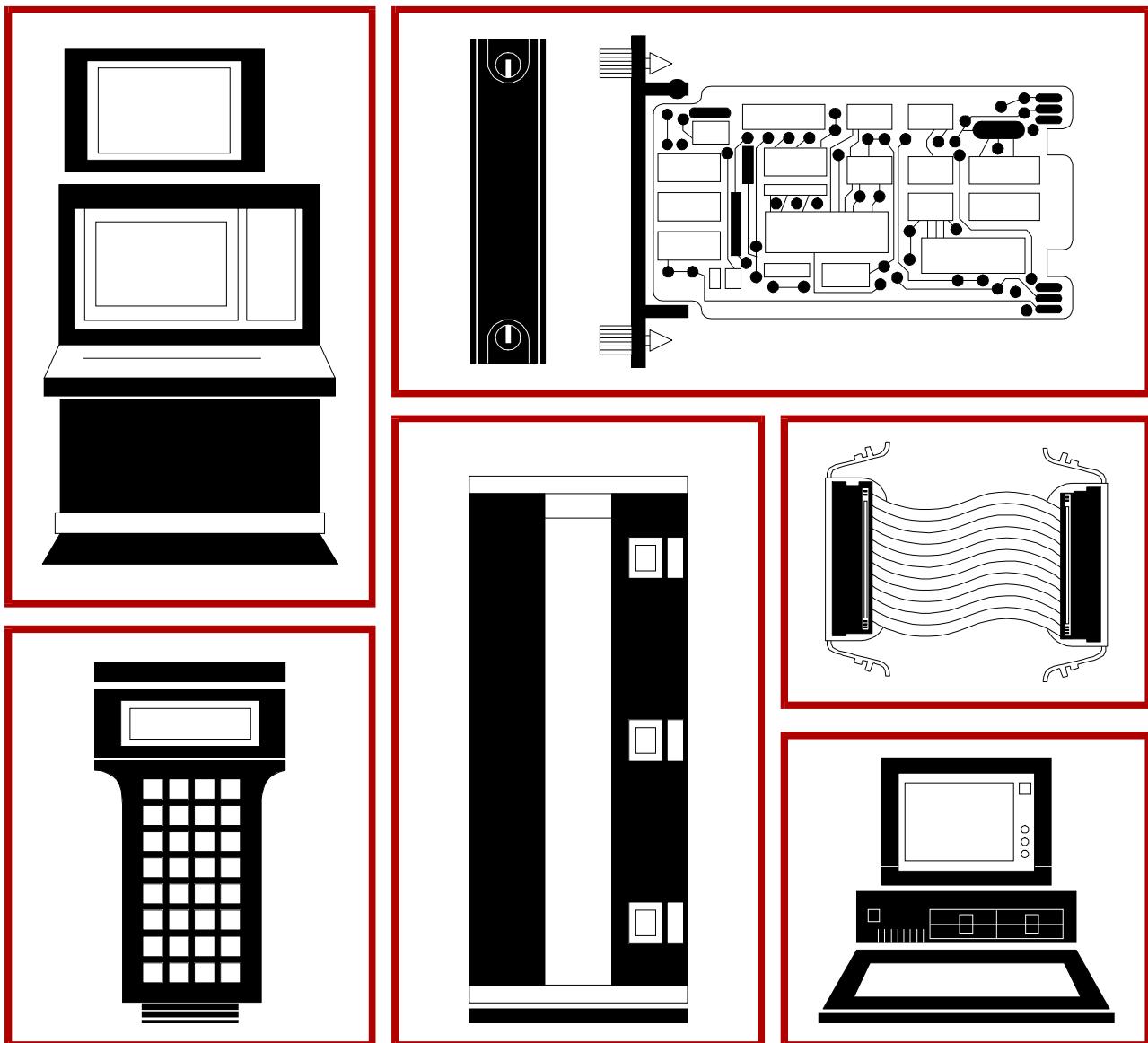


Bailey®
infi 90®

E96-438

Instruction

Analog Output Termination Module (NIAO01)



WARNING notices as used in this instruction apply to hazards or unsafe practices that could result in personal injury or death.

CAUTION notices apply to hazards or unsafe practices that could result in property damage.

NOTES highlight procedures and contain information that assists the operator in understanding the information contained in this instruction.

WARNING

INSTRUCTION MANUALS

DO NOT INSTALL, MAINTAIN, OR OPERATE THIS EQUIPMENT WITHOUT READING, UNDERSTANDING, AND FOLLOWING THE PROPER **Elsag Bailey** INSTRUCTIONS AND MANUALS; OTHERWISE, INJURY OR DAMAGE MAY RESULT.

RADIO FREQUENCY INTERFERENCE

MOST ELECTRONIC EQUIPMENT IS INFLUENCED BY RADIO FREQUENCY INTERFERENCE (RFI). CAUTION SHOULD BE EXERCISED WITH REGARD TO THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT IN THE AREA AROUND SUCH EQUIPMENT. PRUDENT PRACTICE DICTATES THAT SIGNS SHOULD BE POSTED IN THE VICINITY OF THE EQUIPMENT CAUTIONING AGAINST THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT.

POSSIBLE PROCESS UPSETS

MAINTENANCE MUST BE PERFORMED ONLY BY QUALIFIED PERSONNEL AND ONLY AFTER SECURING EQUIPMENT CONTROLLED BY THIS PRODUCT. ADJUSTING OR REMOVING THIS PRODUCT WHILE IT IS IN THE SYSTEM MAY UPSET THE PROCESS BEING CONTROLLED. SOME PROCESS UPSETS MAY CAUSE INJURY OR DAMAGE.

