DMS^{3K} Annunciator & Sequence of Events Recorder

Alarm Management System

The AMETEK DMS^{3K} is a flexible, remote alarm management system. It captures alarms from digital or analog inputs, displays alarms on the built-in web server and provides outputs to remote annunciator displays and other devices using serial and Ethernet communications. Alarms can be time stamped to the millisecond for sequential events recording and email notification can be provided for critical events.

Modular, Flexible Alarm System The DMS^{3K} Alarm Management System consists of a 19" card rack with card slots for I/O modules, CPU and power supply. Each card rack accepts a maximum of 128 inputs and provides up to 240 outputs. Multiple I/O card racks can be interconnected via Ethernet and can be located anywhere you have a LAN connection making it ideal for distributed applications. Or they can just be interconnected together, creating their own private LAN.

Inputs

Inputs can be digital contacts or analog signals from field sensors. Each I/O card rack can accept up to 128 digital inputs (wet or dry field contacts), 32 analog inputs (4-20 mA) or combinations of both. Up to 4 trip settings can be configured per analog input for triggering an annunciator window or alarm output.

Outputs

Each I/O card rack provides up to 240 digital (solid state) or relay outputs for driving an annunciator lamp, repeat relay, alarm horn or common alarm output.



	DMS ^{3M}	AMETE DMS30	EK DMS Test System (0 IP: 10.42.11.120 (able 30 second auto-		input 8 i	s in Alarm		
EK DMS3000 s ve Alarms (7) da guration mingata	Station ID: Device ID; Who to contact: Customer: Current Input States:	DMS300 Ametek	K DMS Test System - 10 IP: 10.42.11.120 800 881 4156 K Power Instruments		Serial Number: 120610001 Number of Device Inputs: 128 Software/Firmware Version: 2.15 / 2.0.8			
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	41	42	43	44	45	46	47	48

Combined Systems

When the number of inputs exceeds the card rack capacity of 128, multiple I/O card racks are used. These racks can be networked together locally or remotely via the Ethernet port to form one consolidated alarm management system. One rack becomes a 'Main' with all alarms transmitted from up to 16 'Secondary' racks. The 'Main' rack can provide one common systemwide communication output for retransmitting alarms via Modbus and DNP, or one common web browser page to view alarms throughout the system.

I/O Grouping

A single input or group of inputs can be configured to drive any output. This can be done by using OR/AND Boolean logic or voting functions where a certain number of inputs need to be in alarm (2 out of 3, 3 out of 5, etc.) to activate the output.



Annunciator Functions

The DMS^{3K} can be used to drive remote annunciator displays via lamp outputs or through serial and Ethernet communications. The system can be configured with up to 12 ISA Operational Sequences that control annunciator windows and horn outputs.

Sequence of Events Recording

All inputs are time stamped to the millisecond and logged in non-volatile memory with the capacity to store 40,000 events. Time synchronization is provided via IRIG-B and NTP time formats.

Communications

The DMS^{3K} comes with Ethernet and RS-232/485 serial ports for retransmitting the alarm status using Modbus, DNP and ASCII protocols. The protocols provide both alarm status and time stamped sequence of events data.

Email Notification

The DMS^{3K} can trigger an email from a single alarm or group of alarms. Up to three email recipients can be configured; each with their own list of alarms to trigger the email. Emails will include the input number, alarm description and time and date of the alarm.

Remote Annunciator Applications

The DMS^{3K} can be used for applications where digital and analog alarm inputs are in one location and the annunciator display is in another. The annunciator display can connect to the I/O card rack using a point to point cable or serial/Ethernet communications. Several inputs can be combined to annunciate a single window.

Combined Annunciator/SER Applications

In this cost-saving application, the DMS^{3K} can provide an alarm annunciator display and sequence of events recording from the same input, saving on equipment and wiring.

Display Alarms on a HMI

DMS^{3K} alarms can be shown on a flat screen display with touch screen controls if desired. The flat screen display can be located anywhere by simply plugging it into a LAN connection.

