



D A R A - 4

Data Aire Relay Auto-Changeover



WARNING: If adding the DARA-4 panel to existing units that did not include a DARA-4 panel when originally purchased it will be necessary to add a relay or relays. Units ordered with the DARA-4 panel will have the relay(s) factory installed.

On existing units (if not ordered with the DARA-4) if input power fails to the unit the DARA-4 panel will not receive a signal to switch to the standby unit. The addition of a control relay (with the normally closed contacts wired to the alarm terminals) allows the unit controller to remain powered on a loss of power.

Please contact your local Data Aire representative or Data Aire (800-347-2473) for further information.

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Introduction

The Data Aire Relay Auto-Changeover Control (DARA-4) is a **Lead/Lag Rotation** and **Alarm Auto-Changeover** panel for up to four cooling units controlled by any of the following Data Aire controllers: the *Mini DAP-II*, *Mini DAP-III*, *DAP-II* or *DAP-III*. The number of cooling units to maintain on line (active) and to hold offline (standby) is set through the DARA-4 program switches. Routine lead/lag unit rotation, based on the passage of time, can be set from 4 hours up to 30 days. Units may also be set to no rotation. A momentary push-button is provided to manually advance the rotation schedule to the next desired lead/lag rotation pattern. Each cooling unit is controlled by one 10 amp dry-contact relay wired to the remote shutdown contacts. Status messages are continually scrolled on a front panel liquid crystal display (LCD). Four additional cue lights indicate Unit ON, OFF and ALARM status. The DARA-4 has an automatic self-test diagnostic sequence that reports any detected problems at each power-on start-up and has a built-in user accessible diagnostic program to allow the DARA-4 hardware to be manually tested.

1.0 Specific Alarm and Standby Procedures

When alarms are detected, DARA's alarm auto-changeover function can systematically bring online an equal number of designated standby units to make up for any lost capacity until all standby units are in use. There are available options: Alarmed Units Always Turned Off, Alarmed Units Always Left On, and Alarmed Units Conditional. Specific alarm and standby procedure options are set through program switches 8 and 9.

1.1 Alarmed Units Always Turned Off - Always discontinue using and turn off any unit with an alarm. If available, bring one standby unit on line for each alarmed unit. If an alarm is received from this unit control and the Alarm and Standby Procedure is programmed, the DARA-4 will:

- Turn off the alarmed unit
- Not use the alarmed unit again until the DARA-4 panel is reset (Power Off/On)
- If one is available, bring on the next scheduled standby unit to replace the capacity of the alarmed unit
- Discontinue rotation and will hold the lead/lag pattern fixed until reset
- Fast blink the DARA-4 alarm LED to signal an alarm until reset
- Continue to include the Unit Alarm message on the LCD until reset
- Hold the DARA-4 Alarm Relay energized until reset
- Continue to bring on additional standby units if additional alarmed units are detected

1.2 Alarmed Units Always Left On - Always keep units with alarms online and continue to use them as if the units had no alarms. If available, bring one standby unit on line for each alarmed unit. If this Alarm and Standby Procedure is programmed, the DARA-4 will:

- Allow the alarmed unit to continue operation as if it had no alarm
- If a unit is available, bring on the next scheduled standby unit to supplement the capacity of the alarmed unit
- Discontinue rotation and will hold the lead/lag pattern fixed until reset
- Fast blink the DARA-4 alarm LED to signal an alarm until reset
- Continue to include the Unit Alarm message on the LCD until reset
- Hold the DARA-4 alarm relay energized until reset
- Will continue to bring on additional standby units if additional alarmed units are detected

1.3 Alarmed Units Conditional - If standby units are available then discontinue using and turn off any unit with an alarm. Bring one standby unit online for each alarmed unit – **or** – if no standby units are available, then keep the alarmed unit online and continue to use as if no alarm existed. If **Alarmed Units Conditional** is programmed, the DARA-4 will:

- Turn off the alarmed unit
- Not use the alarmed unit again until the DARA-4 panel is reset (Power Off/On)
- Bring on the next scheduled standby unit to replace the capacity of the alarmed unit
- Discontinue rotation and will hold the lead/lag pattern fixed until reset
- Fast blink the DARA-4 alarm LED to signal an alarm until reset
- Continue to include the unit alarm message on the LCD until reset
- Hold the DARA-4 alarm relay energized until reset
- Continue to bring additional standby units if additional units are detected

If no standby units are available, the DARA-4 will:

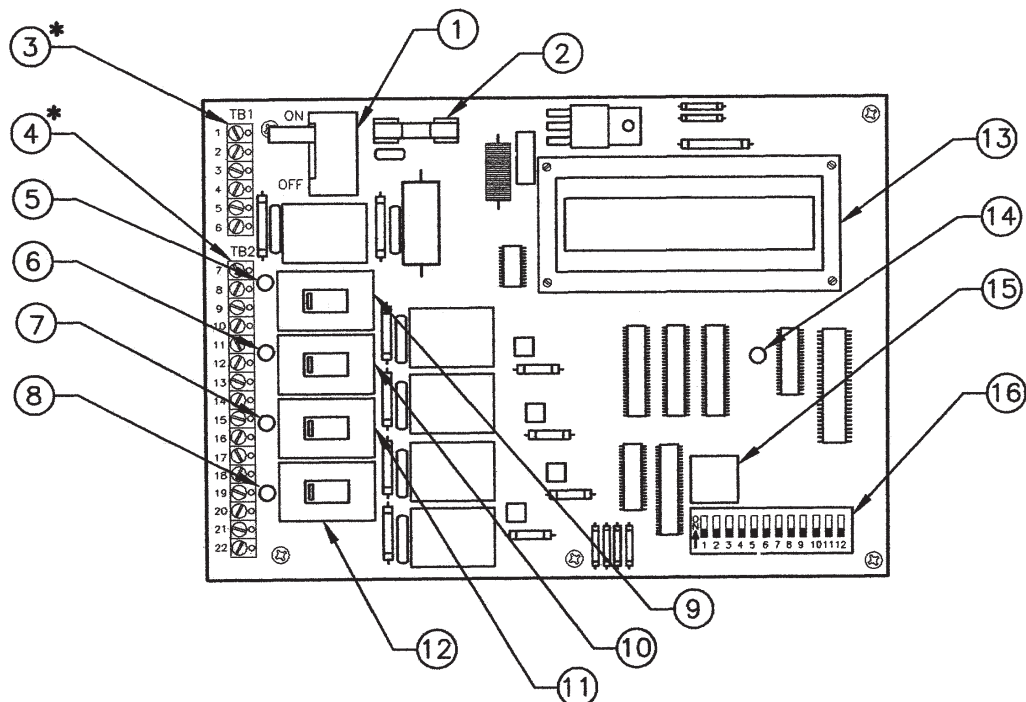
- Allow the alarmed unit to continue operation as if it had no alarm
- Discontinue rotation and will hold the lead/lag pattern fixed until reset
- Fast blink the DARA-4 alarm LED to signal an alarm until reset
- Continue to include the unit alarm message on the LCD until reset
- Hold the DARA-4 alarm relay energized until reset

After the alarm cause has been investigated and corrected, the DARA-4 panel must receive a power Off/On reset. This is a **manual reset**. Once reset, the DARA-4 panel will clear all history, alarms and rotation timing, proceed through its self-test and start routine normal operation. After normal operation has resumed, the Advance Rotation push-button can be used to select the initial rotation pattern.