AVERTISSEMENT

MANUELS D'OPÉRATION

NE PAS METTRE EN PLACE, RÉPARER OU FAIRE FONCTIONNER L'ÉQUIPEMENT SANS AVOIR LU, COMPRIS ET SUIVI LES INSTRUCTIONS RÉGLEMENTAIRES DE **Elsag Bailey**. TOUTE NÉGLIGENCE À CET ÉGARD POURRAIT ÊTRE UNE CAUSE D'ACCIDENT OU DE DÉFAILLANCE DU MATÉRIEL.

PERTURBATIONS PAR FRÉQUENCE RADIO

LA PLUPART DES ÉQUIPEMENTS ÉLECTRONIQUES SONT SENSIBLES AUX PERTURBATIONS PAR FRÉQUENCE RADIO. DES PRÉCAUTIONS DEVONT ÊTRE PRISES LORS DE L'UTILISATION DU MATÉRIEL DE COMMUNICATION PORTATIF. LA PRUDENCE EXIGE QUE LES PRÉCAUTIONS À PRENDRE DANS CE CAS SOIENT SIGNALÉES AUX ENDROITS VOULUS DANS VOTRE USINE.

PERTURBATIONS DU PROCÉDÉ

L'ENTRETIEN DOIT ÊTRE ASSURÉ PAR UNE PERSONNE QUALIFIÉE EN CONSIDÉRANT L'ASPECT SÉCURITAIRE DES ÉQUIPEMENTS CONTRÔLÉS PAR CE PRODUIT. L'AJUSTEMENT ET/OU L'EXTRAC-TION DE CE PRODUIT PEUT OCCASIONNER DES À-COUPS AU PROCÉDÉ CONTRÔLE LORSQU'IL EST INSÉRÉ DANS UNE SYSTÈME ACTIF. CES À-COUPS PEUVENT ÉGALEMENT OCCASIONNER DES BLESSURES OU DES DOMMAGES MATÉREELS.

NOTICE

The information contained in this document is subject to change without notice.

Elsag Bailey, its affiliates, employees, and agents, and the authors and contributors to this publication specifically disclaim all liabilities and warranties, express and implied (including warranties of merchantability and fitness for a particular purpose), for the accuracy, currency, completeness, and/or reliability of the information contained herein and/or for the fitness for any particular use and/or for the performance of any material and/or equipment selected in whole or part with the user of/or in reliance upon information contained herein. Selection of materials and/or equipment is at the sole risk of the user of this publication.

This document contains proprietary information of Elsag Bailey, Elsag Bailey Process Automation, and is issued in strict confidence. Its use, or reproduction for use, for the reverse engineering, development or manufacture of hardware or software described herein is prohibited. No part of this document may be photocopied or reproduced without the prior written consent of Elsag Bailey.

Preface

Termination modules provide a connection from the plant equipment to the INFI 90® process modules. The NIAO01 Analog Output Termination Module provides an interface between the IMAOM01 Analog Output Module and eight analog outputs. This product instruction explains how to install and use the NIAO01 Analog Output Termination Module.

List of Effective Pages

Total number of pages in this instruction is 24, consisting of the following:

Page No.	Change Date
Preface	Original
List of Effective Pages	Original
iii through vi	Original
1-1 through 1-4	Original
2-1 through 2-7	Original
3-1	Original
4-1 through 4-2	Original
5-1	Original
A-1 through A-2	Original
Index-1	Original

When an update is received, insert the latest changed pages and dispose of the superseded pages.

NOTE: On an update page, the changed text or table is indicated by a vertical bar in the outer margin of the page adjacent to the changed area. A changed figure is indicated by a vertical bar in the outer margin next to the figure caption. The date the update was prepared will appear beside the page number.

Safety Summary

GENERAL WARNINGS	Equipment Environment All components, whether in transportation, operation or storage, must be in a noncorrosive environment.
	Electrical Shock Hazard During Maintenance Disconnect power or take precautions to insure that contact with energized parts is avoided when servicing.
SPECIFIC CAUTIONS	Remove modules (slave, master or termination) from their assigned slots before installing a cable to that slot. (p. 2-4) It is strongly recommended that all power (cabinet, I/O, etc.) be turned off before doing any termination module wiring. Failure to do so could result in equipment damage. Do not apply power until all connections are verified. (p. 2-6, 4-1, 4-2)

Sommaire de Sécurité

**AVERTISSEMENTS
D'ORDRE
GÉNÉRAL****Environnement de l'équipement**

Ne pas soumettre les composants à une atmosphère corrosive lors du transport, de l'entreposage ou l'utilisation.

Possibilité de chocs électriques durant l'entretien

Débrancher l'alimentation ou prendre les précautions pour éviter tout contact avec des composants sous tension durant l'entretien.

**ATTENTIONS
D'ORDRE
SPÉCIFIQUE**

Retirer les modules (asservi, maître ou carte de raccordement) de leur position assignée avant d'installer un câble à cette position. (p. 2-4)

Il est fortement recommandé que toutes les alimentations (armoire, E/S, etc.) soient coupées avant d'effectuer quelque raccord que ce soit sur un carte de raccordement. Un manquement à ces instructions pourrait causer des dommage à l'équipement. Ne pas rebrancher les alimentations avant d'avoir vérifié tous les raccordements. (p. 2-6, 4-1, 4-2)