	DMS	03/13/2 AMETE DMS3k	013 20:13:00 UTC 013 16:13:00 EDT EK IIP: 192.168.2.5 able 30 second auto-n		ur Dur Main Stop Valve 1 Closed				
METEK DMS 3K Narms Active Alarms (7)	Station ID: Device ID:	AMETEK DMS3K IP: 19	100.05		Serial Num	per:	120600013		
Events	Who to contact:	Ametek 800 881 4156			Number of I	Device Inputs:	128		
Configuration Alarm Inputs Control Inputs	Customer: Current Input States:	AMETEK Powe			Software/Firmware Version: 2.19f / 2.0.8				
Analog Inputs Alarm Outputs Serial Communications	1	2	3	4	5 Battery Warning	8 Hinis Temp Alarm	7 Low Pressure Alarm	8	
Ethernet Communications Combined Rack (CR) Access Control	9	10	11	12	13	14	15	16	
Network Date/Time Email	U7 Deserator Low Level Alarm		U7 Turbine Low Vac Trip	U7 Turbine Overspeed Trip	U7 Main Trip Solenoid Tripped	U7 Emerg Stop Solenoid Trip	U7 Turbine Thrust Brg Failure	U7 Main Stop 1 2 Closed	
Email Save and Restore Firmware	17	18	19	20	21	22	23	24	
Option Upgrade Color Selection Logon as User	U7 Gen Loss of Cool Water Trip	U6 Main Stop VIv 1 Closed	Spare	Spare		U7 Eng Gen Lockout 86 EG7 Trip	U7 600V Bus A Emergency Trip	U7 600V Bus E Emergency Tri	
Occumentation Ametek Website	25	20	27	28	29	30	31	32	
User Guide	Gen Lockout Trip	Gen Neutral Lockout Trip	U6 Gen Field Lockout 86E Trip	UG Gen Lockout 86 Trip	U6 Gen Neutral Lockout Trip	U6 208V Swgear DC Power Trip	U7 Start StServ Xfmr 7A Bus Trip	UG Turbine Lov Trip	

Home page - alarm graphic view

Active Ala	rms Ac	knowledge Alarn	ns		
Alarms are co Acknowledge Alarms that re	lor coded as fo ment. Once Ac eturn to normal alarm history is	cknowledged, it v will clear from th	ms, Acknowledged Ala will clear from this page. is page and will be availab ble in the <u>Event Log</u> .		Latched Alarms A "Latched Alarn
Date	Time	Station ID	Device ID	Point	Alarm Description
03/13/2013	16:11:11.016	AMETEK	DMS3K IP: 192.168.2.5	1	101-J25-10
03/13/2013	16:11:11.016	AMETEK	DMS3K IP: 192.168.2.5	6	High Temp Alarm
03/13/2013	16:11:11.016	AMETEK	DMS3K IP: 192.168.2.5	26	Gen Neutral Lockout Trip
03/13/2013		ANTTEN		<u> </u>	101_J18-27
03/13/2013	16:12:41.015	AMETEK	DMS3K IP: 192.168.2.5	4	101-310-27
	16:12:41.015 16:12:41.015	AMETEK	DMS3K IP: 192.168.2.5 DMS3K IP: 192.168.2.5	4	
03/13/2013					U7 Combined RH Valve 1 Closed U7 Main Stop Valve 2 Closed

