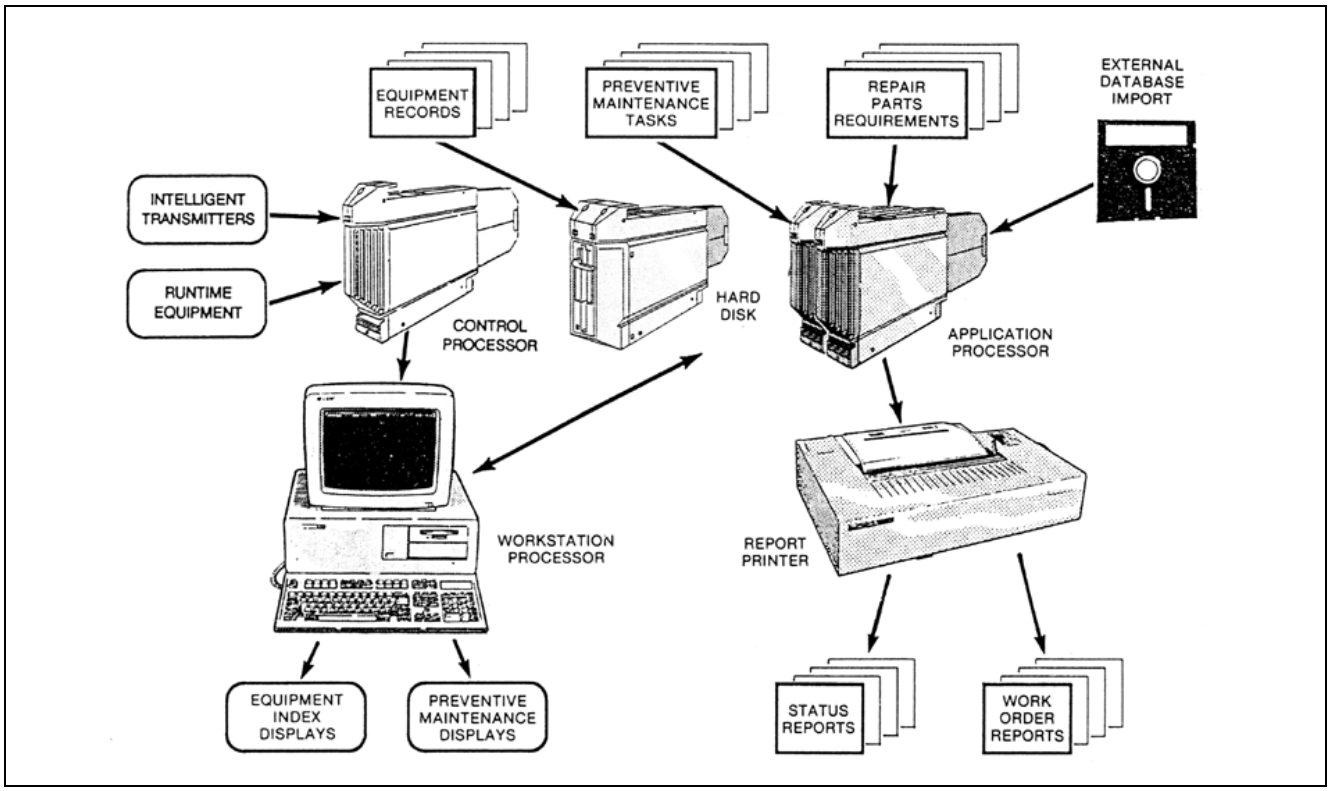
FOXBORO®

PSS 21S-4M1 B3

I/A Series® Software
Automation Equipment Manager



The Automation Equipment Manager is a menu-driven software package which runs on I/A Series workstations and applications processors. It works in conjunction with the I/A Series Integrated Control Configurator and System Management functions to provide information needed by Maintenance Supervisors for equipment management and preventive maintenance.

