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Bailey
network 90

Analog Slave Module (T/C)
NASM02

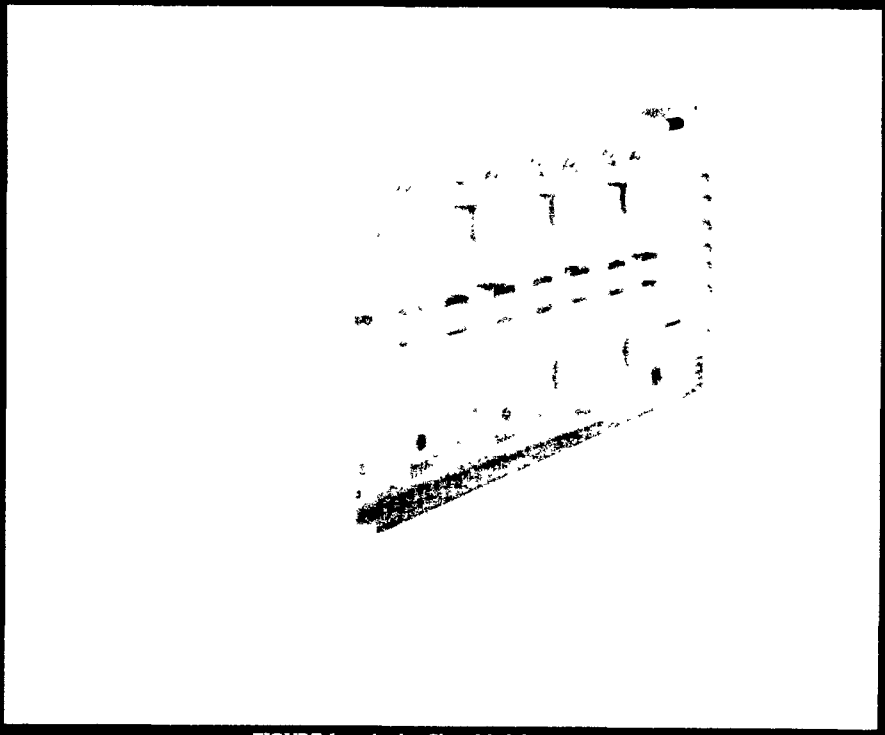


FIGURE 1 — Analog Slave Module (NASM02).

Product Instruction

E93-912-5

Bailey Controls
Babcock & Wilcox - a McDermott company

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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 (NASM02) of the NETWORK 90® System shown in Figure 1 accepts low level Millivolt or Thermocouple (T/C) 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 associated 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 Millivolt or Thermocouple 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 analog signals. Up to eight (8) Analog S aves may be used with each Analog Master. The NASM02 is used with the NTAI02 Termination Un t.

Operation and application details of the Analog Slave Modules are given in Product Instruction E93-912-2 (Analog Master Module, NAMM02). The Calibration Guide is provided in the Instruction Supplement 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 nto a standard NETWORK 90 Module Mounting Unit (MMU) and occupies one slot. The Module is guided by plastic rails and is fully inserted when the front panel is

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

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WARNING	AVERTISSEMENT
INPUT TERMINALS AND CIRCUITS OF NASM02 AND NTAI02 MAY BE AT 250 VOLTS.	*LA TENSION AUX BORNES ET CIRCUITS D'ENTREES D'UN NASM02 ET NTAI02 PEUT ETRE DE 250 V.*

