



Model 90A Annunciator

FOR POWER GENERATION, TRANSMISSION & DISTRIBUTION, PETROLEUM, PETROCHEMICAL, AND OTHER PROCESS INDUSTRIES



INNOVATIVE ANNUNCIATOR

Based on the highly acclaimed SERIES 90, AMETEK's new SERIES 90A Annunciator brings alarm monitoring to new levels. It has several communication options, can provide time stamped alarms and all features and options are field configurable. Installation and setup have been simplified making this an ideal fit for new projects or system replacements. The unique software configuration provides more features and functions a mouse click away.

Communications

Transmit or receive alarms using our RS-232/485 serial or Ethernet port. The SERIES 90A supports Modbus and DNP protocols. Communicate via OPC using our OPC Server Software.

Compact Size

The Annunciator and all electronics including the communication options are self contained within a compact frame less than 7 inches deep. In most cases, the power supply is included inside the system simplifying installation and wiring.

Time Stamped Alarms (SER)

All of your alarms can include a timestamp and can be synchronized by IRIG-B or our internal clock. This can be presented through Modbus, DNP, OPC or to a local printer or terminal for viewing. Connect this to your Alarm Management Software for advanced notifications of your critical alarms.

Flexible Design

The window legends are printed on standard transparency film, making it easy to change legends at any time. The Annunciator capacity can be increased with built-in expansion. All features and options are field selectable and upgradeable.

Software Configuration

While all systems are pre-configured to your specifications, the software configuration tool unleashes the true power of the SERIES 90A.



You can select any operational sequence, sort alarms by group, configure your relay outputs and more. There is never any reason to pull out the front accessible input cards as changes can be made via software.

Reliability

Every SERIES 90A Annunciator is equipped with low power, long life LED's. The brightness exceeds standard incandescent bulbs and they last years longer. If a LED needs replacement, our automatic detector provides notice so critical alarms are not missed. A built-in ground fault detector is available for indicating ground faults in your field wiring.

FEATURES AND BENEFITS

- Serial & Ethernet Communications: Modbus, DNP, OPC Protocols
- Compact Size
- Timed Stamped Alarms (SER)
- Software Configurable
- LED Illumination (Standard)
- Laser Printed Legends
- Internal Self Diagnostics

AMETEK®



Experience the Power™

SPECIFICATIONS

INPUT

Field Contacts

- Normally Open (N.O.) or Normally Closed (N.C.) input selection through software or hardware
- Wetted (voltage supplied) or dry (voltage free) contacts

Field Contact Voltage

- 12, 24, 48, 125 VDC, 120 VAC jumper selectable (.0018mA per input)

Input Isolation

- Each input is optically isolated

Input Response

- 50 milliseconds (standard)
- 1 millisecond fast response (opt)
- 50 milliseconds to 250 seconds software adjustable

DISPLAY

LED

- White LED, minimum 2 per window

Window Sizes (h x w)

- Quad: .75 x .75 inch (19 x 19 mm)
- Third: 1.0 x 3.0 inch (25 x 76 mm)
- Half: 1.5 x 3.0 inch (38 x 76 mm)
- Full: 3.0 x 3.0 inch (76 x 76 mm)

Window Color

- White, red, yellow, amber, green, blue

Legends

- Laser printed on transparency film or engraved windows

ALARM SEQUENCE

Sequence Selections

- LN, AO, AONL, AF, AFNL, FR, AM, FRM, AS, ASFR, ASFRM, TFS, TFSFRM, TFSM, ARR, FRR, VS, VSRR, MC
- Software configurable
 - Dual color sequences
 - Customized flash rates
 - Up to 4 first out groups

CONTROLS

- Integral test, acknowledge, silence and reset with LED status lights
- External push button inputs
- Configurable switch inputs (inhibit LEDs, horns, relays)

OUTPUTS

Auxiliary Relay Option

- Individual or dual relay per point
- Follows field contact or alarm sequence
- Software configurable
- Energized/de-energized operation
- Form A or form B (N.O. or N.C.)
- Form C (SPDT)

Common Relays

- 2 relays included for: critical and non-critical horn; ringback audible
- 2 relays available for: critical and non-critical reflash, common alarm; watchdog, power fail, ground fault
- Software configurable
- Energized or de-energized operation
- Form A or form B (N.O. or N.C.)

