OPERATIONS MANUAL
MODEL ANN-2-SA

GENERAL DESCRIPTION

The ANN-2-SA is an Alarm Annunciator that monitors and detects specific ASCII character strings on an RS-232 port at data rates up to 9600 BPS.

The ANN-2-SA monitors a total of 32 strings. Each string can be up to 32 characters in length. These strings are broken into two classes, alarms and clears (16 of each). Whenever a monitored string matches a pre-programmed string that was entered using the ANN-SA setup utility, the associated Annunciator channel will go into alarm. Whenever a clear string is matched, the channel will return to the clear state. If an alarm or clear string is matched and the channel is currently in that state, the match is ignored.

Communications

The ANN-2-SA features two communications channels. Com1 provides direct connection to the ANN-SA Setup Utility and Dataprobe's alarm monitoring PC software. Com2 is used to monitor the data stream for the programmed strings.

Both Com ports provide both RS-232 and RS-485 communications facilities allowing all annunciator and output relay functions to be displayed and controlled remotely.

String Specification

Each of the 32 strings can be any size from 1 to 32 characters. These characters can be any ASCII character including graphic characters, but excluding the NULL character. The NULL character is reserved as an end of string marker for the ANN-SA. The '?' character is reserved for use as a wild card (character). If a string is left blank the string detector will never find a match (the string is scanned but ignored).

Outputs

The ANN-2-SA allows control of sixteen form C relays as outputs. These outputs can echo the alarms, either from the unit itself, or be controlled remotely by many of Dataprobe's PC software for the ANN and MAC systems.

Alarm Reporting Sequence

The state of each of the 16 alarm channels are displayed via green and red LEDs. When no alarm is present, all LEDs are green, steady ON. When a channel goes into alarm, an internal audible buzzer will sound and the channel in alarm will display a red flashing LED. The contacts of a common MASTER ALARM relay (form C) are available to operate external audible or visual alarms. The MASTER ALARM relay operates in a fail safe mode. If power is lost or an alarm occurs, the relay de-energizes.

The Master Alarm Relay will be reset when the Acknowledge Push Button is depressed. When the alarm input returns to a normal state, the buzzer will sound three times and the green LED will be flashing. When the operator depresses the Acknowledge Push Button again, the green LED will be ON steady. The Test Push Button is used to light all LED's and test the buzzer.

REF: ALM\ANN2SA_14_V980413S.DOC

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FRONT PANEL SWITCHES

The ANN-2-SA has three front panel controls.

Acknowledge/Mute Push Button

This button is used to acknowledge both alarms and clears. Pressing this button after an alarm occurs mutes the buzzer, changes the red alarm LED from flashing to on steady and clears the Master Alarm Relay. Pressing this button after an alarm has cleared, changes the green LED from flashing to on steady. If the unit has been placed in the clear on acknowledge mode pressing the Acknowledge button will cause all channels that are in alarm to become clear.

Test Push Button

The Test Push Button is provided to test all front panel LEDs, the buzzer and all relays. Pressing this button once will cause all the green LEDs to light for 1 second and then all the red LEDs to light for one second followed by the buzzer sounding and all relays being energized for one second.

Mute Slide Switch

This recessed front panel switch is used to permanently mute the internal buzzer. Placing the switch in the M position will mute the alarm buzzer. Placing the switch in the “UP” position will allow the buzzer to sound in the normal manner.

OPERATION

Alarm Connection

There are three methods of connecting the monitored ASCII stream to the ANN-2-SA.

1. RS-232 Connection (non bridged)

Connect the transmit data lead of the host to the receive data lead of ANN-SA's Com 2, RS-232 port and the host's ground lead to the ground lead of the ANN-SA's Com 2 RS-232 port.
Note: Com 2 on the ANN-SA must be set to RS-232 mode.

2. RS-485 Connection

Connect the TXD/RXD (+) of the host system to the TXD/RXD (+) of the ANN-SA's Com 2, RS 485 port and the host's TXD/RXD (-) to the TXD/RXD (-) of the ANN-SA's Com 2, RS-485 port.
Note: Com 2 on the ANN-SA must be set to RS-485 mode.

3. High Impedance Connection

Connect the transmit or receive data lead to be monitored to the data input of the high impedance bridging connector pin 7 of J7, (DB9) and ground, pin 8.

Manually Clearing Alarms

The alarm can be manually cleared by pressing the Acknowledge and Test buttons simultaneously. The master relay will be reset and the buzzer will be silenced. The output relays will only be effected if the unit is in the echo mode.