2.0 Design Features

- 24 VAC Power Input
- 16 Character Liquid Crystal Display
- Status and Alarm Cue Lights
- Power On/Off Slide Switch
- Four (4) Control Relays for Four (4) Dry Contact Outputs
- One Summary Alarm Contact
- Rotation Pattern Selection Push-button
- Four (4) Alarm Input Dry Contacts
- Four (4) Manual Bypass Switches for 4 Units
- Program Switches for:
 - Unit Rotation Schedule
 - Number of Units Connected to DARA-4
 - Number of Standby Units
 - Lead/Lag Control Sequence
- Self-Test Diagnostics at Power On
- Manual Diagnostic Tests
- On Board Screw Terminal for Wiring Connections

2.1 Panel Schematic



2.2 Drawing Legend

LEGEND

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	ON/OFF SWITCH	9	UNIT 1 MANUAL BYPASS SWITCH
2	PCB FUSE	10	UNIT 2 MANUAL BYPASS SWITCH
3	WIRING TERMINAL TB1 *	11	UNIT 3 MANUAL BYPASS SWITCH
4	WIRING TERMINAL TB2 *	12	UNIT 4 MANUAL BYPASS SWITCH
5	UNIT 1 ON LED	13	LCD SCREEN
6	UNIT 2 ON LED	14	ALARM LED
7	UNIT 3 ON LED	15	ADVANCE ROTATION PUSH BUTTON
8	UNIT 4 ON LED	16	PROGRAM SWITCH

*** NOTE:**

SEE WIRING SECTION FOR TB1 & TB2
TERMINAL PIN IDENTIFICATION AND WIRING DETAILS.

3.0 Installation/Wiring

3.1 Location Considerations – Locate the DARA-4 panel as follows:

- On a partitioning interior wall and approximately 5 feet (1.5 meters) above the floor
- Away from direct sunlight or radiant heat
- Away from steam or water pipes, warm air stacks, unheated/uncooled areas, monitors or sources of electrical interference

Caution: Shock Hazard –Disconnect power before wiring connections are made to prevent electrical shock or possible damage to equipment

Caution: Before applying power, make all wiring connections and check the connections. Short circuit or improperly connected wires may result in permanent damage to the unit

The DARA-4 panel requires 24 VAC power. Do not power the DARA-4 panel from a cooling unit. A separate power source is required

3.2 Installation – To install and wire the DARA-4 panel, follow the listed steps:

- Use a Phillips screwdriver to loosen the side screws of the panel
- Remove the cover. Place the panel against the wall and mark the location of the mounting holes (see figure 3.1)
- Use plastic anchors and screws for mounting on drywall or plaster
- Connect field provided color coded wiring to terminal (TB2) from cooling units. Refer to the wiring terminal connections and wiring diagram for specific control (Mini DAP-II, Mini DAP-III, DAP-II, or DAP-III)

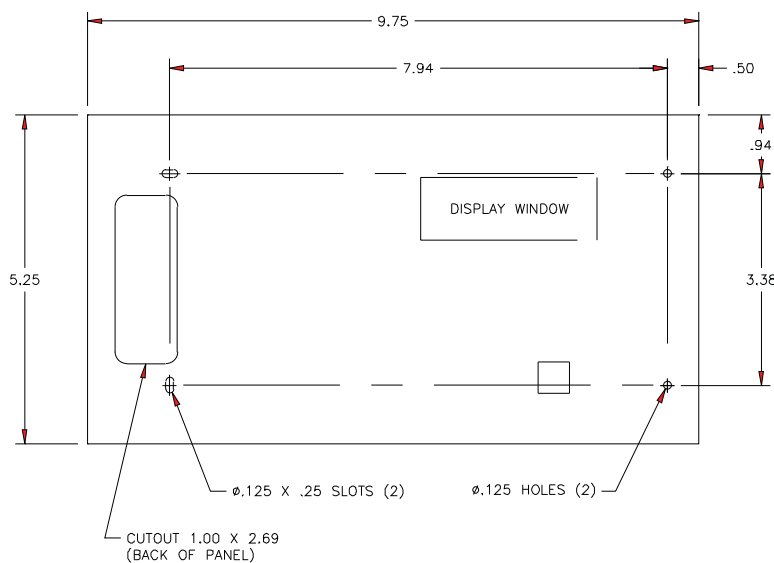


Figure 3.1

3.3 Terminal Connections

IMPORTANT NOTE:

The wiring between DARA-4 and cooling units must be at least 18 AWG and meet the local electrical codes.

Wiring Terminal Connections

TB1

Power

TB1-1	24 VAC Power In	(Power for DARA-4 circuit board)
TB1-2	24 VAC Common	(from transformer)
TB1-3	Earth Ground	

Alarm Signal Relay

TB1-4	Alarm Relay	Normally Closed	(Connect to BAS, Alarm Device, etc.)
TB1-5	Alarm Relay	Common	(Connect to BAS, Alarm Device, etc.)
TB1-6	Alarm Relay	Normally Open	(Connect to BAS, Alarm Device, etc.)

TB2

To Cooling Unit 1

TB2-7	Relay Common	(To Remote Shutdown Connection 1 at Cooling Unit)
TB2-8	Relay Normally Open	(To Remote Shutdown Connection 2 at Cooling Unit)
TB2-9	OPTO Signal Out	(To Cooling Unit Alarm Relay Common)
TB2-10	OPTO Signal In	(From Cooling Unit Alarm Relay Normally Open)

To Cooling Unit 2

TB2-11	Relay Common	(To Remote Shutdown Connection 1 at Cooling Unit)
TB2-12	Relay Normally Open	(To Remote Shutdown Connection 2 at Cooling Unit)
TB2-13	OPTO Signal Out	(To Cooling Unit Alarm Relay Common)
TB2-14	OPTO Signal In	(From Cooling Unit Alarm Relay Normally Open)

To Cooling Unit 3

TB2-15	Relay Common	(To Remote Shutdown Connection 1 at Cooling Unit)
TB2-16	Relay Normally Open	(To Remote Shutdown Connection 2 at Cooling Unit)
TB2-17	OPTO Signal Out	(To Cooling Unit Alarm Relay Common)
TB2-18	OPTO Signal In	(From Cooling Unit Alarm Relay Normally Open)

To Cooling Unit 4

TB2-19	Relay Common	(To Remote Shutdown Connection 1 at Cooling Unit)
TB2-20	Relay Normally Open	(To Remote Shutdown Connection 2 at Cooling Unit)
TB2-21	OPTO Signal Out	(To Cooling Unit Alarm Relay Common)
TB2-22	OPTO Signal In	(From Cooling Unit Alarm Relay Normally Open)

4.0 Panel Functions

4.1 Routine Status Display

Status messages are continually scrolled on the front panel of the 16 character liquid crystal display (LCD). A trim pot located on the circuit board by the LCD is provided to make contrast adjustments. All information is routinely reported on the DARA-4 display as follows:

Routine Status Messages

Message	Meaning of Message
UNIT 1 ON LINE	Active unit currently in use (Unit Status)
UNIT 2 ON LINE	Active unit currently in use (Unit Status)
UNIT 3 STANDBY	Available to become active on alarm or rotation (Unit Status)
UNIT 4 STANDBY	Available to become active on alarm or rotation (Unit Status)
PATTERN 1-2-3-4	Reports the unit rotation pattern currently in use
ROTATES xxD xxH	Days and minutes countdown time to next rotation
ROTATES xxH xxM	Hours and minutes countdown time to next rotation
NO ROTATION	Rotation is disabled at Program Switches 1, 2, & 3 If system has an alarm, rotation schedule stops
UNITS STAGING ON	This message appears only one time after the completion of the self-test diagnostics during start up