Relay Ratings

- 24 VDC @ 5.0 amps
- 110 VDC @ 0.1 amps
- 120 VAC @ 5.0 amps

Audible

- Internal 80db @ 30cm audible device external horns available

COMMUNICATION

Serial Modbus

- Master or slave
- Transmit or receive alarms
- RS-232/485 or Ethernet
- Pushbutton controls

DNP 3.0

- Slave mode
- Transmit alarms
- RS-232/485 or Ethernet
- Pushbutton controls

OPC Server Software

- Ver. 2.0 OPC DA

Serial ASCII

- RS-232/485 or Ethernet
- For local terminal/printer

TIME STAMPED ALARMS

- < 5 msec resolution across all inputs
- IRIG-B time sync input or internal clock
- Point #, alarm status, time and date
- Modbus, DNP, ASCII outputs
- 500 event storage

CONNECTIONS

Input/Output Terminals

- Fixed barrier terminal block, 12 GA (2.5mm) maximum, ring, spade or bare wire termination.

Communication Ports

- Serial: 9 pin female D connector
- Ethernet: RJ45 connector
- IRIG-B: BNC connector

POWER REQUIREMENTS

Internal or External Power Supplies

- 230 VAC (176-264 VAC 50 Hz)
- 120 VAC (88-132 VAC 60 Hz)
- 125 VDC (100-250 VDC)
- 48 VDC (38-58 VDC)
- 24 VDC (19-29 VDC)

Max. 1.7 watts/input @ power input

MECHANICAL

Mounting

- Semi-flush panel mounting
- 19 inch rack mounting
- Wall (surface) mounting
- NEMA enclosures

Weight

- 1.2 lbs per cell (0.34 kg per cell)

ENVIRONMENT

Operating Temperature Range:

- -4 to 122°F (-20 to 50°C)

Humidity:

- 20-95% RH

Surge Withstand:

- ANSI C37.90.1 (oscillatory)

Fast Transient:

- IEC-61000-4-4

Surge Immunity:

- IEC-61000-4-5

EMI/RFI/ESD:

- IEC-61000-4-3, 4-6, 6-3, 4-8, 4-2

Isolation:

- 1950 VDC or 1400 VAC input to output, logic, case

CERTIFICATIONS

UL, ULC, CE, and FM Class 1, Div 2

Semi-flush Mounting Details inches (mm)

Cells H or W	Over All Ht. or Wt.	Panel Cut-Out Ht. or Wt.
1	5.0 (127)	4.06 (103)
2	8.47 (215)	7.53 (191)
3	11.94 (303)	11.00 (279)
4	15.40 (391)	14.47 (368)
5	18.88 (479)	17.94 (456)
6	22.34 (568)	21.41 (544)
7	25.81 (656)	24.88 (632)
8	29.28 (744)	28.34 (720)
9	32.75 (832)	31.81 (808)
10	36.22 (920)	36.28 (896)
11	39.69 (1008)	39.75 (1010)
12	43.16 (1096)	43.22 (1098)
13	46.63 (1184)	46.69 (1186)

Depth Behind Panel: 6.75", 8" with Rear Cover

Example: 2 H x 3 W has a cut-out height of 7.53 (191) and a cut-out width of 11.0 (279)



For customer support call:

POWER INSTRUMENTS

1725 Western Drive
West Chicago, IL 60185
Tel: 630.231.5900
Fax: 630.231.4502
power.industrial@ametek.com

HEADQUARTERS

AMETEK Power Instruments
50 Fordham Road
Wilmington, MA 01887
Tel: 978.988.4903
Fax: 978.988.4990
www.ametekpower.com
power.industrial@ametek.com

George R. Peters Associates ENGINEERING SALES REPRESENTATIVES

(248) 524-2211 • Fax (248) 524-1758

Web Site: www.grpeters.com



ISO 9001 Certified

ANNUNCIATOR MODEL CODE DEFINITION

Series 90A Model Number

90A-	-	-	-	-	-	-	-
	Item 1 Mounting Options	Item 2 # of Cells High	Item 3 # of Cells Wide	Item 4 Common Service	Item 5 Window Size	Item 6 Active Points	Item 7 Window Color
	-	-	-	-	-	-	-
	Item 8 Operational Sequence	Item 9 Repeat Relay	Item 10 Power Input	Item 11 Field Contact Voltage	Item 12 Window Legends	Item 13 Comm. Options	Item 14 Options

Example: 90A-PM-3H-6W-INTB-2-34-W-A-RR-B-X-TP-MB-TS-IB-RLY

Item 1 Mounting Options

PM	Semi-Flush Panel Mounting
PC	Semi-Flush Panel Mounting w/rear cover
RK	19" Rack Mounting (5 wide systems only)
S	Surface (Wall) Mounting (1H to 5H x 2W to 5W)
N4	Nema-4 Enclosure (3H to 5H x 3W to 5W)

Item 2,3 Annunciator Size

# of Cells High (1-13)	# of Cells Wide (2-13)
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Item 4 Common Service Cell (lower right cell)

INTB	Integral Pushbuttons (ACK, SIL, TEST, RESET)
NPB	Pushbuttons replaced w/ a Half or Full Size Window
Note:	For either selection above, external pushbuttons can be connected to the Annunciator terminal blocks.

Item 5 Window Size

4	Quad Size, 4 inputs per cell, ea 1.5"H x 1.5"W
3	Third Size, 3 inputs per cell, ea 1.0"H x 3.0"W
2E	Half Size, 2 inputs per cell, ea 1.5"H x 3.0"W
2S	Half Size, 2 inputs per cell, ea 1.5"H x 3.0"W
2	Half Size, 2 inputs per cell, ea 1.5"H x 3.0"W
1E	Full Size, 1 input per cell, ea 3.0"Hx3.0"W
IMW	Intermixed window size

Note:

Option 1E indicates that the cell is expandable up to 2 inputs.
 Option 2E indicates that the cell is expandable up to 4 inputs.
 Option 2S indicates one input module per single input provided.
 Do not include the CSM Cell in your quantity.

Item 6 Active Points

Total # of active points

Item 7 Window Color

W	White Window Filter
R	Red Window Filter
A	Amber Window Filter
G	Green Window Filter
B	Blue Window Filter
IMC	Intermix color, matrix must be included

Item 8 Operational Sequence

	A; A4; A4-5-6; M; R; R-12 ; F1A; F2A; F3A; F2M-1; FFAM2; F3C ; R12C ; RC
IMO	Intermixed Sequences (up to 4 available)

Item 9 Repeat Relay Option

RR	Auxiliary Repeat Relay Provided for every Input. (Can be field configured to follow: alarm input status, alarm sequence operation or Lamp Flash. Relays can be set for normally energized or de-energized operation and are jumper selectable for a Form A or Form B contact arrangement).
FRC	Auxiliary Repeat Relay Provided for every Input with Form C (SPDT) Contacts. (Can only be used with Window Size 1E or 2S).
2RR	Two Repeat Relays for every input. (Selectable for a Form A or Form B contact arrangement. Can only be used with Window Size 1E or 2S.)
NR	No Repeat Relays required (Note: Can only choose one selection from above).