Alarms can also be manually cleared every time the Acknowledge buttons is pressed by placing the ANN-2-SA in the Clear on Acknowledge mode.

Programming & Connecting The ANN-SA & PC

The ANN-SA is programmed via the units Com 1 port using a PC and the setup utility supplied. See Page 9 for programming port Com 1 (RJ45) pin outs. The TXD lead of the PC is connected to the RXD lead on the ANN-SA and the RXD lead of the PC is connected to the TXD lead of the ANN-SA. The ground lead must also be connected.

ANN-SA SETUP UTILITY

Overview

The ANN-SA Set-Up Utility is a PC based program that gives the user the ability to program the strings and operating parameters of the ANN-SA.

Installing the ANN-SA Set-Up Utility

1. Create a directory on the hard drive. Ex: md annsa <enter>
2. Change to the directory. Ex: cd annsa <enter>
3. Copy the contents of the ANN-SA disk. Ex: copy a:*.*
4. Run the program by typing ANNSA <enter>

Main Menu

The MAIN MENU has four choices: FILE, UPLOAD, DOWNLOAD and SETUP. The FILE MENU selection pulls down a SUB MENU with the choices: NEW, OPEN, CLOSE, SAVE, SAVE AS, PRINT and QUIT. Each of these are described in the FILE MENU section of this manual on Page 4.

- UPLOAD
  This selection uploads the strings and operating parameters to the ANN-SA. This menu selection is only available when a programming form is displayed.

- DOWNLOAD
  This selection retrieves the strings and operating parameters from the ANN-SA. This selection is only available when a programming form is displayed.

- SETUP
  This selection pops up the system setup dialog box. This dialog box allows the user to set up the operating parameters for the ANN-SA setup utility.

File Menu

The FILE MENU has seven choices: NEW, OPEN, CLOSE, SAVE, SAVE AS, PRINT and QUIT.

- NEW
  This selection will pop up a new blank programming form and is only available if there is no programming form being displayed.

- OPEN
  This selection pops up a dialog box that prompts for the file name. Entering a name in this box will open a saved file with that name. If there is no file with that name one will be created. In both cases, once the file has been opened, the programming form will be displayed and filled in with the information read from the file. This menu selection is only available when no programming form is displayed.

- CLOSE
  This selection closes the programming form that is currently being displayed. This selection is only available when there is a programming form being displayed.

- SAVE
  This selection saves the current programming form to a disk file. If the programming form was opened using the NEW menu selection the user will be prompted to enter a file name.

- SAVE AS
  This selection will save the current programming form to a disk file and prompt the user to enter a new name to save it as.

- PRINT
  This selection prints the current programming form to the printer. This menu selection is only available when a programming form is open.

- QUIT
  This selection exits the ANN-SA setup utility.

System Setup Dialog Box

The system setup dialog box is used to enter the settings that the ANN-SA will use to upload, download, and print programming forms. This dialog box has two sections. The first section is the communications port section. This section contains four selections. Using a mouse or the arrow keys, the user selects Com 1, Com 2, Com 3 or Com 4. This selection sets the port that the ANN-SA setup will use to upload and download the data. The second section is the printer port section. This section also contains four selections. This is used to select the printer port that the ANN-SA setup utility will print to.

Once the user has made the appropriate selections, pressing the F10 key will save the settings. The user can also quit the dialog box without saving by pressing <ESC>.

Programming Form

The programming form is used to enter a location name, the operating parameters and the strings that the ANN-SA is to detect. The location can be any name up to twenty characters in length. The operating parameters are baud rate, number of data bits, number of stop bits, and the parity. The baud rate can be set to any values from 300 to 14000 bits per second. When the baud rate field is entered a choice list will pop up. The user can select 14400, 9600, 4800, 2400, 1200, or 300 from this list. The number of data bits can be set to either 7 or 8. When the user enters this field a choice list will pop up. The user can then select either 7 or 8 from the list. The number of stop bits can be either 1 or 2. Parity can be set odd or even. These parameters must be set the same as the data stream to be monitored.

There are a total of 32 strings that can be entered; 16 alarm and 16 clear. The user can enter ASCII printable characters using the keyboard or control characters by first entering <control-p> followed by the control and the desired character. ASCII graphic characters can also be entered by holding the <alt.> and entering the character.

RELAY OUTPUTS

The ANN-2-SA has 16 form C relay outputs. These relays can be Dip switch set to either echo the local alarm status or to operate under remote control from another Annunciator, or Dataprobe's PC-ANN or PC-MAC software.