Table of Contents

	<i>Page</i>
SECTION 1 - INTRODUCTION.....	1-1
OVERVIEW	1-1
INTENDED USER.....	1-1
MODULE DESCRIPTION	1-2
INSTRUCTION CONTENT	1-2
HOW TO USE THIS MANUAL	1-2
REFERENCE DOCUMENTS.....	1-2
GLOSSARY OF TERMS AND ABBREVIATIONS	1-3
NOMENCLATURE	1-3
SPECIFICATIONS.....	1-3
SECTION 2 - INSTALLATION.....	2-1
INTRODUCTION.....	2-1
SPECIAL HANDLING	2-1
UNPACKING AND INSPECTION	2-2
SETUP/PHYSICAL INSTALLATION	2-2
Fuse Installation	2-2
Dipswitch Configuration	2-3
Cabling Connections	2-3
Cable Installation.....	2-4
NKTMO1 Cable.....	2-4
NKTU02 and NKTU12 Cables.....	2-5
Installing the Termination Module.....	2-5
Terminal Wiring	2-6
SECTION 3 - MAINTENANCE.....	3-1
INTRODUCTION.....	3-1
MAINTENANCE SCHEDULE	3-1
SECTION 4 - REPAIR/REPLACEMENT PROCEDURES	4-1
INTRODUCTION.....	4-1
MODULE REPLACEMENT PROCEDURES	4-1
FUSE REPLACEMENT PROCEDURES	4-2
SECTION 5 - SUPPORT SERVICES.....	5-1
INTRODUCTION.....	5-1
REPLACEMENT PARTS AND ORDERING INFORMATION	5-1
TRAINING	5-1
TECHNICAL DOCUMENTATION	5-1
APPENDIX A - IMAOM01 ANALOG OUTPUT MODULE	A-1
INTRODUCTION.....	A-1

List of Figures

<i>No.</i>	<i>Title</i>	<i>Page</i>
1-1.	Example NIAO01 Termination Module Application	1-1
2-1.	NIAO01 Termination Module Layout	2-2
2-2.	Cable Connections.....	2-4
2-3.	NIAO01 Termination Module Terminal Assignments	2-7
2-4.	Output Termination Example	2-7
A-1.	Analog Output Module Layout	A-1

List of Tables

<i>No.</i>	<i>Title</i>	<i>Page</i>
1-1.	Reference Documents	1-2
1-2.	Glossary of Terms and Abbreviations	1-3
1-3.	Nomenclature.....	1-3
1-4.	NIAO01 Termination Module Specifications	1-4
2-1.	NIAO01 Termination Module Dipswitch Settings	2-3
2-2.	NIAO01 Termination Module Cable Applications	2-4
3-1.	Maintenance Schedule.....	3-1
5-1.	Spare Parts List	5-1
A-1.	Example AOM Module Address Switch Settings (S2)	A-2
A-2.	Jumper Settings	A-2

SECTION 1 - INTRODUCTION

OVERVIEW

The NIAO01 Analog Output Termination Module (IAO) is used in conjunction with the IMAOM01 Analog Output Module (AOM). The IAO termination module outputs eight channels of analog signals from the AOM module to field devices such as recorders, indicators, or any four to 20 milliamp, one to five VDC or zero to ten VDC devices. A field device may be powered from the termination module. Figure 1-1 shows an example IAO termination module application.

INTENDED USER

System engineers and technicians should read this manual before installing and placing the IAO termination module into operation. Do **not** put the IAO termination module into operation until this instruction is read and understood.

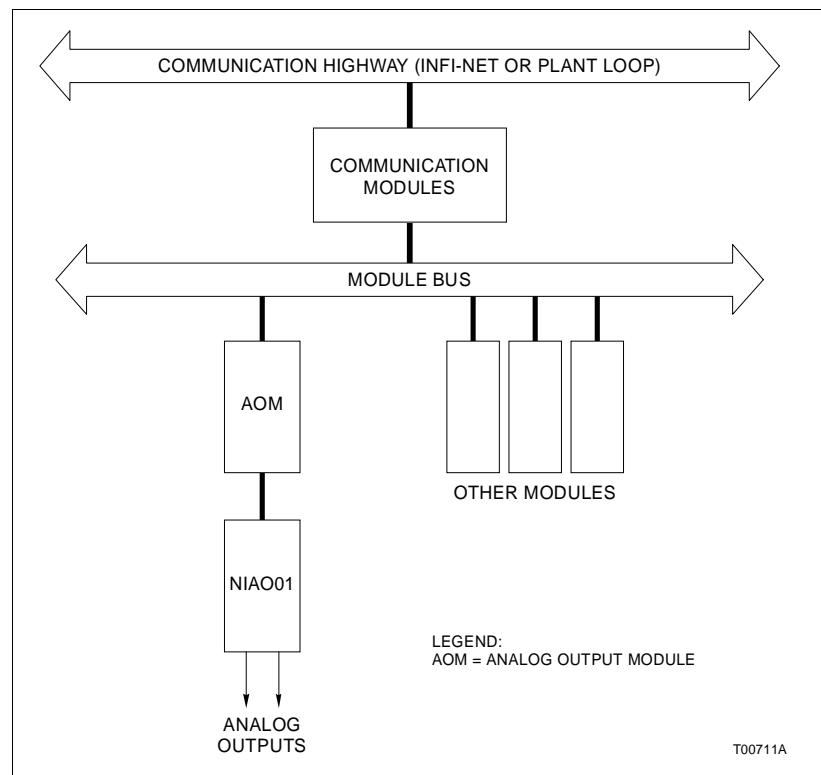


Figure 1-1. Example NIAO01 Termination Module Application

INTRODUCTION

MODULE DESCRIPTION

The IAO termination module is a single printed circuit board that uses one slot in an NTMU01 or NTMU02 Termination Mounting Unit. The IAO termination module has one card edge connector, P1. It carries the outputs from the analog output module to the field device through an NKTMO1, NKTU02 (PVC jacket) or NKTU12 (non-PVC jacket) Termination Module Cable. Field devices connect to the IAO termination module terminal strip. The dipswitches on the IAO termination module select the output signal type. The output signal type on the IAO termination module must match the analog output module.