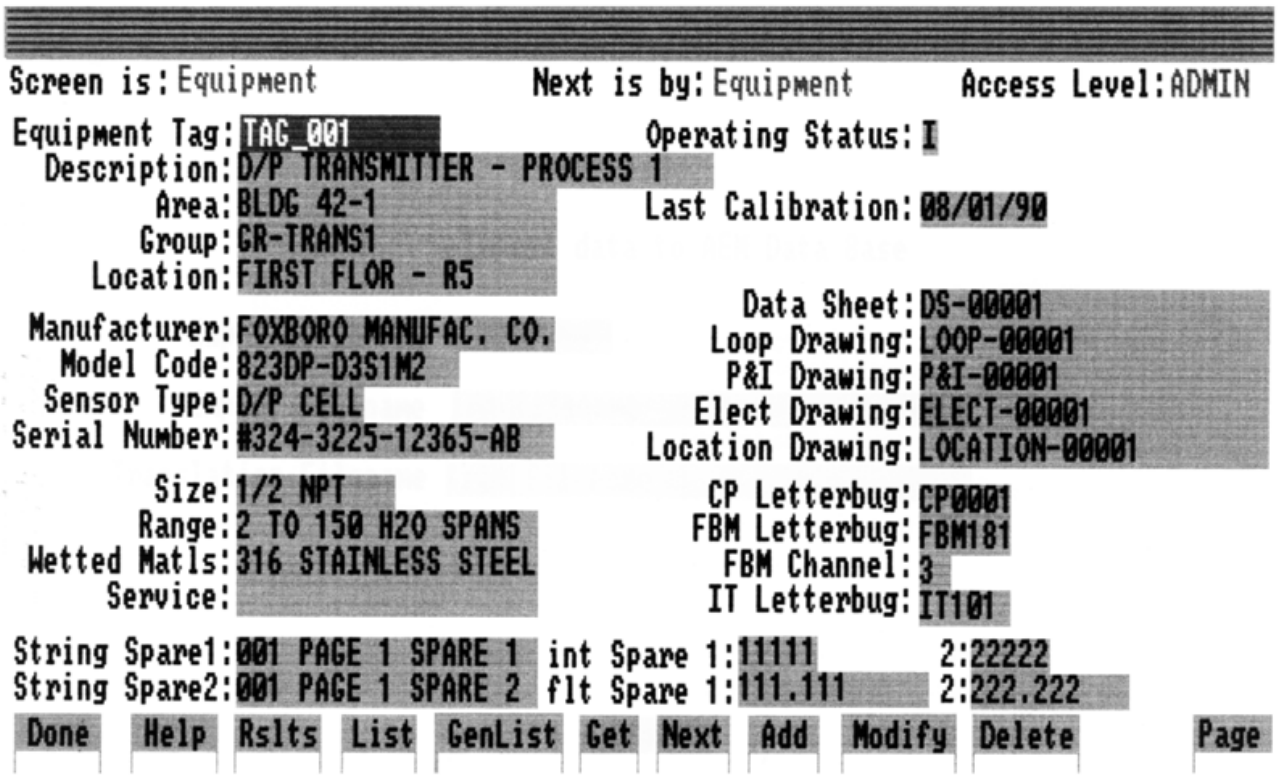


Figure 1. Equipment Information Display (Page 1)

Powerful Equipment Index and Database

The Automation Equipment Manager combines an Equipment database and a database for a Preventive Maintenance system into a single package. This simplifies setting up both functions, because most of the information is the same. In fact, much of the necessary database information is available early in a construction project in the form of specification sheets for the various pieces of equipment. Data already available in a compatible electronic form can be imported directly into AEM and augmented with information entered manually during the commissioning and startup phases. The maintenance database can be nearly complete by the time the plant goes into full operation.