Connection to the ANN-2's 16 relay outputs are made via a 50 pin Telco connector located on the back panel. For pinouts See Page 9.

Outputs, Local Echo Mode

In this mode the relays are energized when alarms are not present and relaxed when an alarm is present (Fail Safe Operation). Form C relay contacts are provided, both Normally Open and Normally closed contacts are available on the connector.

Outputs, Remote Mode

In this mode the relays are controlled remotely by other equipment via either Com 1 (remote ANN or PC-ANN) or Com 2 (PC-MAC).

AUXILIARY INPUTS AND OUTPUTS

Master Alarm Out

This form C relay contact is provided as a means of connecting external audible or visual devices remote from the ANN-2. The contacts are form " C " with normal, no alarm or input being relay "ON" (Fail Safe). The relay de-energizes whenever there is an unacknowledged alarm.

Displays

The ANN-2 has 16 pairs of red and green LEDs, one for each circuit. See page 1, Alarm Reporting Sequence for Display operation.

Buzzer

The ANN-2-SA has an internal audible signal to alert an operator to alarm or clear conditions. When a circuit first goes into an alarm state, the buzzer will sound steadily until the Acknowledge/Mute Push Button has been depressed. When a channel changes from an alarm to a clear state, the buzzer will sound 3 short beeps to alert the operator.

INSTALLATION & SETUP ANN-2-SA

Remove the top cover to access the Setup DIP switches and jumpers. See Figure 2 on Page 12.

OPERATING MODES

Two dip switches are used to set the operating modes of the ANN-2-SA. Dip switch S2 positions 2-7 are factory set to open **do not change**. Dip Switch S3 positions 1, 3-8 are factory set to open **do not change**.

All factory settings are marked with an *.*
All others are marked in gray.

Function	Desired Results	S#& Position	Open / Closed
Clear on Ack	Acknowledge button Acknowledges Alarms / clears	S2, Position 1	Open *
	Acknowledge button Clears Alarms	S2, Position 1	Closed
Database Reset	Power on reset does not effect the database	S2, Position 8	Open *
	Power on reset clears the database	S2, Position 8	Closed
Relay Mode	Remote control of relays via communications port 1	S3, Position 2	Closed *
	Relays echo local alarm status	S3, Position 2	Open

COMMUNICATION SPEED AND FORMAT

The ANN-2-SA's Communications Ports must be set to match the speed of your communications circuits. The data format for all applications is 8 data bits, no parity and 1 stop bit (8N1).

Note: When using the ANN-SA Setup Utility Com 1 must be set to 2400 BPS.

Data Rate : Com 1	**S4 Position 3**	**S4 Position 2**	**S4 Position 1**
9600	Open	Open	Open
4800	Open	Open	Closed
* 2400	* Open	* Closed	* Open
1200	Open	Closed	Closed
600	Closed	Open	Open
300	Closed	Open	Closed

DEVICE ADDRESS

The ANN-2-SA requires an Address to be set prior to communication with master devices. This address is set using DIP Switch S5. Up to 255 address combinations can be selected, using eight DIP switch positions. Addresses are set in a Binary Format as follows:

S5 Position	Binary
1	1
2	2
3	4
4	8
5	16
6	32
7	64
8	128

0 = Open
1 = Closed

Example: 1 2 3 4 5 6 7 8
0 1 0 1 0 0 0 0 = Address 10

Note: Address 0 is reserved for Master PC Software and should not be used.

When two ANNs are connected together, both must have the same address. When multiple ANNs are communicating with a PC using PC-ANN software, each ANN must have its own identification address.

COMMUNICATION CAPABILITIES

The ANN-2-SA offers two communication ports. One for use with other Dataprobe hardware and software products for display and control of all annunciator functions. The PC-ANN-P software offered by Dataprobe allows a PC to remotely control and graphically display all conditions at one or more annunciator locations.

Consult Dataprobe for additional application data.

Com1 is the Polled communications port. This port responds to polling commands from Dataprobe's PC-MAC Alarm and Control Management software. This software allows multiple ANN-2-SA units (as well as other polled devices) to be managed from local or remote locations.

Com1 Jumper Settings

	Com-1	Jumper JP5 Configuration	*** Factory setting**
	Mode	**Install Jumpers In Only The Positions Indicated**	
*	RS-232	A, G, I, J	Internal or External Modem Setting
	RS-485	B, D, E, G	
	JP1	If the ANN is the last one on a 485 Buss, the jumper should be in the 'IN' Position.	