Active alarm view

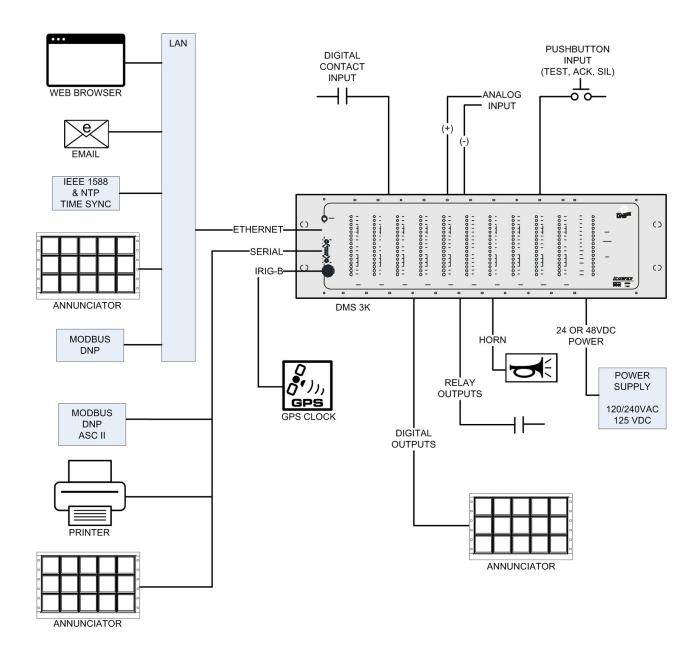
Download File (csv) Erase the log Print Events Free space. 99.0% Filter events by: Date & Time Descriptor Point Number(s) Clear Filters Click 2 to refresh										
vents are filt Date v	ered by Descri	btor(s): A,N Descriptor	Station ID	Device ID	Point	Event Description				
03/13/2013	16:12:41.015	A	AMETEK	DMS3K IP: 192.168.2.5	21	U7 Main Stop Valve 1 Closed				
03/13/2013	16:12:41.015	A	AMETEK	DMS3K IP: 192.168.2.5	16	U7 Main Stop Valve 2 Closed				
03/13/2013	16:12:41.015	A	AMETEK	DMS3K IP: 192.168.2.5	10	U7 Combined RH Valve 1 Closed				
03/13/2013	16:12:41.015	A	AMETEK	DMS3K IP: 192.168.2.5	4	101-J18-27				
03/13/2013	16:11:11.016	A	AMETEK	DMS3K IP: 192.168.2.5	26	Gen Neutral Lockout Trip				
03/13/2013	16:11:11.016	A	AMETEK	DMS3K IP: 192.168.2.5	6	High Temp Alarm				
03/13/2013	16:11:11.016	A	AMETEK	DMS3K IP: 192.168.2.5	1	101-J25-10				
03/12/2013	11:49:27.491	N	AMETEK	DMS3K IP: 192.168.2.5	16	U7 Main Stop Valve 2 Closed				
03/12/2013	11:48:16.242	A	AMETEK	DMS3K IP: 192.168.2.5	16	U7 Main Stop Valve 2 Closed				
03/12/2013	08:33:19.511	N	AMETEK	DMS3K IP: 192.168.2.5	16	U7 Main Stop Valve 2 Closed				

Historical event log

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Sample configuration screen





Upgrade Existing Alarm Management Systems

The DMS^{3K} has the flexibility and functionality to replace your existing alarm management systems. Legacy AMETEK Annunciators (MPAS-90, DMS-2000 and DMS-3000) can be easily upgraded by simply replacing legacy CPUs with the new DMS^{3K} version. The new CPU is compatible with existing card racks and their I/O. Other alarm management systems can also be upgraded with the flexible multi-function DMS^{3K}.

SPECIFICATIONS

SYSTEM CAPACITY

16 I/O CARD RACKS PER SYSTEM • 2,048 digital inputs

- 512 analogs
- Combination of both
- · 3,584 outputs per remote unit
- · 640,000 events in non-volatile memory

I/O CARD RACK CAPACITY

- 128 digital inputs or 32 analog
- Combination of analog and digital
- · 240 outputs per remote unit
 · 3U card rack has 10 I/O card slots
- 6U card rack has 23 I/O card slots
- 40,000 SER events stored in non volatile memory

INPUTS

DIGITAL INPUTS

 N.O. or N.C., field contact selectable via browser config or DIP switches
 Wet or dry field contacts