Cooling units are staged on at the rate set on switches 10 and 11 of the program switch until all designated online units are in use

Alarm Message

Message	Meaning of Message
UNIT 1 ALARM	Unit has alarm but still allowed to stay online active
UNIT 2 ALARM	Unit has alarm but still allowed to stay online active
	Or
UNIT 1 OFF ALARM	Unit has alarm and will be held off until DARA-4 panel is reset
UNIT 2 OFF ALARM	Unit has alarm and will be held off until DARA-4 panel is reset
	Or
MANUAL BYPASS 1	Bypass switch of unit 1 is set to bypass

4.2 Status and Alarm Cue Lights

The DARA-4 panel also has 5 red LED cue lights to further signal status and alarm conditions

Status and Alarm Cue Lights

Cue Light	Mode	Meaning of Cue Light
Alarm Status	Off	Off = No Alarms in routine run mode
	Fast Blink	2 blinks per second - receiving current alarm. The alarm LED will always fast blink to draw attention to DARA-4 in case of an alarm. A message on the LCD will also report the alarm
	Slow Blink	1 blink per second - one or more bypass switches is set to bypass or DARA-4 is in diagnostic mode
Unit 1 Status	Off	Cooling Unit Relay 1 Is Off
	On	Cooling Unit Relay 1 Is On
Unit 2 Status	Off	Cooling Unit Relay 2 Is Off
	On	Cooling Unit Relay 2 Is On
Unit 3 Status	Off	Cooling Unit Relay 3 Is Off
	On	Cooling Unit Relay 3 Is On
Unit 4 Status	Off	Cooling Unit Relay 4 Is Off
	On	Cooling Unit Relay 4 Is On

4.3 Power On/Off Slide Switch

The Main Power On/Off Switch for the DARA-4 panel is located inside under the cover of the enclosure. The switch controls 24 VAC power to the circuit board.

4.4 Control Relays

Four relays are used to turn power on and off to enable or disable each cooling unit. All four cooling unit relays are 10 amp capacity with Normally Open and Common Contacts.

4.5 Summary Alarm Contacts

The DARA-4 also has a standard Alarm Relay with Normally Open, Common, and Normally Closed Contacts. When an alarm condition causes the Alarm Relay to be energized a red LED alarm cue light will blink to signal the presence of any detected alarm condition. It stays energized until the panel receives a power Off/On reset.

4.6 Advance Rotation Selection Push-button

When the DARA-4 panel is first powered on and finished with its start-up self-tests, it will always begin with rotation pattern #1. To select a different rotation pattern the "Advance Rotation" push-button is used. Each time the Advance Rotation button is pushed, the next rotation pattern will be displayed on the LCD. Five seconds after the last button press, the DARA-4 will begin using the last pattern displayed. Rotation interval timing is restarted fresh each time a new pattern is selected.

All possible rotation patterns are shown in the following chart. Each number refers to the cooling unit number:

1-Cooling Unit 1 2-Cooling Unit 2 3-Cooling Unit 3 4-Cooling Unit 4

Active online units are indicated with a **bold** number. Standby unit numbers are not in bold. The standby designation means that the cooling unit is currently off but available in the case of alarm.

Rotation Patterns

	Pattern 1	Pattern 2	Pattern 3	Pattern 4
2 Units				
1 in standby	1 > 2	2 > 1	n/a	n/a
3 Units				
1 in Standby	1 > 2 > 3	2 > 3 > 1	3 > 1 > 2	n/a
2 in Standby	1 > 2 > 3	2 > 3 > 1	3 > 1 > 2	n/a
4 Units				
1 in Standby	1 > 2 > 3 > 4	2 > 3 > 4 > 1	3 > 4 > 1 > 2	4 > 1 > 2 > 3
2 in Standby	1 > 2 > 3 > 4	2 > 3 > 4 > 1	3 > 4 > 1 > 2	4 > 1 > 2 > 3
3 in Standby	1 > 2 > 3 > 4	2 > 3 > 4 > 1	3 > 4 > 1 > 2	4 > 1 > 2 > 3

If program switches 1, 2, & 3 are set to "No Rotation" then units remain in a fixed (unchanged) lead/lag pattern. The Advance Rotation push-button can still be used to cycle through the rotation patterns to select the desired fixed pattern. The lead/lag pattern will remain unchanged indefinitely until the pattern is manually advanced.

4.7 Alarm Input Signals

The DARA-4 panel accepts up to four alarm input dry contacts from the Alarm Relay at each cooling Unit. These must be dry set of contacts. The DARA-4 panel will indicate alarm status based on the conditions of the alarm input signals (Open Contact = no alarm: Close Contact = active current alarm).

When alarms are detected, the DARA-4 alarm auto-changeover function can systematically bring online an equal number of designated standby units to make up for any lost capacity until all standby units are in use. Specific Alarm & Standby Procedure options are set on Program Switches 8 and 9. The options are: Alarmed Units Always Turned Off, Alarmed Units Always Left On, and Alarmed Units Conditional (See Section 1.0, Specific Alarm and Standby Procedures for more details).

4.8 Manual Bypass Slide Switches

The DARA-4 panel is equipped with 4 manual bypass switches to override the DARA-4 panel and manually turn on each corresponding Cooling unit. The DARA-4 monitors the status of the bypass switches and if one or more of the switches is set to the bypass position the DARA-4 Alarm LED is fast blinked and the LCD will display the message MANUAL BYPASS. However, this condition does not activate the DARA-4 alarm relay and no changes are made to the standard lead/lag rotation and alarm auto-changeover sequence.

4.9 Program DIP Switch

A 12-pole DIP switch is used to select and set the following programming options:

Program Switch Functions		
Switch No.	Function	Settings
1, 2, & 3	Rotation Time Interval	4 hr, 8 hr, 12 hr, 24 hr, 7 day, 14 day, 30 day, or No Rotation
4 & 5	Number of Cooling Units Connected	2, 3, or 4
6 & 7	Number of Cooling Units in Standby	1, 2, or 3
8 & 9	Alarm & Standby Procedure	Alarmed Units Always Turned Off Alarmed Units Always Left On Alarmed Units Conditional
10 & 11	Changeover time delay selection	5 sec, 1 min, 3 min or 5 min
12	Not Used	Future Option

5.0 Program DIP Switch Settings

Program Switch Uses

Switch Number	Use
1,2 and 3	Rotation Time Interval
4 and 5	Number of Cooling Units Connected
6 and 7	Number of Cooling Units in Standby
8 and 9	Alarm and Standby Procedures
10 and 11	Changeover Time Delay
12	Not Currently specified

Switches 1, 2, and 3 - Rotation Time Interval

Switches (1, 2, and 3) set the rotation time interval to every 4 hr, 8 hr, 12 hr, 24 hr, 7 day, 14 day, 30 day or No Rotation

Rotation Time	Switch No. 1	Switch No. 2	Switch No. 3
4 Hours	OFF	OFF	OFF
8 Hours	ON	OFF	OFF
12 Hours	OFF	ON	OFF
24 Hours	OFF	OFF	ON
7 Days	ON	ON	OFF
14 Days	OFF	ON	ON
30 Days	ON	OFF	ON
No Rotation	ON	ON	ON

Switches 4 and 5 - Number of Cooling Units Connected

Switches 4 and 5 set the total number of cooling units controlled by the DARA-4 panel to 2, 3, or 4

Number of Units	Switch No. 4	Switch No. 5
2	OFF	OFF
3	ON	OFF
4	OFF	ON

Switches 6 and 7 - Number of Cooling Units In Standby

Switches 6 and 7 set the total number of HVAC units to be held off line in standby to 0, 1, 2, or 3

Number of Units in Standby	Switch No. 6	Switch No 7
0	OFF	OFF
1	ON	OFF
2	OFF	ON
3	ON	ON

Switches 8 and 9 - Alarm and Standby Procedure

Switches 8 and 9 set the Alarm & Standby Procedure to be used

There are three options available:

1) **Alarmed Units Always Turned Off**

Always discontinue using and turn off any unit with an alarm.