INSTRUCTION CONTENT

This manual consists of five sections and an appendix.

Introduction Contains an overview of the features, specifications and a description of the IAO termination module.

Installation Describes precautions to observe when handling modules and setup procedures required before module operation. This section also discusses dipswitch settings and installation procedures.

Maintenance Provides a maintenance schedule.

Repair/Replacement Procedures Details how to replace an IAO termination module.

Support Services Describes the support services (spare parts, training, documentation, etc.) available from Bailey Controls Company.

Appendix A Contains data to connect the termination module to the analog output module. Appendix A shows the switch settings and cabling requirements for the analog output module.

HOW TO USE THIS MANUAL

Read this manual through in sequence. Read the installation section thoroughly. Do the steps in order. Complete all steps in the installation section before operating the IAO termination module. Refer to the Table of Contents or Index to find specific information after the module is operating.

REFERENCE DOCUMENTS

Table 1-1 lists the documents referenced in this instruction.

Table 1-1. Reference Documents

Number	Document
I-E96-206	IMAOM01 Analog Output Module

GLOSSARY OF TERMS AND ABBREVIATIONS

Table 1-2 lists definitions of the terms and abbreviations used in this instruction.

Table 1-2. Glossary of Terms and Abbreviations

Term	Definition
Analog	Continuously variable as opposed to discretely variable.
Configuration	The act of setting up equipment to accomplish specific functions or a list of parameters associated with such a setup.
Dipswitch	A dual in-line package that contains switches.
INFI-NET®	Advanced data communication highway.
Module Bus	Peer to peer communication link used to transfer information between intelligent modules within a process control unit.
Plant Loop	Network 90® data communication highway.
Termination Module	Provides input/output connection between plant equipment and the INFI 90/Network 90 modules.
TMU	Termination mounting unit. A card cage that provides housing for INFI 90/Network 90 termination modules.

NOMENCLATURE

Table 1-3 is a list of related hardware.

Table 1-3. Nomenclature

Nomenclature	Description
IMAOM01	Analog output module.
NKTM01	Termination module cable (ribbon cable).
NKTU02	Termination module cable, PVC jacket.
NKTU12	Termination module cable, non-PVC jacket.
258436A1	Cable retaining kit. Used for interfacing round cable connection to TMU unit.

SPECIFICATIONS

Refer to Table 1-4 for the specifications of the IAO termination module.

® Registered trademarks of Elsag Bailey Process Automation.

INTRODUCTION*Table 1-4. NIAO01 Termination Module Specifications*

Property	Characteristic/Value
Surge Protection	Meets IEEE-472-1974 surge withstand capability test. ¹
Wire Size:	
Minimum	22 gauge.
Maximum	14 gauge.
Maximum wire size when connecting three wires to a single terminal	One 16 gauge and two 18 gauge wires.
Mounting	Occupies one slot in a standard INFI 90 termination mounting unit.
Environmental:	
Electromagnetic/ Radio Frequency Interference	No values available at this time. Keep cabinet doors closed. Do not use communication equipment closer than 2 meters from the cabinet.
Ambient Temperature	0° to 70°C (32° to 158°F).
Relative Humidity	0% to 95% up to 55°C (131°F) noncondensing. 0% to 45% up to 70°C (158°F) noncondensing.
Atmospheric Pressure	Sea level to 3 km (1.86 miles).
Air Quality	Bailey equipment should be operated and stored in a noncorrosive environment.
Cooling Requirements	No cooling is necessary when used in Bailey cabinets and operated within stated environmental limits.
Certification	CSA certified for use as process control equipment in an ordinary (nonhazardous) location.

NOTE: 1. Do not use the NKTM01 cable when compliance with IEEE-472-1974 is necessary.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

SECTION 2 - INSTALLATION

INTRODUCTION

This section explains how to configure and install the NIAO01 Analog Output Termination Module. Read, understand and complete the steps in the order they appear before using the IAO termination module.

SPECIAL HANDLING

Observe these steps when handling electronic circuitry:

NOTE: Always use Bailey's Field Static Kit (part number 1948385A1 - consisting of two wrist straps, ground cord assembly, alligator clip and static dissipative work surface) when working with the modules. The kit grounds a technician and the static dissipative work surface to the same ground point to prevent damage to the modules by electrostatic discharge.

1. **Use Static Shielding Bag.** Keep the modules in the static shielding bag until you are ready to install them in the system. Save the bag for future use.
2. **Ground Bag Before Opening.** Before opening a bag containing an assembly with CMOS devices, touch it to the equipment housing or a ground to equalize charges.
3. **Avoid Touching Circuitry.** Handle assemblies by the edges; avoid touching the circuitry.
4. **Avoid Partial Connection of CMOS Device.** Verify that all devices connected to the modules are properly grounded before using them.
5. **Ground Test Equipment.**
6. **Use Antistatic Field Service Vacuum.** Remove dust from the module if necessary.
7. **Use Grounded Wrist Strap.** Connect the wrist strap to the appropriate grounding plug on the power entry panel. The grounding plug on the power entry panel is connected to the earth grounding electrode system through the AC safety ground.
8. **Do Not Use Lead Pencils to Set Dipswitches.** To avoid contamination of switch contacts that can result in unnecessary circuit board malfunction, do not use a lead pencil to set a dipswitch.

UNPACKING AND INSPECTION

1. Examine the hardware immediately for shipping damage.
2. Notify the nearest Bailey Controls Company sales office of any such damage.
3. File a claim for any damage with the transportation company that handled the shipment.
4. Use the original packing material and container to store the hardware.
5. Store the hardware in an environment of good air quality, free from temperature and moisture extremes.

