Bailey
network 90®

Analog Slave Module (RTD)
NASM03

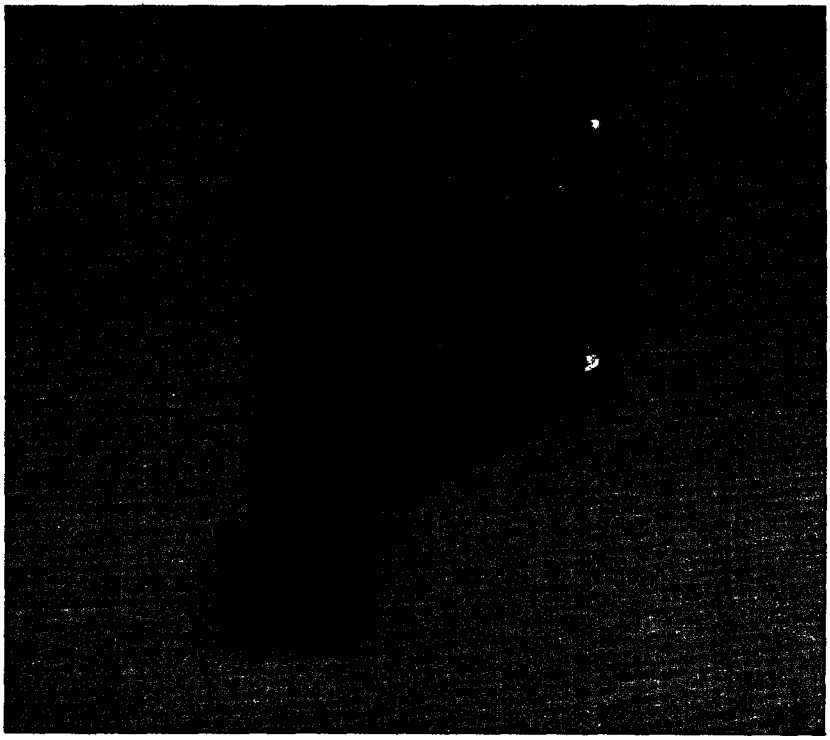

FIGURE 1 — Analog Slave Module (NASM03).

Product Instruction
E93-912-6

Bailey Controls
Babcock & Wilcox, a McDermott company

WARNING

DO NOT INSTALL, MAINTAIN OR OPERATE THIS EQUIPMENT WITHOUT READING, UNDERSTANDING AND FOLLOWING PROPER Babcock & Wilcox Bailey Controls INSTRUCTIONS AND MANUALS, OTHERWISE INJURY OR DAMAGE MAY RESULT

AVERTISSEMENT

NE PAS METTRE EN PLACE, REPARER OU FAIRE FONCTIONNER CE MATERIEL SANS AVOIR LU, COMPRIS ET SUIVI LES INSTRUCTIONS REGLEMENTAIRES DE Babcock & Wilcox Bailey Controls TOUTE NEGLIGENCE A CET EGARD POURRAIT ETRE UNE CAUSE D'ACCIDENT OU DE DEFAILLANCE DU MATERIEL

Description

The Analog Slave Module (NASM03) of the NETWORK 90® System shown in Figure 1 accepts low level Resistance Temperature Detection (RTD) signals in system applications. It is a standard module (11-1/2" x 5-1/4") which slides into a single slot in the MMU and must be adjacent to the Analog Master Module (AMM) or other Analog Slave Modules. Grouping the modules together dedicates that portion of the Expander Bus for the Analog Master Module and Analog Slave Modules. The board layout and adjustments for the Analog Slave Module are shown in Figure 2.

Functional specifications and connections are given in the specifications table.

The module processes up to eight (8) isolated RTD analog input signals. These signals are conditioned and converted to a high level signal for processing by the Analog Master Module Communication is maintained over the Expander Bus for groups of eight (8) analog signals. Up to eight (8) Analog Slaves may be used with each Analog Master. The NASM03 is used with the NTAI03 Termination Unit.

Operation and application details of the Analog Slave Module are given in Product Instruction E93-912-2 (Analog Master Module, NAMM02). The Calibration Guide is provided in the Instruction Supplement *IS-E93-912-2*.

Receiving, Handling and Storage

In addition to special MOS handling requirements, normal precautions should be taken in routine storage and handling. Upon receipt, the Module should be examined for possible damage in transit. If damage is found or if there is any evidence of rough handling, a damage claim should be filed with the responsible transportation company and the nearest Bailey Sales Office should be notified.

Store in original packing material and container. The storage environment should be free of all environmental extremes, including temperature, moisture and air quality conditions.

Installation

The Analog Slave Module inserts into a standard NETWORK 90 Module Mounting Un t (MMU) and occupies one slot. The Module is guided by plastic rails and is fully inserted when the front panel is flush with the top and bottom of the MMU rack and the latch engages into the MMU frame. To remove the module, release the latch by squeezing the bottom front plastic frame and pulling outward.