If available, bring 1 standby unit online for each alarmed unit.

2) Alarmed Units Always Left On

Always keep units with alarms online and continue to use them as if they had no alarm.
If available, bring 1 standby unit on line for each alarmed unit.

3) Alarmed Units Conditional

If standby units are available then discontinue using and turn off any unit with an alarm. Bring 1 standby unit on line for each alarmed unit.

- OR -

If no standby units are available then keep the alarmed unit online and continue to use it as if it had no alarm

Alarm and Standby Procedure	Switch No. 8	Switch No. 9
Alarmed Units Always Turned Off	OFF	OFF
Alarmed Units Always Left On	ON	OFF
Alarmed Units Conditional	OFF	ON

Switches 10 and 11 - Change-Over Time Delay

Switches 10 and 11 are used to select the time delay of the unit's switch over on alarms.

Four options are available (the default setting is 5 seconds)

Time Delay Setting	Switch No. 10	Switch No. 11
5 Seconds	OFF	OFF
1 Minute	ON	OFF
3 Minutes	OFF	ON
5 Minutes	ON	ON

Switch 12 - Not Used (Reserved for future options)

6.0 Self-Test and Manual Diagnostics

6.1 Self-Test Diagnostic Program

Every time the DARA-4 panel is turned on, it automatically performs a sequence of diagnostics tests, which should all report "PASS." The following functions are checked and their status is reported:

Self-Test Diagnostic Program

Message	Meaning of message
DATA AIRE, INC	©2003 Data Aire, Inc., Orange, California 92865
D A R A - 4	Data Aire Relay Auto changeover – 4
P/N 160-200-330	Data Aire Part Number
VERSION 1.00	Software revision number
FLASH: PASS	CPU reads EPROM and matches check sum
PROGRAM: PASS	Program Switches have no incompatible or invalid settings
ADVANCE: PASS	Advance Rotation push-button in is in the up (off) position
STARTUP COMPLETE	Unit will start routine operation at the end of this

If any of the tests should fail, the testing will stop at that test and the system will not resume testing and will not continue into normal operation mode. The LCD will continue to report the failed test and the Alarm LED will fast blink to signal the failure until the panel has a manual power Off/On reset. Any failure should be further investigated by restarting the system a second time to see if the failure persists. In some unusual cases the failure may be corrected by the power Off reset. Any continuous failure should receive service attention.

6.2 Manual Diagnostic Tests

The manual diagnostic test mode allows the DARA-4 relays, optos, and other functions to be tested one at a time. Test status is reported on the LCD. Each press of the Advance Rotation push-button will sequentially cycle through each manual diagnostic test one at a time.

To enter diagnostic mode, power the DARA-4 OFF. Hold the Advance Rotation pushbutton down and turn power back ON. Release the Advance Rotation pushbutton. After completing start-up self-test the LCD will report TEST MODE READY and the Advance Rotation pushbutton can be used to cycle through each test. The LCD will display a message about each test. The red Alarm LED cue light will continue to fast blink during diagnostic test mode. To exit diagnostic test mode and resume normal run mode operation turn the DARA-4 panel power Off and back On.

Manual Diagnostic Tests

<u>Message</u>	<u>Meaning of Message</u>
Test Mode Ready	The automatic Power-On Self-Test has been completed successfully when the Test Mode Ready message is displayed. Press the Advance Rotation pushbutton to test the pushbutton and to cycle through each test.
	If the Advance button is not functional, the test will not advance. If the Advance button does not respond, press the pushbutton again several times to confirm free movement and then power DARA-4 OFF and back ON to restart the test.
12_456_8910__12	Record the current Program Switch settings before proceeding with this test to ensure the original setting can be restored after testing.

Original settings:

1 2 3 4 5 6 7 8 9 10 11 12

— — — — — — — — — — — — — — — —

This test reports the ON and OFF setting of each of the Program

Manual Diagnostic Tests - *continued*

<u>Message</u>	<u>Meaning of Message</u>
	Switches. A displayed number indicates that switch is set in the ON position. If no number is displayed it indicates the switch is set in the OFF position. Cycle each switch ON and OFF to verify both positions are operable.
Bypass Switch ON	Turn each Bypass Switch On then Off one at a time. The LCD will report Bypass Switch ON or OFF. Continuity through bypass switch and the Cooling unit relay contacts can also be measured but the cooling unit wiring must be disconnected.
OPTOS ON 1 2 ___ 4	The displayed OPTO number means a 24 VAC signal is detected at the opto-coupler terminals. If a number is not displayed it indicates that no signal is detected at that OPTO. Jumper across each pair of OPTO terminals to verify both the ON and OFF OPTO function.
Relay ON Alarm	The alarm relay is being held energized. With wiring disconnected, verify continuity through the contacts of the relay. Verify both the open and closed contact condition
Relay ON HVAC 1	The Relay for Cooling Unit 1 is being held energized. The cue light for cooling 1 will also be held on. With the wiring disconnected, verify both the open and closed contact condition and the cue light ON/OFF function
Relay ON HVAC 2	The Relay for Cooling Unit 2 is being held energized. The cue light for cooling 2 will also be held on. With the wiring disconnected, verify both the open and closed contact condition and the cue light On/OFF function
Relay ON HVAC 3	The Relay for Cooling Unit 3 is being held energized. The cue light for cooling 3 will also be held on. With the wiring disconnected, verify both the open and closed contact condition and the cue light ON/OFF function
Relay On HVAC 4	The Relay for Cooling Unit 4 is being held energized. The cue light for cooling 4 will also be held on. With the wiring disconnected, verify both the open and closed contact condition and the cue light ON/OFF function
Test Mode Ready	Each push of the Advance Rotation button will continue to cycle through each diagnostic mode test. To exit the diagnostic test mode and resume normal run mode operation, turn DARA-4 panel power OFF and back ON

7.0 Specifications

Power Requirements	24 VAC @ 50/60 Hz, 350 mA
Remote Alarm Contacts	10 Amps maximum @ 24 VAC
Power supply Fuse F1	2 Amps @ 250 V, 5X20 mm fast- acting miniature Fuse
Control Output Contacts To unit	10 Amp @ 24 VAC, 5X20 mm fast- acting miniature Fuse
Alarm Input Requirement From Unit	Dry Contacts
Connections	Miniature screw-type terminals
Wiring	18 AWG Minimum- Meet Local Electrical Code
Dimensions (L x W x H)	9.9 in. x 5.2 in. x 1. 1 in.
Shipping Weight	1.5 lbs

8.0 DARA-4 and UNIT INTERCONNECTING WIRING

8.1 Units with Mini DAP-III, DAP-II or DAP-III with network card:

The DARA-4 control contacts should be connected to Pin 1 and Pin 2 (Control Input) of TB4 of the cooling unit(s). Use unit wiring diagram to verify the wiring before making any connections. The DARA-4 is wired to put the units into STANDBY MODE without shutting down the unit's control panel.