Com2 is the string monitoring port. It is used to connect to the data stream to be monitored.

Com2 Jumper Settings

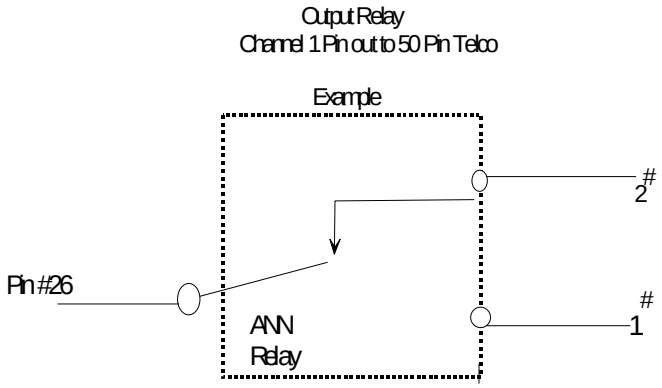
JP2 RS-232 Pos = RS-232
RS-485 Pos = RS-485

The ANN-2-SA, communications speed must be set to match system requirements. The data format is always eight bits, no parity and 1 stop bit (8N1), Internal Dip Switch SW-4 is used to set this speed. See Installation and Set Up on Page 7, and Figure 2 for location of the Dip Switch.

OUTPUT, CONNECTOR PINOUT; 50 PIN TELCO FEMALE

Channel #	CONNECTOR PIN #'S		
1	26	1	2
2	3	27	28
3	29	4	5
4	6	30	31
5	32	7	8
6	9	33	34
7	35	10	11
8	12	36	37
9	38	13	14
10	15	39	40
11	41	16	17
12	18	42	43
13	44	19	20
14	21	45	46
15	47	22	23
16	24	48	49

RELAY --------- COMMON OPEN NORMALLY CLOSED ; ONE FORM " C " CONTACT / CHANNEL



Communications Ports

Connect the external RS-232, RS-485 or Dial Line to the correct jack as marked. The pinouts of each jack are listed below. Please refer to Page 11 for an explanation of how to read the pin numbers on modular jacks.

RS-232 COMMUNICATION PORT PINOUTS (COM 1 J1 RJ45 AND COM 2 J4 RJ-45)

PIN #	Description	Comments
1	Data Terminal Ready	High at all times.
2	Request To Send	Raised 1 bit time before transmit, Dropped 1 bit timer after transmit
3	+ Transmit Data	Transmit Data (selectable 9600, 4800, 2400, 1200, 600, 300 BPS)
4	Data Carrier Detect	Not supported by software
5	+ Receive Data	Receive Data (selectable 9600, 4800, 2400, 1200, 600, 300 BPS)
6	+ Signal Ground	ANN Circuit ground
7	Clear to Send	Note Supported by software

+ Note, When connecting these signals to a (DTE) PC's RS-232 port DB-25 connector, Pins 3,5,6 of the RJ-45 would be connected to in the same order to pin 3,2,7 of the DB-25. When connecting to a modem, (DCE) the RJ-45 pin 3,5,6 would be connected to 2,3,7 of the DB-25. A converter cable and an RJ-45 to DB-25 adapter, model MA-K are included.

RS-485 COMMUNICATION PORT PINOUTS (COM 1 J2 RJ-11)

Pin #	Signal Name
1	No Connection
2	No Connection
3	TXD / RXD -
4	TXD / RXD +
5	No Connection
6	No Connection

HI IMPEDANCE RS-232 BRIDGE

Pin #	Signal Name
1	No Connection
2	No Connection
3	No Connection
4	No Connection
5	No Connection
6	No Connection
7	Data In
8	Signal Ground
9	System Ground

TO BE WELL CONNECTED IS VERY IMPORTANT !!!