SETUP/PHYSICAL INSTALLATION

This section explains how to configure and install the IAO termination module. The required procedures are fuse installation, dipswitch configuration, installing the termination module, cable connection and termination wiring.

Fuse Installation

Two fuses should be installed with every IAO termination module. Verify the fuses are installed in fuse clips F1 and F2 (see Figure 2-1 for fuse clip locations). Fuse F1 is a 5.0 amp/ 250 volt fuse used for 24 VDC I/O power for the AOM module. Fuse F2 is a 3.0 amp/250 volt fuse used for 24 VDC I/O power for external devices.

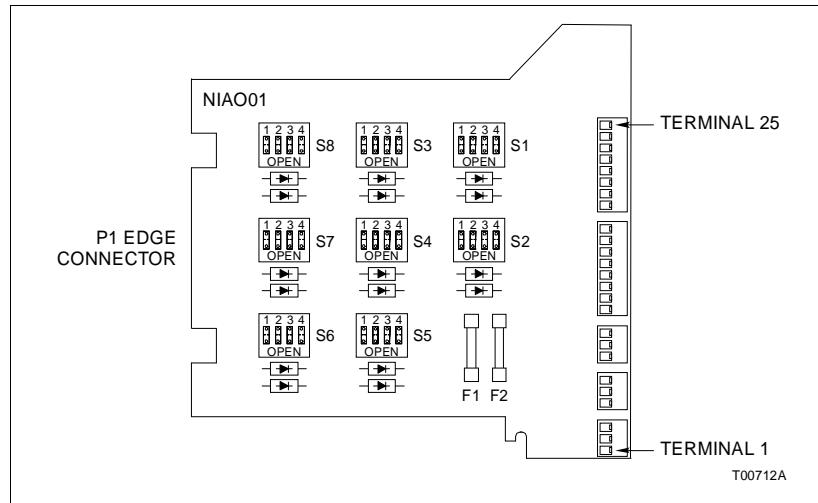
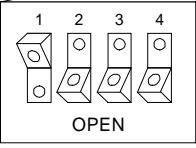
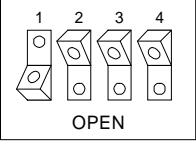


Figure 2-1. NIAO01 Termination Module Layout

Dipswitch Configuration

The dipswitches select the analog output type (voltage or current) for the field device connected to the termination module. Each channel is independent. Set the dipswitches for voltage or current. Table 2-1 shows how to set dipswitches one through eight (analog outputs one through eight respectively). Refer to [Appendix A](#) to find the dipswitch settings for the analog output module.

Table 2-1. NIAO01 Termination Module Dipswitch Settings

Application/ Signal Type	Dipswitch Position Configuration ¹	Binary Dipswitch Configuration
Voltage (1 - 5 VDC) (0 - 10 VDC)		0111
Current (4 - 20 mA)		1000

NOTES: 0 = OPEN or OFF, 1 = CLOSED or ON
1. 1 - 4 represent switch positions on dipswitches S1 - S8.

Cabling Connections

The IAO termination module provides termination points for the analog output module. Figure 2-2 shows the cable connection between the IAO termination module and the AOM module. The cable can be either the NKTMO1 Termination Module Cable (ribbon cable), the NKTU02 Termination Module Cable (PVC jacket) or the NKTU12 Termination Module Cable (non-PVC jacket). Table 2-2 lists the IAO termination module cable applications.

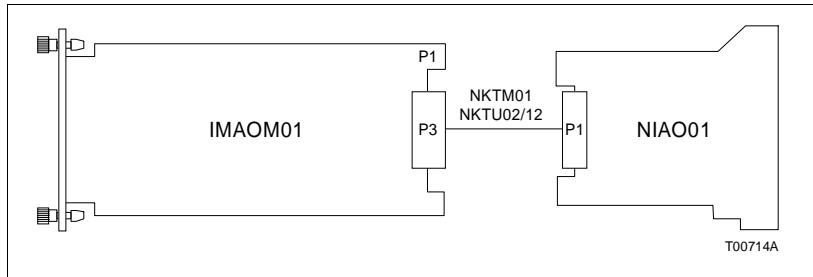


Figure 2-2. Cable Connections

Table 2-2. NIAO01 Termination Module Cable Applications

Nomenclature/ Description	Maximum Length meters (feet)	Application	Connector
NKTM01 (ribbon cable)	30 (100)	Connects IAO termination module to AOM module	P1 on termination unit to MMU backplane
NKTU02 (PVC)	61 (200)		
NKTU12 (non-PVC)	61 (200)		

Cable Installation

CAUTION

Remove modules (slave, master or termination) from their assigned slots before installing a cable to that slot.

ATTENTION

Retirer les modules (asservi, maître ou carte de raccordement) de leur position assignée avant d'installer un câble à cette position.

NKTM01 CABLE

This cable connects the IAO termination module to the AOM module. The KTM cable is a flat ribbon cable. Do not bundle the ribbon cable with other wiring. Bundling the cable can cause cross talk in the ribbon cable. To install the cable:

NOTE: If the AOM module is installed, pull it several inches from the backplane **before** installing the cable.

1. Insert one end of the cable into the module mounting unit backplane slot assigned to the AOM module. The cable should latch securely in place. Card edge connector P3 of the AOM module connects to this end of the cable.

-
2. Insert the other end of the cable into the termination mounting unit (TMU) backplane slot assigned to the IAO termination module. The cable should latch securely in place. Card edge connector P1 of the IAO termination module connects to this end of the cable.

NKTU02 AND NKTU12 CABLES

The KTU cables connect the IAO termination module to the AOM module. The KTU cable is a round shielded cable. To install the cable:

NOTE: If the AOM module is installed, pull it several inches from the backplane **before** installing the cable.