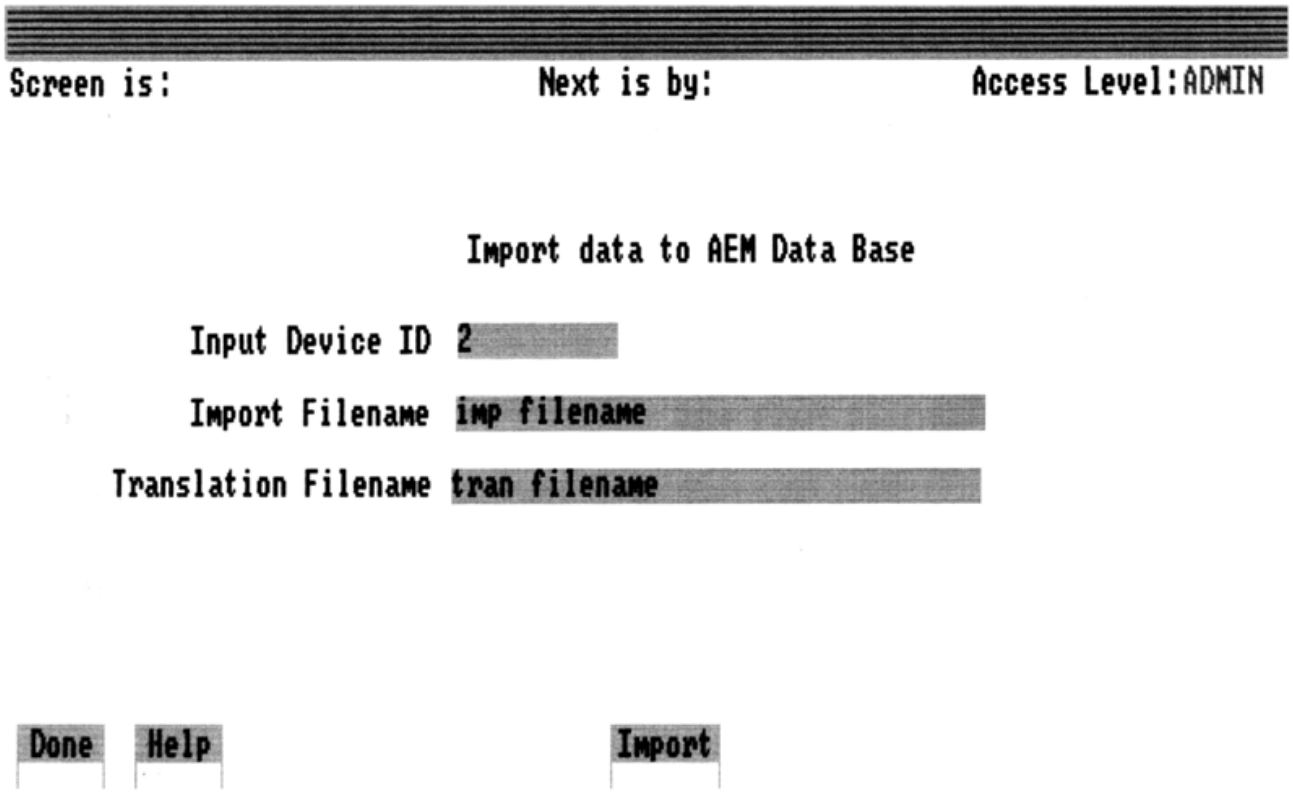


Figure 2. Database Import Utility Display

The Automation Equipment Manager provides tools to eliminate most of the tedious hand data entry. The equipment databases can be imported and automatically derived from any database package or spreadsheet which can generate standard.DIF or INFORMIX Unload files. The database may contain information on transmitters, valves, computer modules, and process analytical instruments, as well as pumps, motors, and other miscellaneous equipment. The Equipment Index displays vendor and service information and can be used with an auxiliary Maintenance Parts database module in which spare part requirements may be kept.

Figure 3. Equipment Information Display (Page 2) showing Intelligent Transmitter data

Speeds Loop Verification

The Automation Equipment Manager speeds up loop verification activities. Screen displays and printed reports derived from data in the Equipment Database show what is supposed to be wired to the signal input or output channels on the Fieldbus Modules.

The displays and reports also contain recent information obtained directly from Foxboro Intelligent Transmitters. This information is imported into the Automation Equipment Manager once a day at a user-determined time. If any differences are found between the data in the intelligent transmitters and the existing database these differences are recorded to a set of log files. A message is printed on the printer notifying the operator that changes have occurred.

Automated Record-Keeping and Reports

Equipment files prepared during the pre-operation phases become out-of-date quickly in normal production and are often not properly maintained. But because the Automation Equipment Manager can read data directly from Foxboro Intelligent Transmitters, the Maintenance Supervisor is assured of up-to-date records for this equipment.

The system also keeps records of which equipment is currently in service. The Equipment Status report shows the maintenance status, out-of-service and returned-to-service dates, and the elapsed time while out of service.