CAUTION

THIS MODULE CONTAINS MOS DEVICES WHICH CAN BE DAMAGED DURING HANDLING BY STATIC CHARGES THE CARD IS SHIPPED IN A SPECIAL ANTI STATIC BAG THAT SHOULD BE SAVED FOR FUTURE USE ALTHOUGH SURROUNDING CIRCUITRY OF THE CARD AND MODULE IS PLANNED TO PROTECT MOS DEVICES, SPECIAL MOS HANDLING PROCEDURES SHOULD BE OBSERVED A CARD SHOULD NOT BE REMOVED FROM THE ANTI STATIC BAG UNTIL READY TO BE PUT INTO SERVICE DO NOT TOUCH CIRCUITRY WHEN HANDLING CARD

NOTE MOS handling procedures include grounding of the anti-static bag prior to opening as well as the proper grounding of connected devices

ATTENTION

CE MODULE EST MUNI DE DISPOSITIFS MOS SUSCEPTIBLES D'ETRE ENDOMMAGES, EN COURS DE MANIPULATION, PAR LES CHARGES STATIQUES POUR LES BESOINS DE L'EXPEDITION LA CARTE EST PLACEE DANS UN SAC SPECIAL ANTI STATIQUE A RESERVER POUR USAGE ULTERIEUR BIEN QUE LES CIRCUITS SUR LA CARTE, ET LE MODULE, AIENT ETE ETUDIES POUR FOURNIR LA PROTECTION VOULUE AUX DISPOSITIFS MOS, IL N'EN DEMEURE PAS MOINS NECESSAIRE DE RESPECTER LES PROCEDURES DE MANIPULATION PRESCRITES POUR CE GENRE DE MATERIEL ON NE DOIT PAS ENLEVER LA CARTE DE SON SAC ANTI STATIQUE AVANT LE MOMENT PRECIS DE LA MISE EN SERVICE DURANT LA MANIPULATION DE LA CARTE, IL NE FAUT PAS TOUCHER AUX CIRCUITS

WARNING

INPUT TERMINALS AND CIRCUITS OF NASM03 AND NTAI03 MAY BE AT 250 VOLTS.

AVERTISSEMENT

LA TENSION AUX BORNES ET CIRCUITS D'ENTREES D'UN NASM03 ET NTAI03 PEUT ETRE DE 250 V.

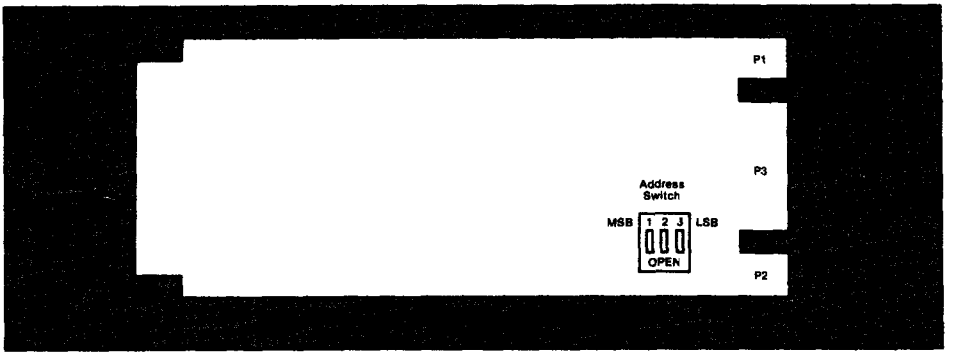

FIGURE 2 — Analog Slave Module (NASM03) Adjustments.

The Module Mounting Unit houses the system modules. It provides power and the communication buses for the modules. The Expander Bus is a series of traces across the lower part of the MMU backplane. Socket connections between module slots allow the user to connect two adjacent modules via the Expander Bus by inserting a dipshunt connector in the socket between those modules.

All twelve strap connectors on the dipshunt should be unbroken when it is inserted into a socket. All of the sockets to be used with one Analog Master Module and slave must be joined by inserting dipshunts. These module slots must all be adjacent to each other. The sockets on either side of the Analog Master and slave group should not have dipshunts. This will isolate the Expander Bus for this specific module set.

After the dipshunts are correctly inserted, the modules can be inserted into the Module Mounting Unit.

Calibration must be done before use and also when the module is replaced (see Instruction Supplement IS-E93-912-2, Calibration Guide).

Service and Replacement

No periodic maintenance is necessary for the Analog Slave Module. Module replacement and company services are available for special maintenance requirements.

Production testing is used for all NETWORK 90 modules.