1. Insert the J2 end of the cable into the module mounting unit backplane slot assigned to the AOM module. The cable should latch securely in place. Card edge connector P3 of the AOM module connects to this end of the cable.
2. Connect the J2 shield wire to the shield bus bar.
3. Insert the J1 end of the cable into the termination mounting unit (TMU) backplane slot assigned to the IAO termination module. The cable should latch securely in place. Card edge connector P1 of the IAO termination module connects to this end of the cable.
4. Install a cable retaining bracket to the rear of the TMU unit.

Installing the Termination Module

The IAO termination module inserts into a standard INFI 90 termination mounting unit (TMU) and occupies one slot. To install:

1. Remove (pull off) the front cover of the termination module before trying to install the cable. Use the following procedure when installing the cable.
2. Verify the slot assignment of the IAO termination module.
3. Align the IAO termination module with the guide rails in the termination mounting unit and partially insert the module.
4. Push down the plastic stop and insert the module until it is latched into the TMU unit.
5. Install the front cover.

Terminal Wiring**CAUTION**

It is strongly recommended that all power (cabinet, I/O, etc.) be turned off before doing any termination module wiring. Failure to do so could result in equipment damage. Do not apply power until all connections are verified.

ATTENTION

Il est fortement recommandé que toutes les alimentations (armoire, E/S, etc.) soient coupées avant d'effectuer quelque raccord que ce soit sur un carte de raccordement. Un manquement à ces instructions pourrait causer des dommage à l'équipement. Ne pas rebrancher les alimentations avant d'avoir vérifié tous les raccordements.

Field and power wiring must be connected to the terminal strip. See Figure 2-3 for IAO terminal strip assignments. Figure 2-4 shows how to wire field equipment. To connect field and power wiring:

NOTES:

1. Proper polarity of all signals must be maintained.
 2. For internal (system) power, use the 24 VDC supplied from the system bus bar to the TMU unit bus bar.
 3. For external power, use the external supply connected to the TMU unit bus bar.
 4. The external power supply common must be connected to the system common.
1. Insure the IAO termination module is pulled out far enough to gain access to the terminal strip.
 2. Feed the field wiring into the terminal strip area and connect them to the appropriate analog output terminals. The auxiliary ground terminals are used for connecting field wiring shields.
 3. Connect an 18 AWG wire from the +24 VDC bus of the termination mounting unit to the +24 VDC terminal of the IAO termination module.
 4. Connect an 18 AWG wire from the common bus of the termination mounting unit to the common terminal of the IAO termination module.
 5. Connect an 18 AWG wire from the ground terminal of the IAO termination module to the cabinet chassis ground bolt.
 6. Insert the module until it locks securely into place.
 7. Replace (snap on) the front cover.

The NIAO01 termination module is ready for operation if:

1. The fuses are installed.
2. The cable is installed and verified.
3. All field wiring is complete.
4. Power is connected and applied to the IAO termination module.

