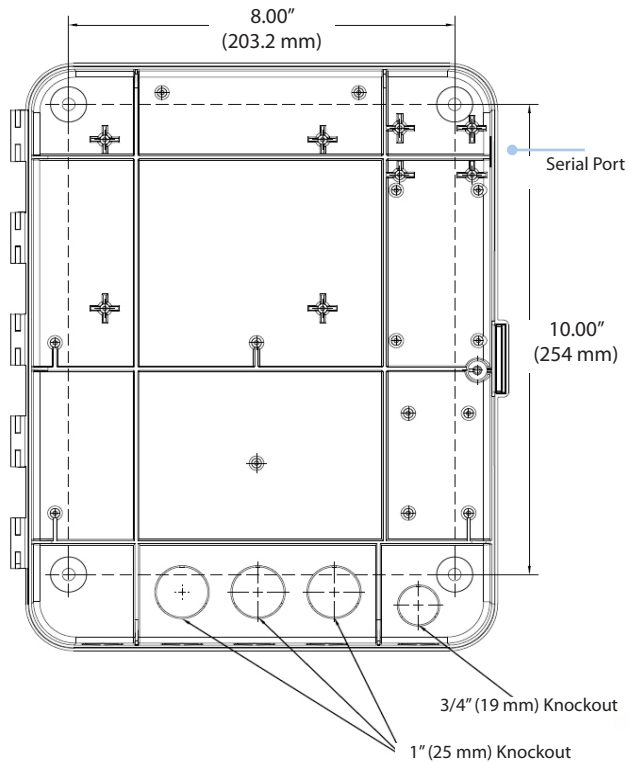
AKA 231 'Phoenix' modem



Environmental Data

Operating temperature	32 to 104°F (0 to +40°C) @ 95% RH (non condensing)
	32 to 122°F (0 to +50°C) @ 0 to 90% RH (non condensing)
Storage temperature	-4 to 122°F (-20 to +50°C)

Mounting screw locations, general dimensions



Mounting and Wiring

The mounting location should be flat, dry and free from major vibrations. The AK-SC255 should be mounted at eye level, with consideration for the following approximate outline dimensions:
 Unit Width 10.5" (266 mm)
 Unit Height 12.5" (317 mm)
 Unit Depth 2.5" (63 mm)
 Mounting holes 8.0" (203.2 mm) Width
 Mounting holes 10.00" (254 mm) Height

To allow the door to fully open, ensure that there is an area at least 21" (533 mm) x 11" (280 mm) free, leaving room for conduit connections beneath the controller. Mount the controller using appropriate screws through the holes indicated at left, fastening the back of the controller enclosure securely to the flat surface chosen. Allow approx 3" (76 mm) for side access to local connection port (Danfoss cable part # 080Z0262)

Internal component layout

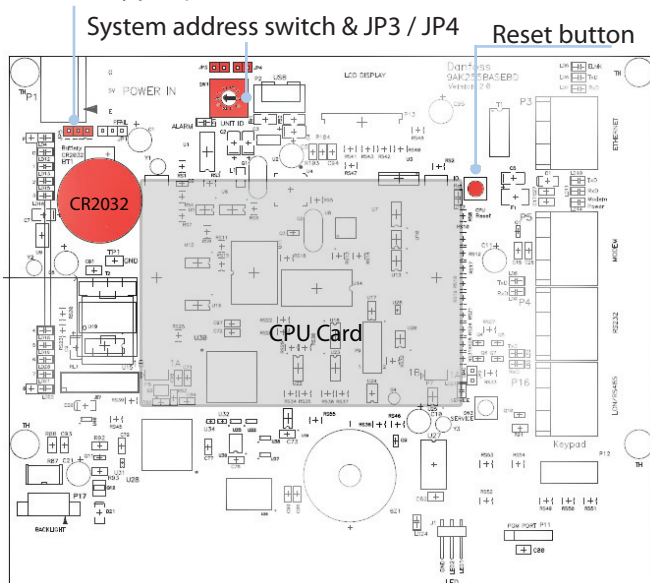
With the controller door open, the two main sections of the AK-SC255 can be seen, Base board & Connector board.

Base board

Mounted on the door frame is the 'Base board' with the main CPU card. The base board contains the following important components that need to be set for correct system operation:

- Battery (shipped in disabled position)
- Type CR2032 with (+) side facing toward the user.
- Engage battery circuit to ensure data is protected after power loss - set Jumper JP5 as follows. JP5

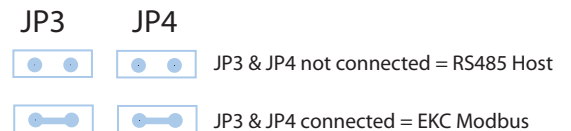
JP5 (battery jumper)



Internal Component layout (Base board)

Host RS485 / Modbus Network

The AK-SC255 system utilizes a selectable RS485 / Modbus port (located on Connector board). The unit comes factory set as Modbus communications. To enable RS485 Host network, jumpers JP3 & JP4 need to be set. Note that if Modbus is used, RS485 host is not available - set host to Ethernet in AK-SC255 software.