8.2 gForce and Special Units with Plug Fans and DAP-II Control Panel - without Network Card

The DARA-4 control contacts should be connected to Pin 1 and Pin 2 (Control Input) of TB2 of the cooling unit(s). The factory installed jumper bar should be removed before the DARA-4 control contacts are connected.

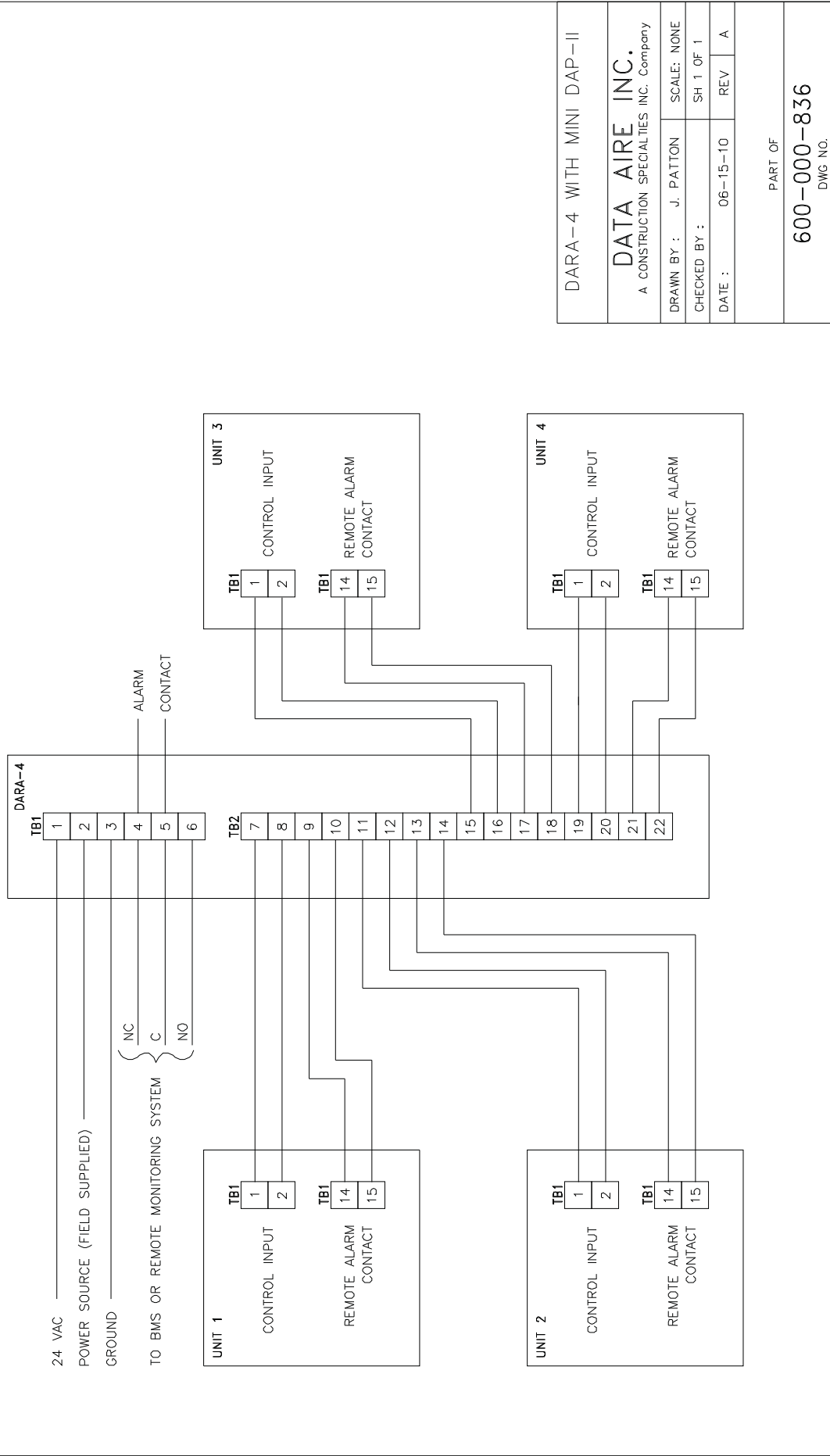
8.3 gForce and Special Units with Plug Fans and DAP-II Control Panel - with Network Card

The DARA-4 control contacts should be connected to Pin 1 and Pin 2 (Control Input) of TB5 of the cooling unit(s). Use unit wiring diagram to verify the wiring before making any connections. The DARA-4 is wired to put the units into STANDBY MODE without shutting down the unit's control panel.

8.4 Non-Data Aire Units

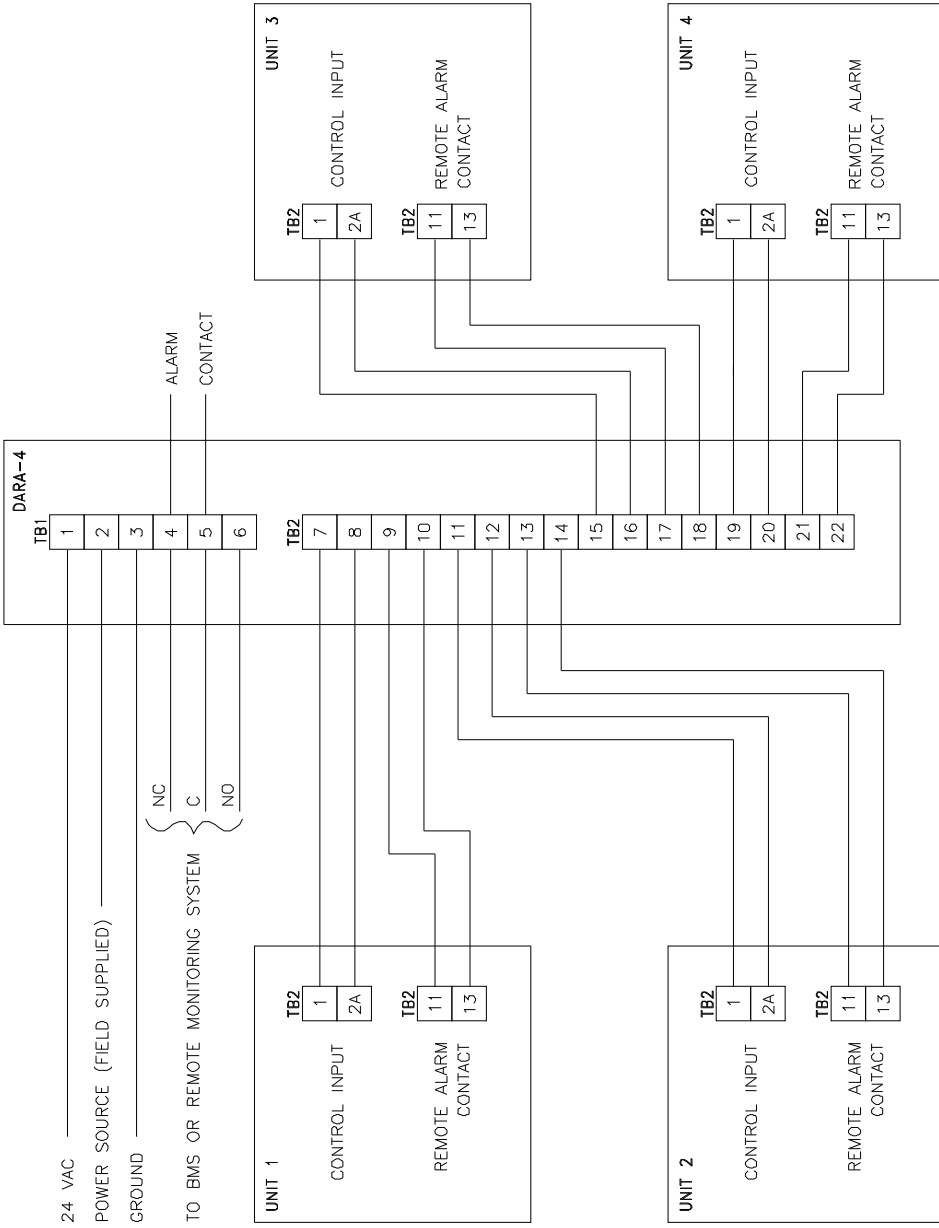
The DARA-4 control contacts should be wired to interrupt the control power circuit of the cooling units.