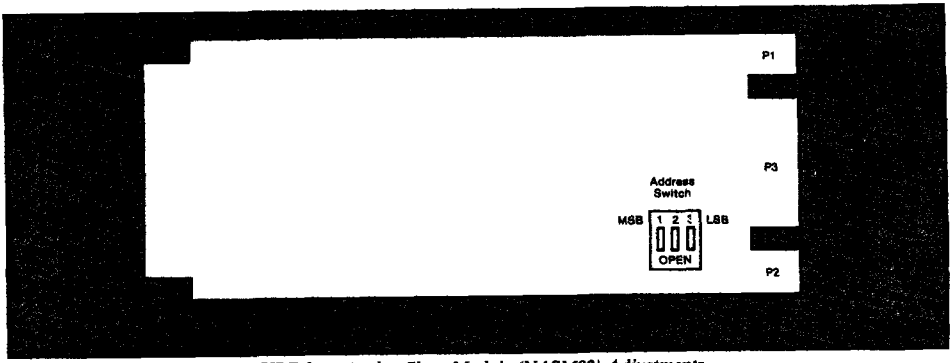


FIGURE 2 Analog Slave Module (NASM02) Adjustments.

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.

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 backplate. 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-E93-912-1, 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	AVERTISSEMENT
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	*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.*

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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 input signals accepted from up to four (4) ASM01, eight (8) ASM02 or eight (8) ASM03 modules thru Expander Bus (or any m x of modules up to 64 total inputs)
Analog Slave Module (NASM02)	Eight (8) isolated thermocouple signals of E, J, K, T, S and R types (Used with Termination Unit TAI02 which accommodates up to two Analog Slave Modules). Note —20 to +80 mV dc signals may also be accommodated by ASM02 Slave Modules Input Resistance 200 K ohms *Note Correction is made for lead-wire source res stance effects during operat on Common mode vo tage for analog in puts 250 V max mum
Functional Specifications:	
Input Scanning	NAMM02 scans up ot 64 analog inputs a maximum of 3 times/second and a minimum once every two seconds depending upon configuration
Signal Conditioning	Input filtering A/D conversion (64 b t reso ution) L nearizat on Engineering b t conversion
Security	Fault timer periodically reset thru microprocessor operation - front pane LED ind cates normal operat on of timer w th automatic shut down features
Exception Reporting	Signif cant input value changes reported over modu e bus on the bas s of predetermined va ues
Power Requirements	+5 V dc at 400 mA (2 0 watts) maximum +15 V dc at 80 mA (1 2 watts) maximum —15 V dc at 45 mA (0 7 watts) maximum +24 V dc at 8 mA (0 15 watts) maximum

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Pin (P2) Connections (Expander Bus)	Pin 1 Analog Bus + Pin 2 Analog Bus Pin 3 A3 Pin 4 A0 Pin 5 A4 Pin 6 A1 Pin 7 A5 Pin 8 A2 Pin 9 EN Pir 10 ACK Pir 11 N/C Pir 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 Pir 4 Open Pin 10 PF Pir 5 Common Pin 11 Open Pir 6 Common Pin 12 Open PFI Power Fail Interrupt
Pin (P3) Connections	Pin 1 + Pin A — Channel 1 Input Pin 3 + P n C — Channel 2 Input Pin 5 + Pin E — Channel 3 Input Pin 7 + Pin H — Channe 4 Input Pin 9 + Pin K Channe 5 Input Pin 11 + Pin M Channel 6 nput Pin 13 + P n P — Channel 7 nput Pin 15 + Pin S — Channel 8 nput Pin 12 +24 V dc present when cable is connected to nor ma socket on Terminat on Un t NTAI02 Pin N System common from P n 14 Termination Unit NTAI02
Mounting	Standard single slot mounting in Module Mounting Unit (MMU) adjacent to the Analog Master or Slave Module
Termination Unit	Standard Termination Unit (NTAI02) w th lugs and screw connect ons for field wiring Cab e NKTU01 used to connect Term nation Un t w th Slave Module Cable NKAI01 used for chaining connections between Termination Unit for co d junct on compensation Cable NKTU01 used to connect first Terminat on Unit to Analog Master Module
Certification	CSA certified as process control equipment for use n ord nary (non hazardous locations)
Environmental Specifications	Standard environmental specifications for the system are applicable (CE93-900)

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

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