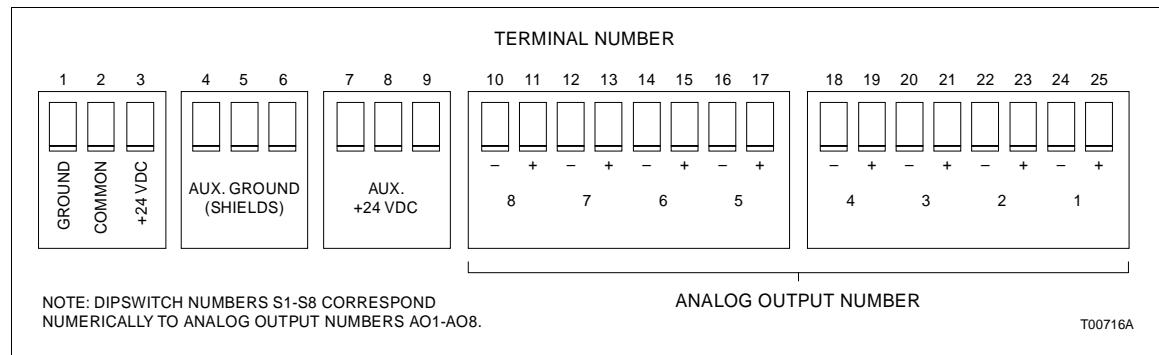


Figure 2-3. NIAO01 Termination Module Terminal Assignments

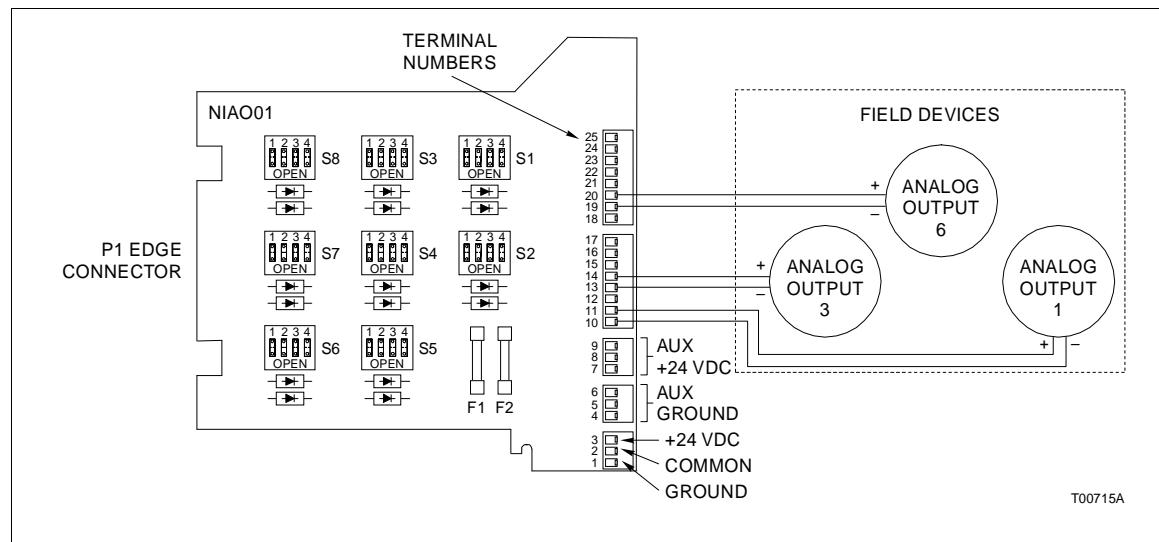


Figure 2-4. Output Termination Example

SECTION 3 - MAINTENANCE

INTRODUCTION

The analog output termination module requires limited maintenance. This section contains a maintenance schedule.

MAINTENANCE SCHEDULE

Execute the tasks in Table 3-1 at the specified intervals.

Table 3-1. Maintenance Schedule

Task	Interval
Clean and tighten all power and field wiring connections. Use a static safe vacuum cleaner to remove dust from: Termination modules. Termination mounting unit.	Every 6 months or during plant shutdown, whichever occurs first.

SECTION 4 - REPAIR/REPLACEMENT PROCEDURES

INTRODUCTION

This section explains the replacement procedures for the analog output termination module.

MODULE REPLACEMENT PROCEDURES

If an IAO termination module is faulty, replace it with a new one. To replace an IAO termination module:

CAUTION

It is strongly recommended that all power (cabinet, I/O, etc.) be turned off before doing any termination module wiring. Failure to do so could result in equipment damage. Do not apply power until all connections are verified.

ATTENTION

Il est fortement recommandé que toutes les alimentations (armoire, E/S, etc.) soient coupées avant d'effectuer quelque raccord que ce soit sur un carte de raccordement. Un manquement à ces instructions pourrait causer des dommages à l'équipement. Ne pas rebrancher les alimentations avant d'avoir vérifié tous les raccordements.

1. Turn off power to the cabinet containing the defective IAO termination module.
2. Remove (pull off) the front cover from the defective IAO termination module.
3. Label and remove all wiring from the defective IAO termination module.
4. Remove the defective IAO termination module from the termination mounting unit.
5. Verify the 5.0 amp/250 volt fuse is installed in fuse clip F1 of the replacement IAO termination module. If not already installed, insert the fuse into fuse clip F1.
6. Verify the 3.0 amp/250 volt fuse is installed in fuse clip F2 of the replacement IAO termination module. If not already installed, insert the fuse into fuse clip F2.
7. Partially insert the replacement IAO termination module into the termination mounting unit.
8. Connect all wiring removed in Step 3.

9. Verify proper wiring connections to the replacement IAO termination module.
10. Insert the replacement IAO module until it locks securely into place.
11. Install (snap on) the front cover on the replacement IAO termination module.
12. Apply power to the cabinet containing the replacement IAO termination module.

FUSE REPLACEMENT PROCEDURES

If the fuse is faulty, replace it with a new one. Refer to Table 5-1 for replacement fuse information. To replace a fuse:

CAUTION

It is strongly recommended that all power (cabinet, I/O, etc.) be turned off before doing any termination module wiring. Failure to do so could result in equipment damage. Do not apply power until all connections are verified.

ATTENTION

Il est fortement recommandé que toutes les alimentations (armoire, E/S, etc.) soient coupées avant d'effectuer quelque raccord que ce soit sur un carte de raccordement. Un manquement à ces instructions pourrait causer des dommage à l'équipement. Ne pas rebrancher les alimentations avant d'avoir vérifié tous les raccordements.

1. Turn off power to the cabinet containing the IAO termination module.
2. Remove (pull off) the front cover of the IAO termination module.
3. Pull the IAO termination module out far enough to gain access to the fuse clip (F1 or F2).
4. Remove the faulty fuse.
5. Install the replacement fuse into fuse clip (F1 or F2).
6. Insert the termination module until it locks securely into place.
7. Install (snap on) the front cover of the IAO termination module.
8. Apply power to the cabinet containing the IAO termination module.

SECTION 5 - SUPPORT SERVICES

INTRODUCTION

Bailey Controls Company is ready to help in the use, application and repair of its products. Contact the nearest sales office to make requests for sales, applications, installation, repair, overhaul and maintenance contract services.

REPLACEMENT PARTS AND ORDERING INFORMATION

When making repairs, order replacement parts from a Bailey Controls Company sales office. Table 5-1 lists the spare parts available for the IAO termination module. Provide this information:

1. Part description, part number and quantity.
2. Model and serial numbers (if applicable).
3. Bailey instruction manual number, page number and reference figure that identifies the part.

Order parts without commercial descriptions from the nearest Bailey Controls Company sales office.

Table 5-1. Spare Parts List

Description	Component	Part Number
Fuse 5.0 A/250 V	F1	194776A15001
Fuse 3.0 A/250 V	F2	194776A13001

TRAINING

Bailey Controls Company has a modern training facility available for training your personnel. On-site training is also available. Contact a Bailey Controls Company sales office for specific information and scheduling.

TECHNICAL DOCUMENTATION

Additional copies of this manual, or other Bailey Controls Company manuals, can be obtained from the nearest Bailey Controls Company sales office at a reasonable charge.