REV	DESCRIPTION	DATE	BY
A	REVISED & REDRAWN	07-12-10	JDP



DARA-4 WITH MINI DAP-II	
DATA AIRE INC.	
A CONSTRUCTION SPECIALTIES INC. Company	
DRAWN BY :	J. PATTON
CHECKED BY :	SCALE: NONE
DATE :	SH 1 OF 1
06-15-10	REV A
PART OF	
600-000-836	
DWG NO.	

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REVISIONS			
REV	DESCRIPTION	DATE	BY
A	REVISED & REDRAWN	07-09-10	JDP



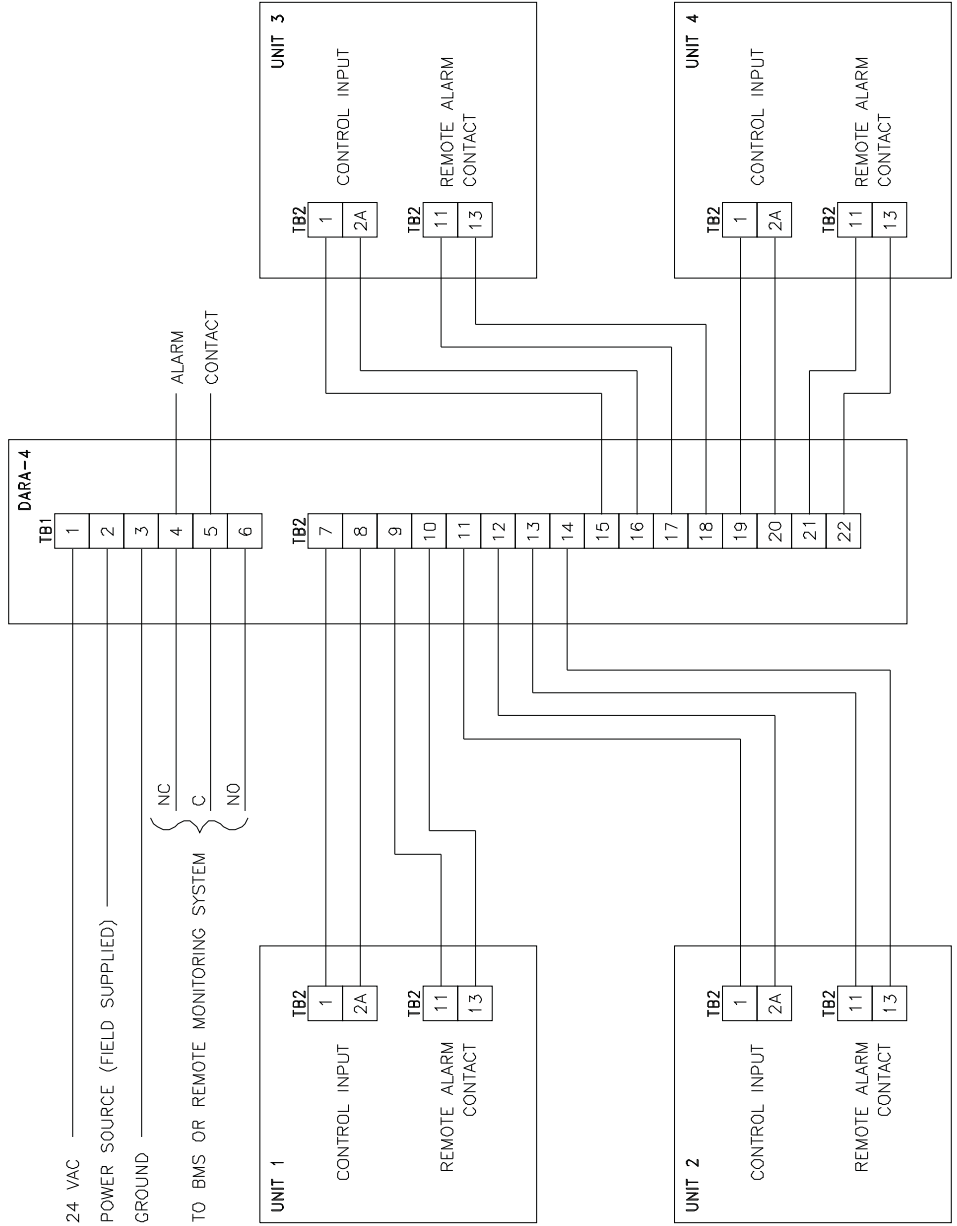
DARA-4 WITH MINI DAP-III AND NO COMMUNICATION CARD

DATA AIRE INC.
A CONSTRUCTION SPECIALTIES INC. Company