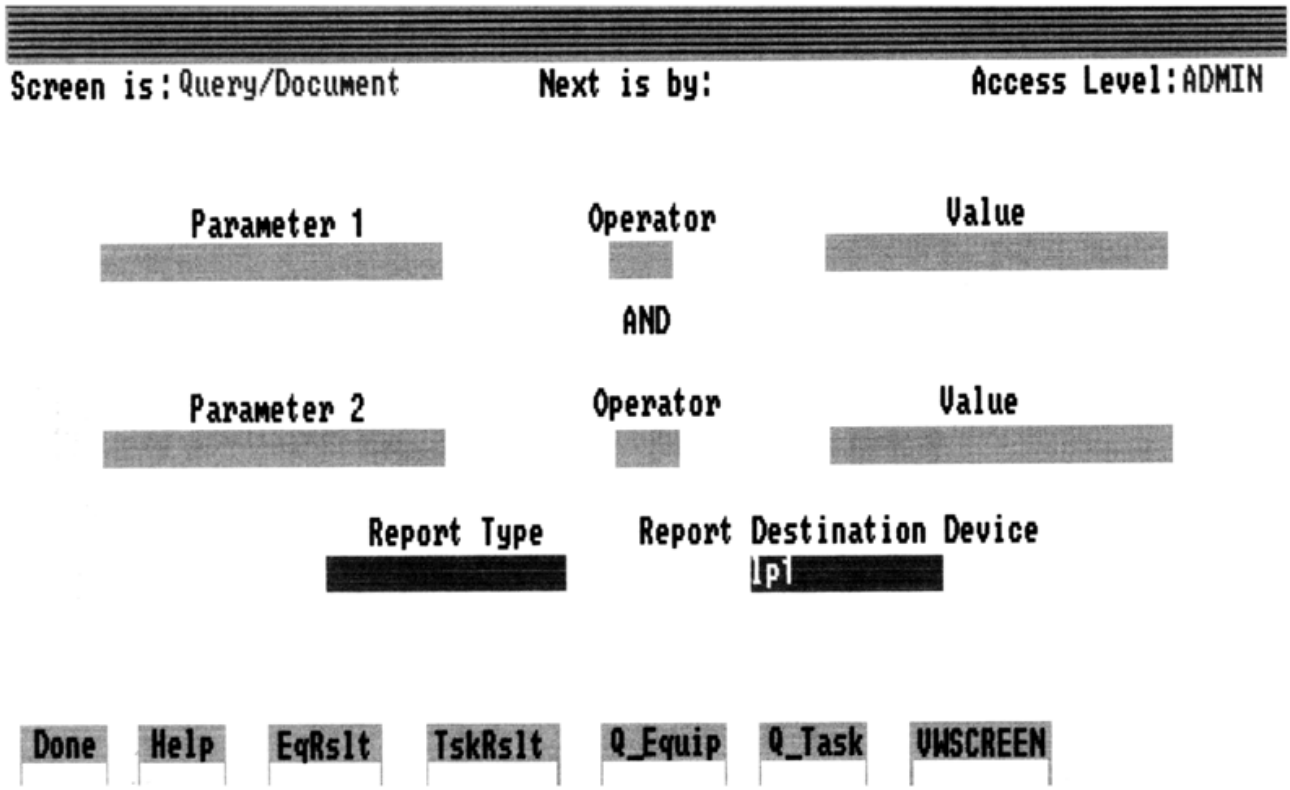


Figure 4. Equipment Database Query and Document Display

Proven Preventive Maintenance Features

The Automation Equipment Manager is based on previous experience with preventive maintenance programs running on Foxboro SPECTRUM products. The package identifies all equipment requiring maintenance based on elapsed calendar time or actual runtime. Equipment runtime is accumulated automatically; the rate of accumulation can be customized to reflect operating conditions which require accelerated maintenance scheduling.

This information is presented in a screen display and in printed reports and work orders. The Automation Equipment Manager contains a Work Order Complete login function, which allows technicians to enter calibration and repair data when the various maintenance and repair tasks are completed.