WARNING

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 PRUDENT PRACTICE DICTATES THAT CAUTIONING AGAINST THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT BE TAKEN BY POSTING APPROPRIATE SIGNS IN YOUR PLANT

AVERTISSEMENT

LA PLUPART DES EQUIPEMENTS ELECTRONIQUES SONT SENSIBLES AUX PERTURBATIONS DE LA FREQUENCE RADIO DES PRECAUTIONS DEVRONT ETRE PRISES LORS DE L'UTILISATION DE MATERIEL DE COMMUNICATION PORTATIF LA PRUDENCE EXIGE QUE LES PRECAUTIONS A PRENDRE DANS CE CAS SOIENT SIGNALEES AUX ENDROITS VOULUS DANS VOTRE USINE

Specifications

Communication Interface	Analog Master Module (AMM) provides serial digital communication thru Module Bus of the Module Mounting Unit (MMU) operating as part of the Process Control Unit (PCU)
Input Capability:	
Analog Master Module (NAMM02)	64 nput signals accepted from up to *four (4) ASM01, eight (8)* ASM02 *or* e ght (8) ASM03 modu es thru Expander Bus for any m x of modu es up to 64 *total inputs*
Analog Slave Module (NASM03)	Eight (8) isolated RTD 100 ohm *Platinum* IPTS 68, US Ind Std, U S Lab Std and 120 Ohm Ni Chem Pure (Used w th Termination Unit TAI03 which accommodates up to two Analog Slave Modules) Input Resistance Not applicable *Note Correction s made for lead-w re resource res stance effects dur ng operat on Common mode vo tage for analog inputs 250 V max mum
Functional Specifications:	
Input Scanning	NAMM02 scans up to 64 analog n puts a maximum of 3 t mes/second and a minimum of once every two seconds depending upon configura t on
Signal Conditioning	nput f ter ng A/D conversions (64 b t reso ution) Linear zat on Eng neer ng Unit conversion
Security	Fau t timer per odically reset thru microprocessor operation front *pane* LED nd cates *normal* opera t on of t mer with automatic shut down features
Exception Reporting	S gn f cant nput va ue changes reported over mod a bus on the bas s of predetermined values
Power Requirements	+ 5 V dc at 400 mA (2 0 watts) max mum + 15 V dc at 80 mA (1 2 watts) *maximum* 15 V dc at 45 mA (0 7 watts) max mum + 24 V dc at 6 mA (0 15 watts) max mum
Pin (P2) Connections (Expander Bus)	P n 1 Ana og Bus + P n 2 Ana og Bus P n 3 A3 Pin 4 A0 P n 5 A4 Pin 6 A1 Pin 7 A5 P n 8 A2 P n 9 EN Pin 10 ACK Pin 11 N/C Pin 12 1 56 KHz

Pin (P1) Connections	Pin 1 + 5 V dc Pin 7 + 15 V dc Pin 2 + 5 V dc Pin 8 —15 V dc Pin 3 Open Pin 9 PFI Pin 4 Open Pin 10 PFI Pin 5 Common Pin 11 Open Pin 6 Common Pin 12 Open PFI Power Fa l Interrupt
Pin (P3) Connections	Pin A A Pin 1 B Channe 1 Input Pin 2 C P n C A P n 3 B Channe 2 Input Pin 4 C P n E A P n 5 B Channel 3 Input Pin 6 C P n H A Pin 7 B Channe 4 Input P n 8 C Pin K A Pin 9 B Channe 5 nput Pin 10 C P n M A Pin 11 B Channe 6 nput P n 12 C P n P A P n 13 B Channe 7 nput P n 14 C P n 15 A Pin S B Channe 8 Input P n R C Pin L + 24 V dc Present when cable s connected to norma socket on Ter m nat on Unit NTAI03 P n N System Common from Term nat on Unt NTA 03
Termination Unit (NTAIO3)	Standard Term nat on Un t with lug and screw connect ons for 'e d w' ng Cab e NKTU01 used to connect Terminat on Un t w th S ave Modu e NTA 03 has prec s on reference res stors to ac tate ca brat on of NASM03
Mounting	Standard sing e s ot mounting n Module Mour t ng Un t (MMU) adja cent to the Ana og Master or S ave Modu e
Certification	CSA cert fied as process contro equ pment for use n ord nary (non hazardous oc at ons)
Environmental Specifications	Standard er vironmental spec f ca t ons for the system are app cable (CE93-900)

SPECIFICATIONS SUBJECT TO CHANGE W THOUT NOTICE

Bailey Controls, Wickliffe, Ohio 44092, a division of Babcock & Wilcox, U S A

Bailey Controls Australia Pty Ltd., Regents Park, N S.W Australia
Bailey do Brasil, Sao Paulo, Brazil
Bailey Controls, Div of B&W Industries Ltd., Burlington, Ontario, Canada
Bailey Japan Company, Ltd., Shizuoka-Ken, Japan
Representatives in Other Principal Cities

Form IE93-912-6 L tho n U S A 383