DRAWN BY : J. PATTON SCALE: NONE
 CHECKED BY : SH 1 OF 1
 DATE : 06-15-10 REV A

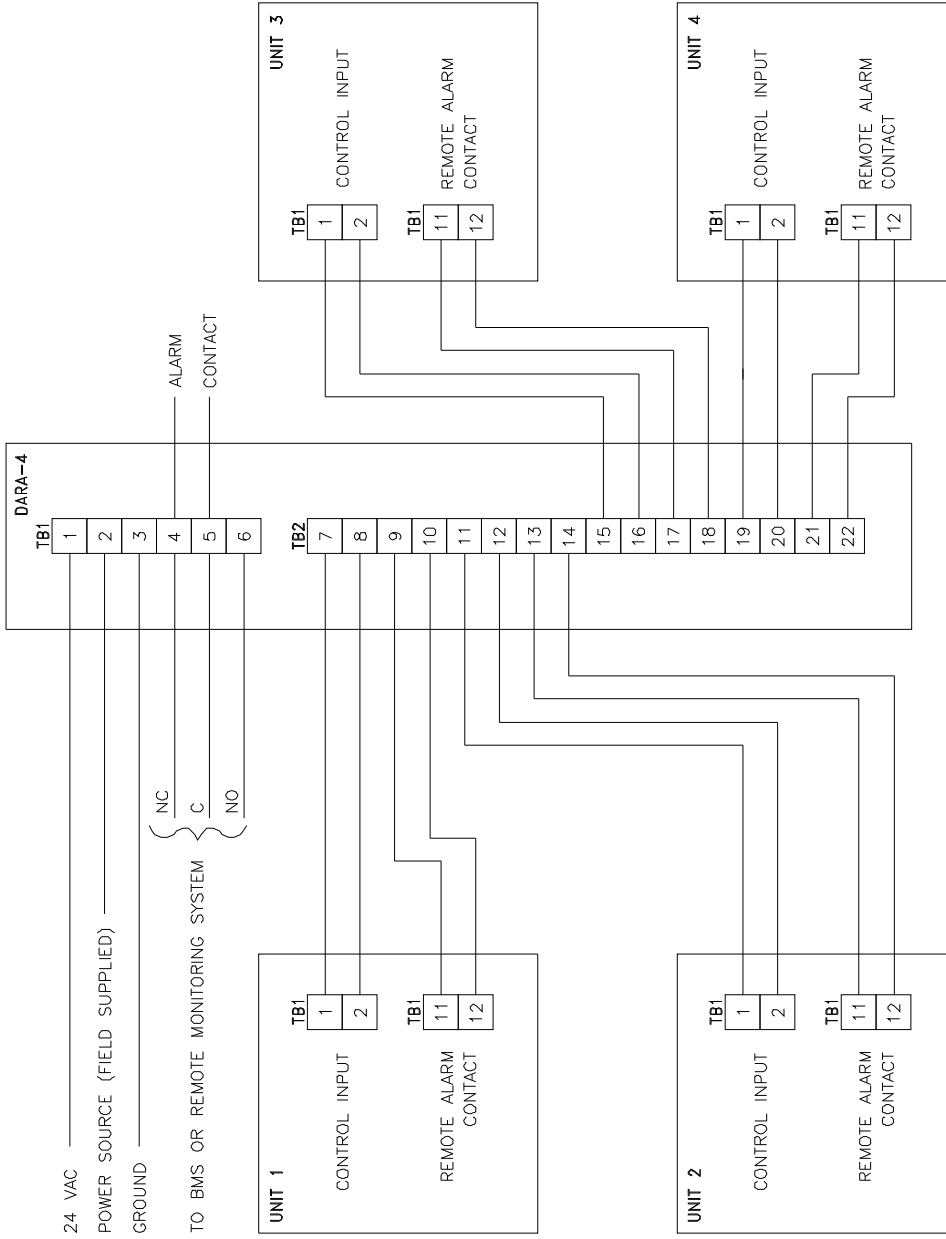
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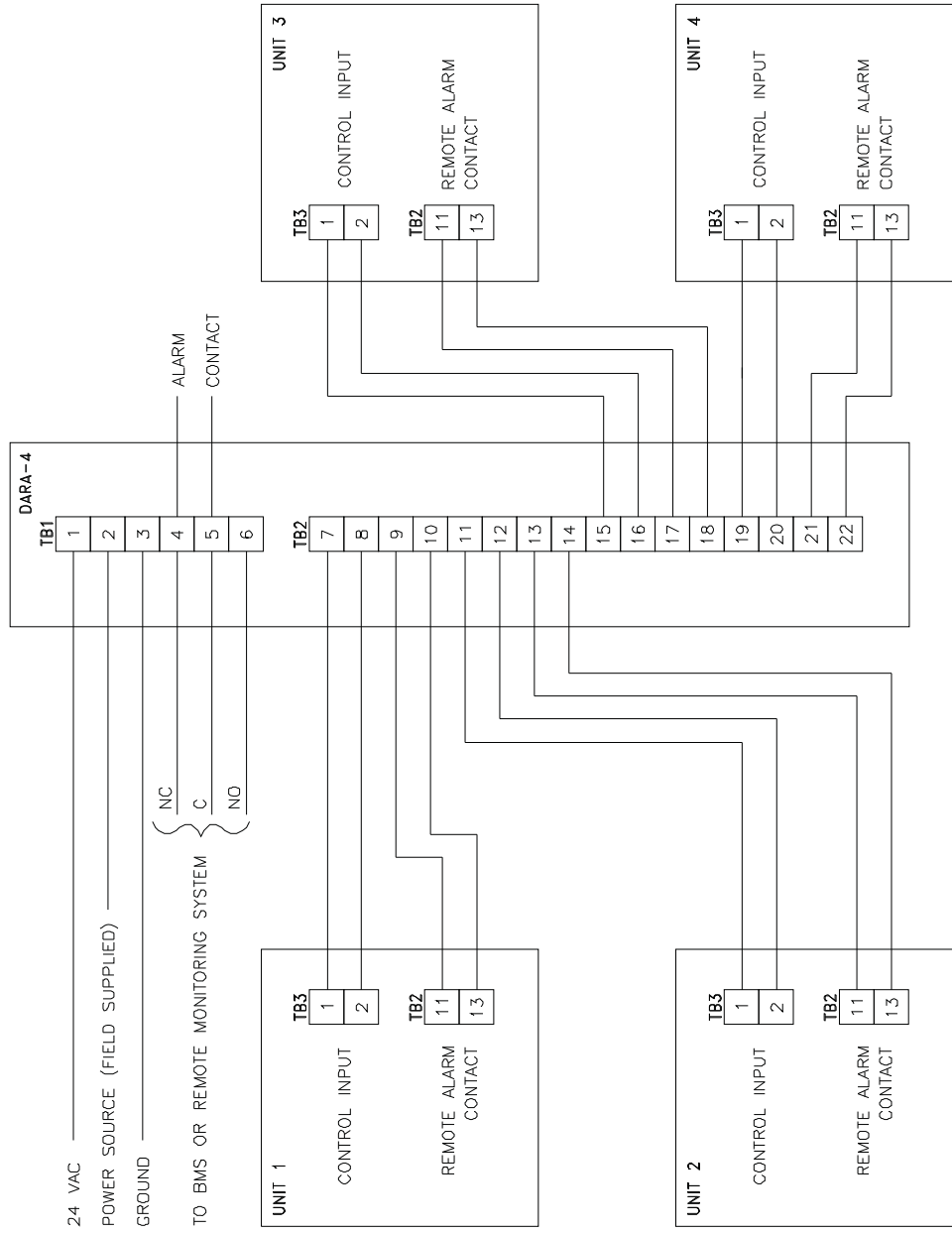
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06-15-10	REV A
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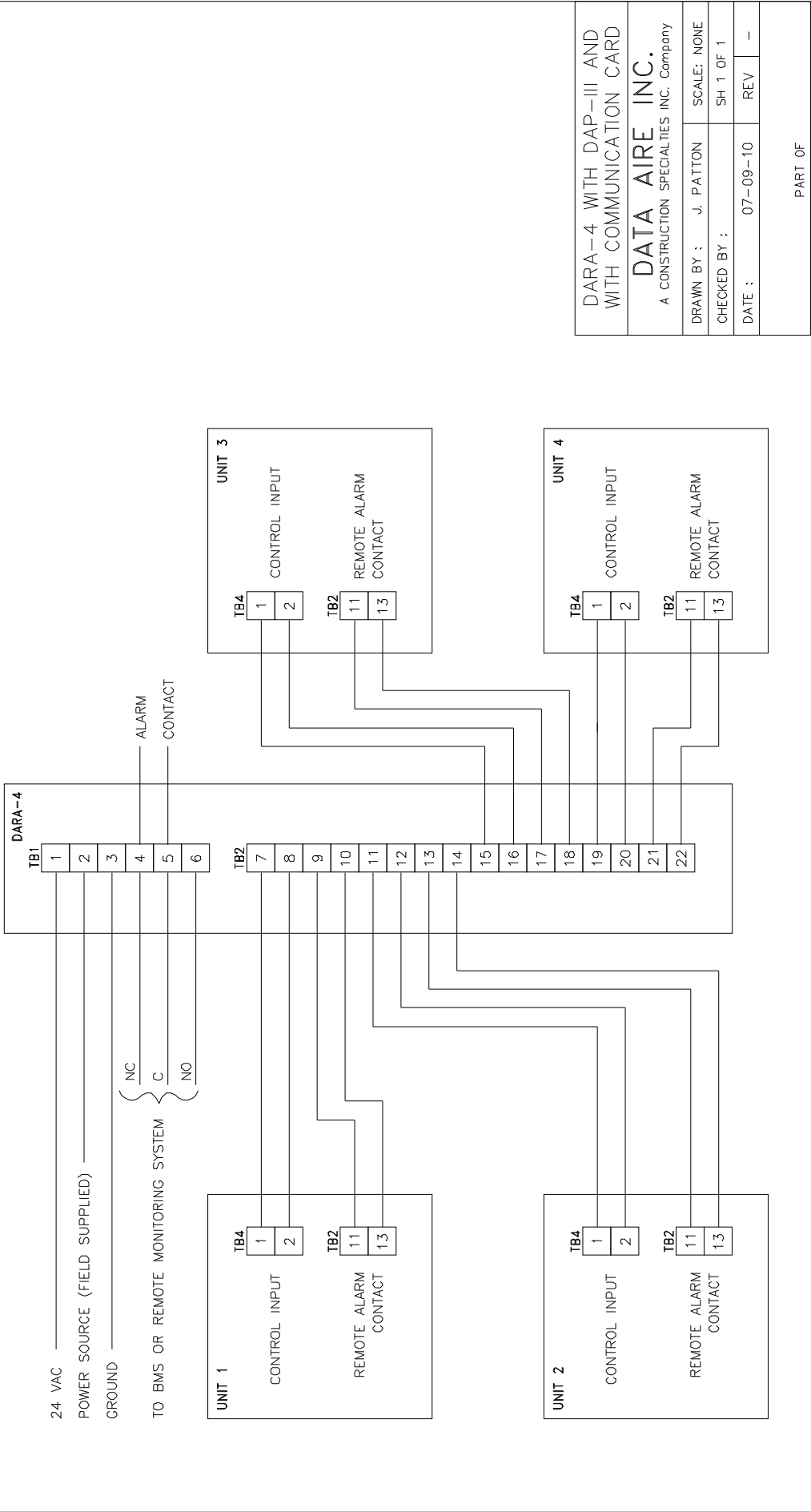
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DATA AIRE INC.	
A CONSTRUCTION SPECIALTIES INC. Company	