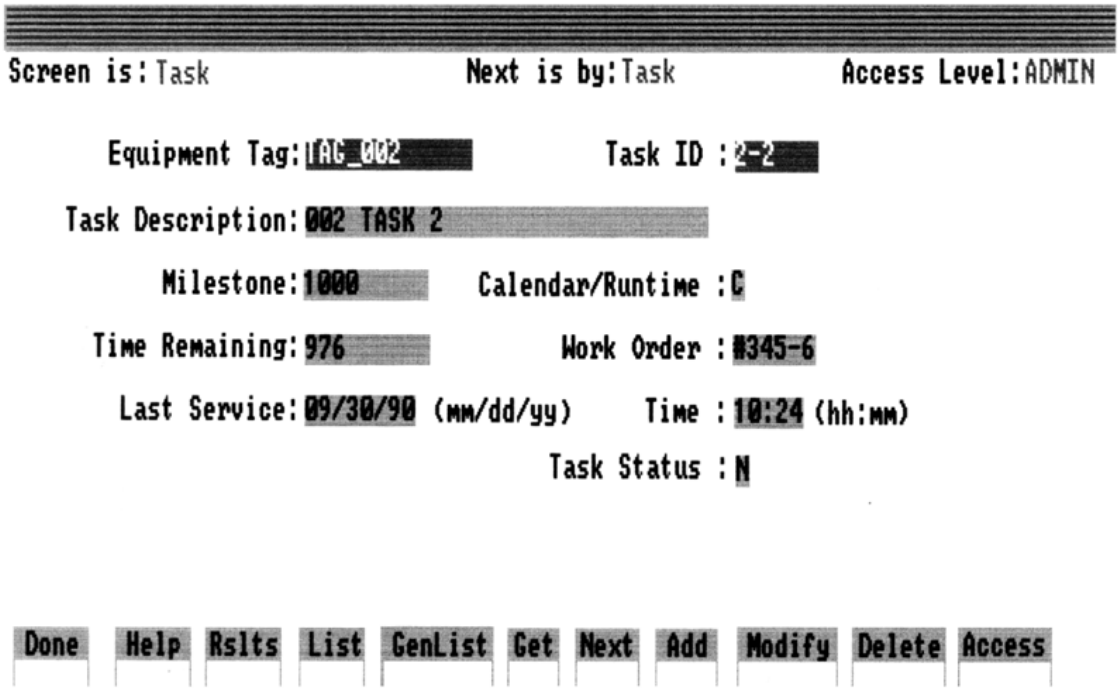


Figure 5. Task Information Display

OPERATION

The Automation Equipment Manager is menu driven. The Admin main menu provides for entering and setting passwords, and for importing data from other packages. The Config menu provides access to the data entry screens used for maintaining and querying the databases. Two data entry screens are used to enter Equipment data, and one screen each is devoted to Task records, Repair Parts, and Equipment Status. The Monitor menu allows the user to preconfigure frequently performed searches so that they can be run with a single menu pick.

With the data entry screens provided by AEM, the user may enter data for any plant equipment, describe as many tasks as needed pertaining to the equipment, and specify the tools, repair parts, safety warnings, and maintenance procedures for each task. Each task record includes the service interval and the time remaining until the service is due, measured either as calendar time or actual runtime. The user can inspect or edit existing records, perform queries, and generate reports.

For each task, the remaining time until the task is due to be performed is automatically updated every 24 hours. The actual runtime of selected equipment can be monitored so that maintenance can be scheduled on this basis rather than simple calendar time. AEM updates its own database with data collected automatically from Foxboro Intelligent Transmitters. Equipment data can be imported from existing.DIF or INFORMIX files without the need for retyping.

The user can query the database and create reports based on selected records using a screen which supports “query by example” for one or two search conditions. Lists or reports can be generated from all records which meet these conditions. Reports can be printed to a screen buffer or any system printer. Available report formats include Work Orders for maintenance tasks, Status Reports on the operational status of specified equipment, Task Reports showing task status, and Document, a complete listing of all data pertaining to selected equipment.

Modification of the AEM database is controlled by four levels of password protection; operations available at each level may be customized by the user.

Reports

WORK ORDER REPORTS:

When tasks become due, the maintenance information required can be printed on the printer.

When the work has been completed, the technician logs the work done into the system. This removes the task from the due list and resets the task interval clock.

The printed Work Order Report can contain the following information:

- Work Order Number
- Task description
- Equipment ID (or Tag Number) along with a description and location
- Model Number
- Serial Number
- Remarks and special instructions
- Comments
- Repair Parts information
- Completion time and date
- Reason for not finishing a maintenance task
- Work assignments
- Work logged by the technicians

TASK REPORT:

Prints the task description, status (normal, due, or overdue), last service date, and time until next service.