APPENDIX A - IMAOM01 ANALOG OUTPUT MODULE

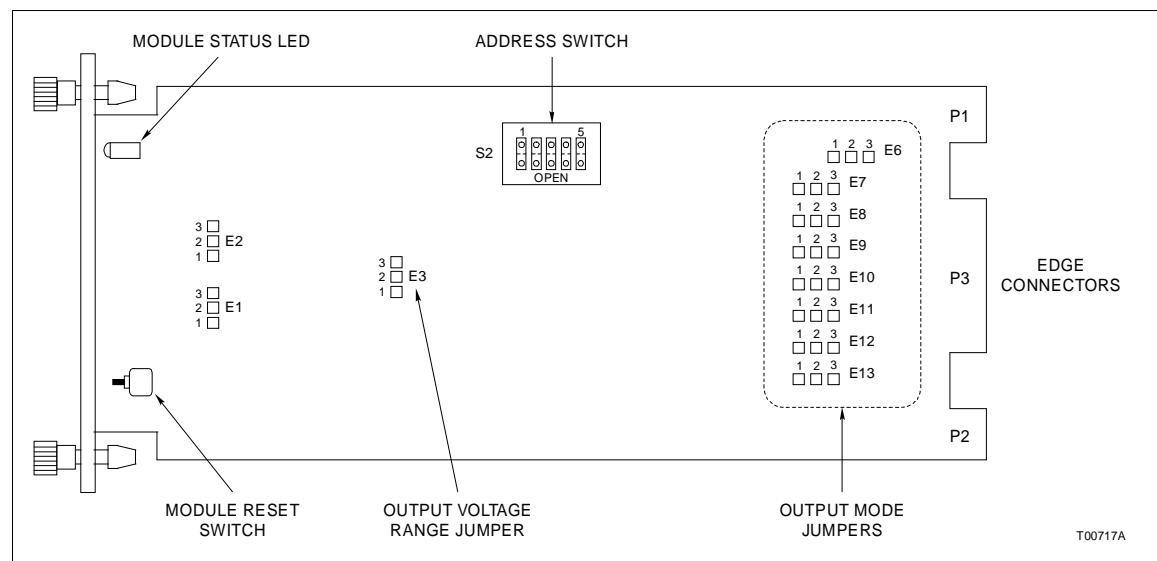
INTRODUCTION

The IMAOM01 Analog Output Module produces eight analog output signals in response to messages received over the module bus from other modules in the system.

Figure A-1 shows the dipswitch and jumper locations on the AOM module. Determine the address for the AOM module and set S2 dipswitches to the corresponding address positions. Table A-1 shows example address switch settings.

Jumper E3 selects either standard outputs (individual one to five VDC or four to 20 millamps) or zero to ten VDC for all eight outputs. Table A-2 shows how to set the jumpers on the AOM module.

When jumper E3 is set for standard outputs, jumpers E6 through E13 (AO8) through E1 (AO1) set analog outputs one through eight for either four to 20 millamps or one to five VDC.



NOTE: Do not move jumpers E1 and E2. They are factory installed.

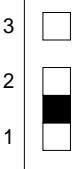
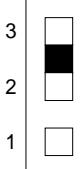
Figure A-1. Analog Output Module Layout

*Table A-1. Example AOM Module Address
Switch Settings (S2)*

Address Example	Dipswitch Position (Binary Value)				
	1 (16)	2 (8)	3 (4)	4 (2)	5 (1)
7	0	0	1	1	1
15	0	1	1	1	1
31	1	1	1	1	1

NOTE: 0 = OPEN or OFF, 1 = CLOSED or ON.

Table A-2. Jumper Settings

Signal	Jumper E3	Jumpers E6 - E13
4 - 20 mA		
1 - 5 VDC		
0 - 10 VDC		 T00718A

Index

A	
Application (NIAO01).....	1-1
C	
Cable	
Connections.....	2-3
Installation.....	2-4
NKTM01.....	2-4
NKTU02/12.....	2-5
D	
Dipswitch	
Configuration	2-3
Settings (NIAO01).....	2-3
Settings (S2, AOM module).....	A-2
F	
Fuse installation	2-2
G	
Glossary of terms and abbreviations	1-3
I	
Installing the termination module.....	2-5
Instruction content	1-2
Intended user	1-1
J	
Jumper settings	A-2
L	
Layout	
AOM module.....	A-1
NIAO01 termination module	2-2
M	
Maintenance schedule	3-1
Module description.....	1-2
N	
Nomenclature.....	1-3
O	
Output termination example	2-7
Overview	1-1
R	
Reference documents.....	1-2
Replacement	
Fuse	4-2
Parts and ordering information.....	5-1
Termination module	4-1
S	
Setup/physical installation.....	2-2
Spare parts list	5-1
Special handling.....	2-1
Specifications	1-3
T	
Technical documentation	5-1
Terminal	
Assignments NIAO01	2-7
Wiring	2-6
Training	5-1
U	
Unpacking and inspection.....	2-2

Visit Elsag Bailey on the World Wide Web at <http://www.bailey.com>

Our worldwide staff of professionals is ready to meet *your* needs for process automation.
For the location nearest you, please contact the appropriate regional office.

AMERICAS

29801 Euclid Avenue
Wickliffe, Ohio USA 44092
Telephone 1-216-585-8500
Telefax 1-216-585-8756

ASIA/PACIFIC

152 Beach Road
Gateway East #20-04
Singapore 189721
Telephone 65-391-0800
Telefax 65-292-9011

EUROPE, AFRICA, MIDDLE EAST

Via Puccini 2
16154 Genoa, Italy
Telephone 39-10-6582-943
Telefax 39-10-6582-941

GERMANY

Graefstrasse 97
D-60487 Frankfurt Main
Germany
Telephone 49-69-799-0
Telefax 49-69-799-2406