INPUT CURRENT

· Approximately 2 mA per input

FIELD CONTACT VOLTAGE

- 24 VDC nominal
- 48 VDC nominal

• 125 VDC nominal

ANALOG INPUTS

• 4-20 mA and 1-5 VDC

- INPUT LOOP RESISTANCE
- N.O. 200K ohm minimum
- N.C. 1K ohm maximum

TIME STAMP RESOLUTION · 1 ms between alarms

INPUT RESPONSE

- Digital input: 16 ms
- Analog input: 40 ms

TIME SYNCHRONIZATION IRIG-B

- · Modulated or demodulated
- 10K input impedance
- ±1 ms accuracy

NTP

1-3 NTP servers
 Up to 1 ms accuracy

INTERNAL CRYSTAL • 0.5 sec/day accuracy

OUTPUTS LAMP DRIVE

• 200 mA @ 24 VDC, 5 watts

POWER RELAYS

- S.P.D.T contact rating
 24 VDC 2.0 amp resistive
- 240 VAC 1.0 amp resistive

REED RELAYS

 S.P.S.T. contact rating 100 VDC 0.25 amp maximum resistive

I/O MODULES

- · 8 I/O 8 DI, 8 DO
- ·161 16 DI ·81AM 8 AI
- ·16 O 16 DO
- · IR 4 DI, 6 RO
- •8 RR 8 RRO
- •16 RR 16 RRO
- ·5 PR 5 RO
- •8 PR 8 RO
- DI=Digital Input, DO=Digital Output, AI=Analog Input, RO=Relay Output, RRO=Reed Relay Output

COMMUNICATIONS

- SERIAL PORT · RS-232/485 selectable
- R3-ZJZ/40J SEIECIAD
- PROTOCOLS
- Modbus RTU, DNP 3.0, serial ASCII

ETHERNET PORT 10/100

- DHCP or Fixed IP
 Multi-user support
- PROTOCOLS
- Modbus TCP/IP, DNP 3.0, BACNET

WEB SERVER

- Used for configuration of unit
- Graphical and text display of alarms
- Can combine up to 16 units on a single WEB browser
- Acknowledgement of alarms
 Separate screens for active alarms and archived event log
- Email notification
- Export to CSV
- Printing of alarms (auto/manual)
 Multiple levels of security: HTTPS and encrypted username/password

ASIA PACIFIC

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Singapore

HEADQUARTERS

sales@ametekasia.com

OPERATING VOLTAGES PRIME POWER

Internal supply in rack • 24 and 48 VDC ±12.5% External power supply • 125 VDC ±15% • 120/240 VAC 50/60 Hz ±15%

FIELD CONTACT VOLTAGE

Internally supplied • 24 VDC ±12.5% Externally supplied • 24, 48, 125 VDC ±12.5%

MECHANICAL

- **19" I/O CARD RACK** • 3U single chassis, 10 card slots 5.5" H x 7.25" D x 19.0" W (140 mm H x 184 mm D x 483 mm W)
- 10 lbs. (4.5 kg) • 6U dual chassis, 23 card slots
- 11.5" H x 7.25" D x 19.0" W (292 mm H x 184 mm D x 483 mm W)
- 20 lbs. (9.0 kg)

MOUNTING

 \cdot Terminals on front or rear of rack

TERMINAL

 Combined edge connector with terminal block – up to 1.5 sq. mm

EMC COMPLIANCE

SURGE WITHSTAND (OSCILLATORY & IMPULSE) · C37.90.1, IEC61000-6-2

EFT BURST IMMUNITY · IEC61000-6-2

• IEC61326-1

ESD

· IEC61000-6-2

• IEC61000-6-3

ENVIRONMENTAL

OPERATING TEMPERATURE · 32° to 140°F (0° to 60°C)

STORAGE TERMPERATURE · -13° to 185°F (-25° to 85°C)

WEBSITE

EMAIL

www.ametekpower.com

pi.marketing@ametek.com

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HUMIDITY • 0 non-condensing to 90%

CERTIFICATIONS CE (pending)

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