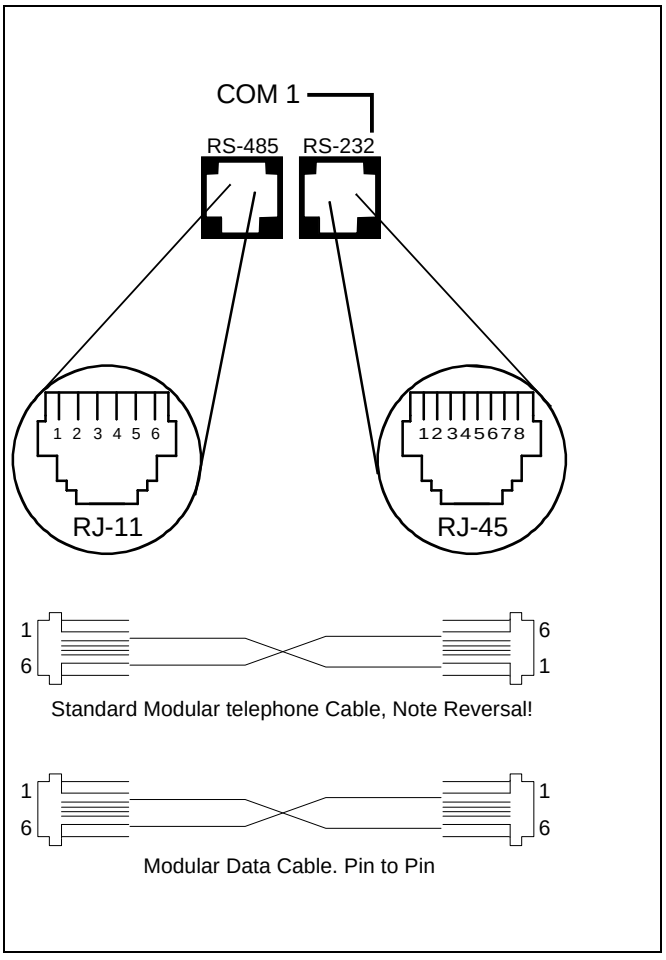
When connecting equipment to the ANN, it is imperative that the correct connector pin-outs and cable type are used.

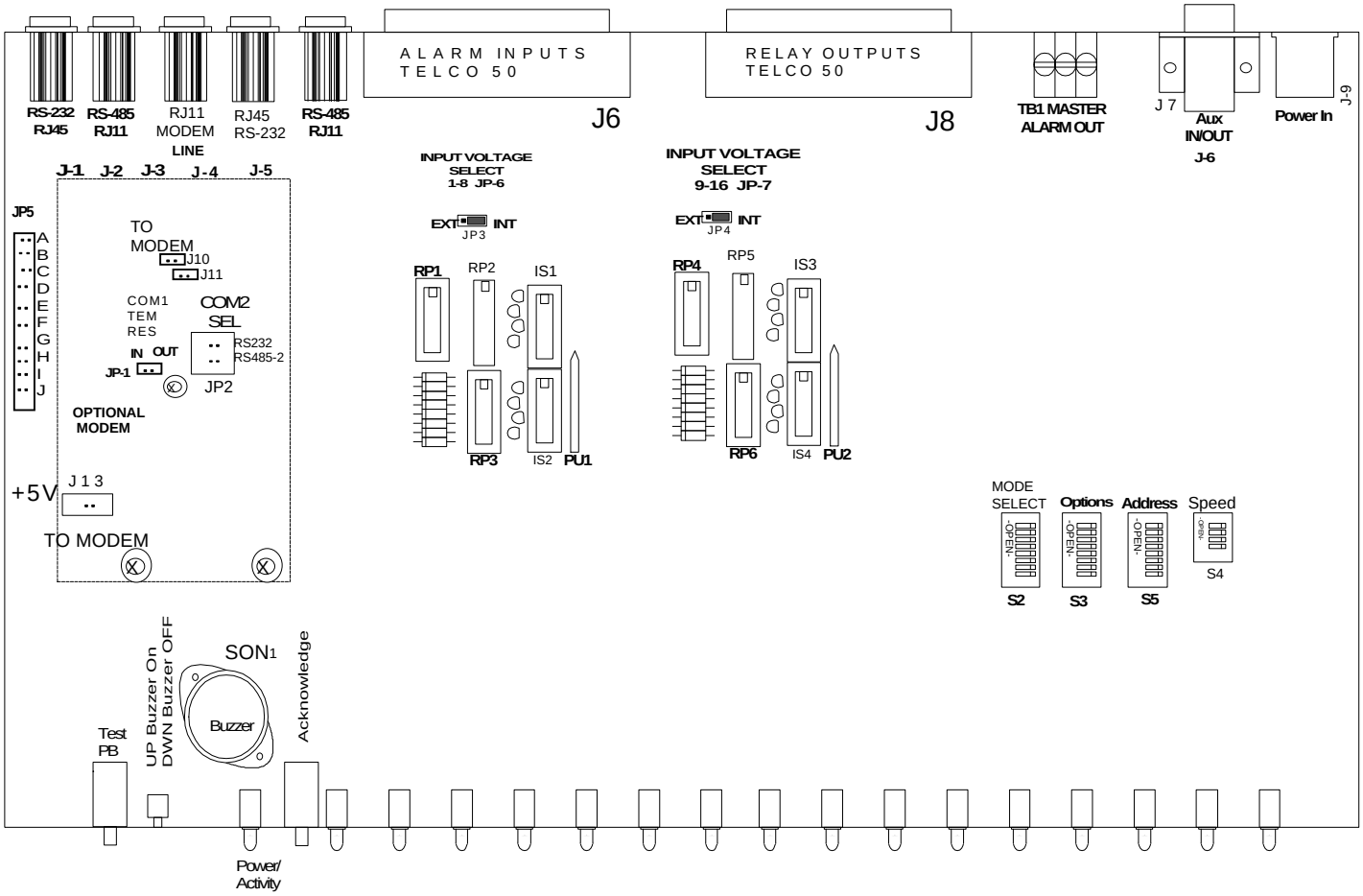
1> For the RS-485 six position RJ-11 jack, DO NOT use a standard telephone type cable that reverses the connections between ends. Use only a DATA type cord that maintains the same pin positions at each end to preserve the correct polarity required between connected equipment. The Line RJ-11 jack can use a standard telephone type cord.