DOCUMENT:

Prints all data from all tables in the Database for selected pieces of equipment.

EQUIPMENT STATUS:

For each piece of equipment, the user can view and print out the following equipment status information:

- maintenance status (Normal, Due, Overdue)
- out-of-service and return-to-service dates
- elapsed downtime while out of service

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                              FOXBORO COMPANY
                    AUTOMATION EQUIPMENT MANAGER WORK ORDER
                                WORK ORDER NO._______

 TASK ID: 2-2                          DESCRIPTION: 2-2 for Equipment TAG_002
 GROUP NO.:   0                        DESCRIPTION: AEM 1.1 EQUIPMENT GROUP
 EQUIP. TAG: TAG_002                   DESCRIPTION: 002 description field
 LOCATION: Foxboro Test Lab 001
 MODEL:  Fox-1234ABCDEFG                        SERIAL NO. Fox-11-22-33-44-55-A
 REMARKS:
remarks field xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

 PARTS LIST:
   NUMBER                          DESCRIPTION                          QUANTITY

 12-46322          FLANGE GASKET (SEE PROCEDURE 1)                        0
 0-233-10          FLANGE BOLT (SEE SAFETY 1)                             8
 SAFTEY 1          BE SURE PUMP IS OFF & SYSTEM IS DRAINED                0
 PROCEDURE 1       FOLLOW FOXBORO MI 32-456 PAGE 91-93                    0
 PROCEDURE 2       NOTIFY SHIFT SUPERVISOR BEFORE STARTING                0
_____________________________________________________________________________
_____________________________________________________________________________
 COMMENTS:_____________________________________________________________

            COMPLETION       DATE: ___ /___ /___       TIME: ___:___

                      CHECK REASON PM NOT COMPLETED
              1.__ OUT OF SERVICE          6.__ CAN'T STOP FOR PM
              2.__ AWAITING PARTS          7.__ NEED SPECIAL EQUIPMENT
              3.__ NOT ENOUGH TIME         8.__ UNABLE TO LOCATE EQUIPMENT
              4.__ UNNECESSARY TASK        9.__ WRONG PM ACTION FOR MACHINE
              5.__ UNDER REPAIR
_____________________________________________________________________________
    WORK ASSIGNED TO:_____________________  WORK LOGGED IN BY:_______________
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Figure 6. Preventive Maintenance Work Order

Preventive Maintenance/Equipment Indexing

EQUIPMENT INFORMATION RETRIEVAL:

The database contains a large amount of data for the equipment in the plant or mill. Database queries allow the user to quickly focus relationships, such as:

- identify all equipment installed after 3/15/89.
- show all instruments with a calibration date older than 6/1/89.
- print all transmitters which have their equipment status shown as out of service.

ALTERNATE ACCESS MODES:

Alternate access allows the user to display the database records in a different sort order. For example, one may want to see the tasks organized by Equipment ID rather than by the normal Task organization.

DIRECTORIES:

Directories are lists of names of Equipment, Tasks, or Repair Items. The system can produce lists from which items may be selected, so that the user does not have to remember the exact spelling of the item when locating a database record.

TECHNICAL SPECIFICATIONS

The Automation Equipment Manager is designed to run on an Application Processor 20 (AP20) and a Workstation Processor 20 (WP20), or on any Personal Workstation except the PW-HTG. The Automation Equipment Manager is shipped on two diskettes: the AEM Database Server and the AEM Client. Up to three clients can access a single database simultaneously. Up to three Server packages can be installed on a single I/A Series system. A client process can access any database on the system.

No configuration options are required for the package other than that the INFORMIX database manager and INFORMIX-SQL data query package must be installed on each AP20 which hosts a Database Server package. Typical applications require two or three megabytes of space on the hard disk. At least five process slots must be available for each simultaneous session. It is recommended that the Automation Equipment Manager not be installed on an Application Processor which also hosts a Historian.

The Foxboro Company
33 Commercial Street
Foxboro, Massachusetts 02035-2099
United States of America
http://www.foxboro.com
Inside U.S.: 1-508-543-8750 or 1-888-FOXBORO (1-888-369-2676)
Outside U.S.: Contact your local Foxboro Representative.

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