DRAWN BY :	J. PATTON
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06-15-10	REV A
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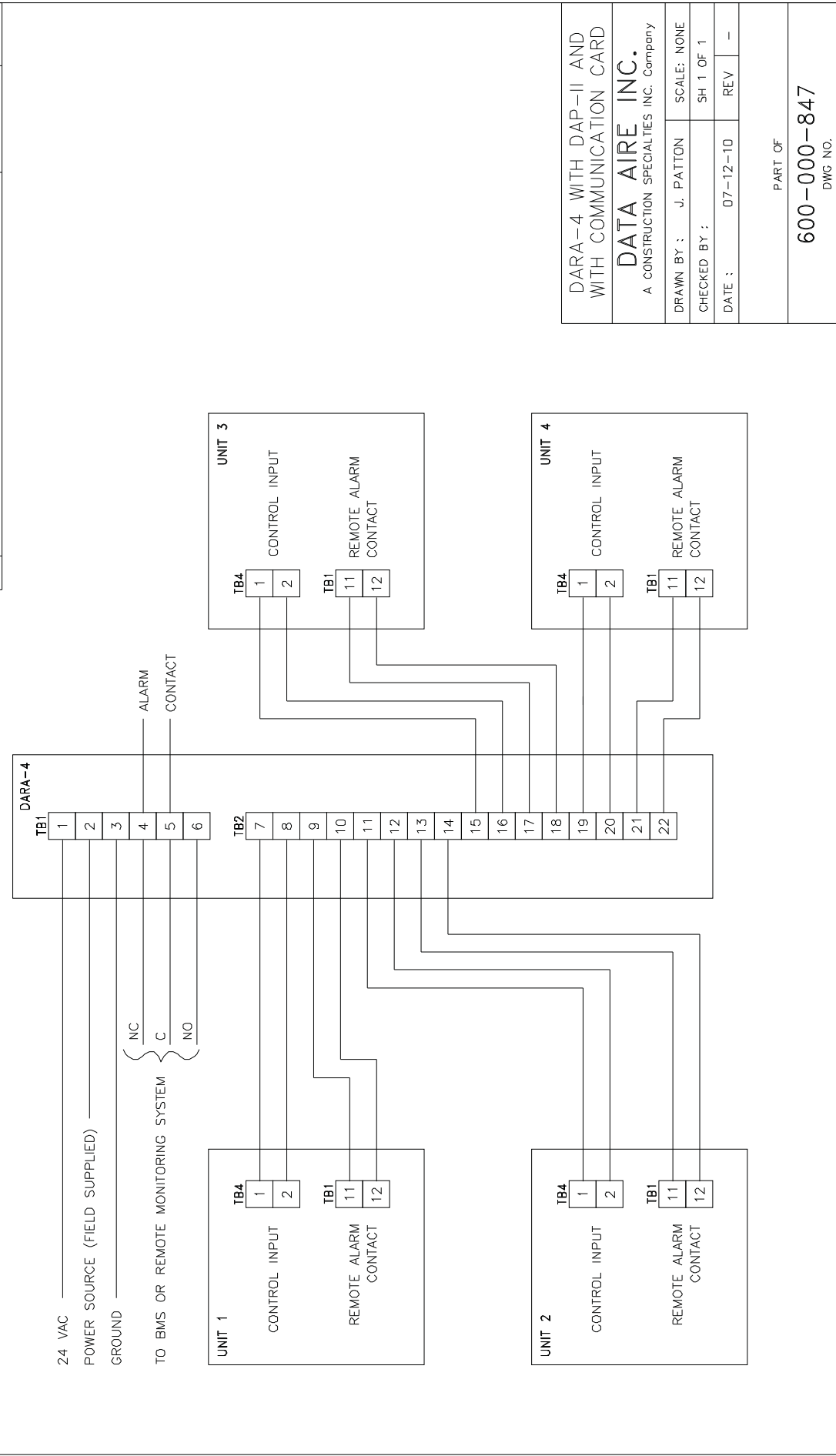
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DRAWN BY: J. PATTON	SCALE: NONE
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DATE: 07-09-10	REV: —
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DATA AIRE INC.	
A CONSTRUCTION SPECIALTIES INC. Company	
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