2> For the RS-232 eight position RJ-45 jack, USE ONLY a DATA type cable and observe the pin positions as shown below for this type of jack. The relationship between the ANN's RJ-45 jack and a standard RS-232 connector pin out is shown on page 13 of this manual.

3> ***Under NO circumstance ever*** insert or use an RJ-11 plug in an RJ-45 socket. The pins in the socket will be deformed, leading to poor connections.

You can tell if a modular cable is a data, pin to pin type, by holding the plugs side by side and observe the color of the wires connected to the same pin on each plug. If the wire color is the same on corresponding pins, you have a Data cable. If not, you have a Telephone type.





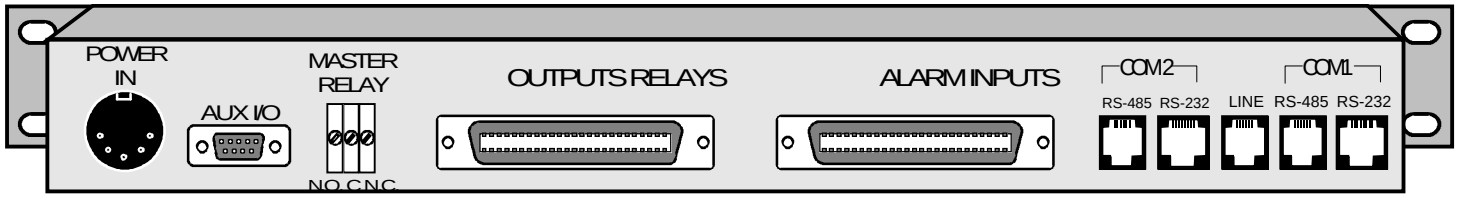


FIGURE 2
ANN-2 REAR VIEW

TECHNICAL SUPPORT, RETURNS & WARRANTY

Dataprobe Technical Support is available 8:30AM to 5:30PM ET to assist you in the installation and operation of this product. To obtain Technical Support call our Tech Support Hotline at 201- 967-8788, or Email us at tech@dataprobe.com. Please have the following information available when you call:

- Model of Product
- Serial Number
- Data of Purchase
- Name of Seller (if other than Dataprobe)

If you purchased this product through an **Authorized Dataprobe Reseller,** you should contact them first, as they may have information about the application that can more quickly answer your questions.

WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship for a period of One Year from the date of initial purchase. If the product should prove defective within that period, Seller will repair or replace the product, at its sole discretion.

Service under this Warranty is obtained by shipping the product (with all charges prepaid) to the address below. Seller will pay return shipping charges. Call Dataprobe Technical Service at (201) 967-8788 to receive a Return Materials Authorization (RMA) Number prior to sending any equipment back for repair. Include all cables, power supplies and proof of purchase with shipment.

THIS WARRANTY DOES NOT APPLY TO NORMAL WEAR OR TO DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE OR NEGLECT. SELLER MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSLY SET FORTH HEREIN. EXCEPT TO THE EXTENT PROHIBITED BY LAW, ALL IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANT ABILITY OR FITNESS FOR ANY PURPOSE ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE; AND THIS WARRANTY EXPRESSLY EXCLUDES ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from jurisdictions to jurisdiction.

WARNING: The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer makes no representation or warranty as to the suitability of fitness for any specific application.

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