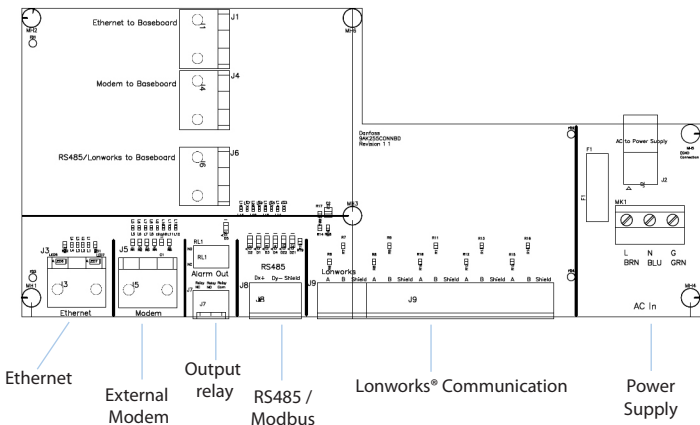
System address switch

Rotary address switch to set AK-SC255 address
 Address 0 = Master (1-9 for Slave units)

System Reset button

Use the CPU reset button to reset the AK-SC255

Connector Board - User Connections



Internal component layout cont.

Connector board

The Connector board contains the main user connection ports needed for communications, relay output and power supply:

Ethernet

Standard RJ45 Ethernet port, used for TCP/IP remote connection (LAN,WAN), SNMP network support & Host network. Use Ethernet as Host network if 'Virtual Display' functionality is required.

RS485 Host network / Modbus

See table below for jumper settings

Use the RS485 port either for RS485 Host or EKC Modbus communications. For **RS485 Host** communications, use 2 conductor shield cable. Up to 10 AK-SC255 controllers can be connected in a host network.

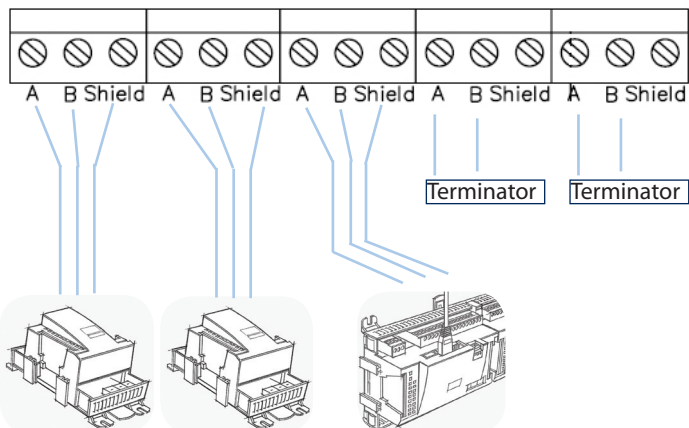
Host / Modbus network options	JP3 & JP4	Notes
RS485 Host	OFF	Used when combining AKC55 / 255 on host 120 Ohm terminator to be on 1st & last unit
EKC Modbus	ON (factory set)	Use for EKC Modbus controllers 120 Ohm terminator to be on last controller only If host network required use Ethernet
Ethernet Host	N/A	Use Ethernet port and connect to LAN Configure in 'Communications' section

External Modem

Modem port used in conjunction with Modem Adapter kit 080Z2100

Relay Rated at 30V d.c. 1Amp. Used for external alarm signal.

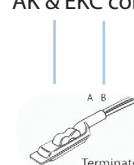
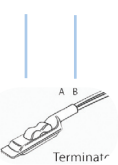
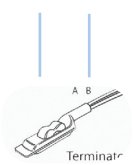
Lonworks® I/O Network (TP78)



AK-I/O Modules..

AK-I/O Modules

Generic Controller devices
AK & EKC controllers



Lonworks® I/O Network

The I/O (Input-Output) network uses Echelon® Lon Talk® communications. Depending on AK-SC255 version, up to five I/O network cables can be connected to each AK-SC 255. When connecting "A" and "B" conductors, there is no polarity to observe for AK I/O modules. For more information about connecting I/O cables, and restrictions on their length and layout, consult the AK-SC255 Reference Manual. Attach a terminator to each set of unused I/O terminals.

For Generic networks (EKC & AK controllers) it is recommended only to use one of the five ports available. Follow network wiring regulations for each of the different network types. For additional information on networks consult Danfoss document entitled 'Data communication between ADAP-KOOL® Refrigeration Controls' (RC8AC302)

Functionality Overview

Networks

EKC controller IP network support
EKC / AK2 controller RS485 network support
EKC controller Modbus network support
AK Input / Output network

HVAC, AHU & Roof Top Unit control

Central control or via RTC (roof top controller)

Lighting control

30 lighting zones
6 relays per zone
Standard or relative schedules
8 schedules per zone
Auto override for burglar or fire alarm
Switch override with override box
Photo Cell support & integration

Miscellaneous Points

96 Misc Boolean Logic statements per AK-SC255
64 Misc relay DO per AK-SC255
48 Misc VO per AK-SC255
10 Misc Conversion factors
64 Misc sensor inputs & ON/OFF inputs - monitoring & alarm

Alarm routing

Modem / GSM
TCP/IP
Relay

Security

8 Auth levels
66 account codes

Screen Type

VGA high res colour

History Data points

600 (per AK-SC255)

History Capacity

10 minute samples on 120 points = 1 year

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