Item 10 Power Input

F	24 VDC
E	48 VDC
C	125 VDC
B	120 VAC, 60 HZ
A	230 VAC, 50 HZ

Item 11 Field Contact Voltage (FCV)

	Field Contact Voltage internally supplied by AMETEK, with common system-wide FCV return.
	*For System Input Power Voltages of 120/230VAC or 125VDC.
D	125 VDC FCV
X	24 VDC FCV
	Field Contact Voltage externally supplied by Customer, internally bussed to all input modules.
DC	125 VDC FCV supplied by Customer
TC	48 VDC FCV supplied by Customer
XC	24 VDC FCV supplied by Customer
JC	12 VDC FCV supplied by Customer
	Field Contact Voltage externally supplied by Customer. Every input is isolated and requires a separate FCV connection.
D/ISO	125 VDC FCV supplied by Customer
T/ISO	48 VDC FCV supplied by Customer
X/ISO	24 VDC FCV supplied by Customer
J/ISO	12 VDC FCV supplied by Customer
Y/ISO	120 VAC FCV supplied by Customer
NR	No Field Contact Voltage (Serial Input Only)

Item 12 Window Legends

TP	Legends printed on Transparency Film (field changeable)
E	Legends Engraved on Windows
<i>Note:</i>	<i>Window engraving or printed legends can be provided at the factory at no charge if provided 1 week before shipment.</i>

Item 13 Serial Communications

SIM	Modbus Serial Input Only (no Field Contact Inputs)
SID	DNP Serial Input Only (no Field Contact Inputs)
MB	Modbus Communications, Transmit or Receive
DNP	DNP 3.0 Communications, Transmit or Receive
SD	Serial ASCII Data Output of Time Stamped Alarms (Used with the Time Stamping option SER only.)
<i>Note:</i>	<i>Can only select one of the above options. All options above are field selectable for RS-232 or RS-485 and can be configured for Master or Slave operation.</i>

Item 14 Options

ETH	Ethernet Port (RJ-45 , T1 connection) (Used with Modbus or DNP Communication options. Must select option MB or DNP. Replaces RS-232/485 Serial Port.)
FR	1 msec Input Response (50 msec Standard) (This will capture alarms that last 1 msec or longer. If Time Stamping is required, select option SER instead)
SER	Time Stamping of alarms. (The Time & Date of each alarm is recorded to the msec. The Time Stamp output can be selected as Serial ASCII Data to a printer or terminal [must select option SD], Modbus [must select option MB] or DNP [must select option DNP]. The 1 msec input response [option FR] is included).

Item 14 Options CONTINUED

IB	IRIG-B Time Sync Input (used with SER Option) (Standard BNC Input)
SP	Serial Printer used for Time Stamped Alarms (Used with SER option [time stamped alarms] and SD option [serial data output]. Modbus, DNP and Ethernet are not available when selecting this.)
GF	Ground Fault Detector (internally mounted)
RLY	Additional Two CSM Common Relays (System includes 2 CSM Common Relays configurable for Critical or Non-Critical Horn, Ringback Horn. The additional 2 CSM Common Relays can be configured for additional horns or Critical/Non-Critical Re-flash or Fault, Power Fail, System Watchdog, or Ground Fault Detect)
SW	External Inhibit Switch Input (Software configurable for inhibit of LED Lamps, Horn, Repeat Relay Outputs or CSM Common Relay Outputs)
HN	Internal Horn
AS	Automatic Horn Silence (Can be used to silence any horn with software configurable delay up to 60 seconds, in 0.25 second increments)
FS	Flash Synchronization. Synchronizes the flash rate to remote displays. Needs to be specified for each Annunciator that will be synchronized together. (Requires wiring between Annunciator Systems.)
STM	Moisture/ Fungus Proof Coating

George R. Peters *Associates* ENGINEERING SALES REPRESENTATIVES

(248) 524-2211 • Fax (248) 524-1758

Web Site: www.grpeters.com