TECHNICAL BULLETIN

M3 Workstation System Overview

* Indicates those sections where changes have occurred since the last printing.

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M3 Workstation System Overview

Introduction

The M3 Workstation provides a Windows® 98 Second Edition (SE) and Windows NT® monitoring and command system for communication with supervisory control networks. Communication to the control networks is via local area network, direct serial connection, or multi-site dialup. The supervisory controllers compatible with M3 Workstation Release 3.0 or later include Metasys® Companion™/Facilitator™ panels Release 6.03 or later or the N30/N31 Supervisory Controllers Release 2.0 or later.

This document describes:

- related information

- M3 Workstation overview

- summary of features

- configurations

- software architecture

Key Concepts

Related Information

As a reference, Table 1 lists the location of literature related to the M3 Workstation.

Table 1: Related Information

Manual	FAN
M3 Workstation Sales Resource Manual	*642.0*
M-Series Workstation Sales Resource Manual	*641*
M-Series Workstation with Companion/Facilitator Manual	*1153.1*
M-Series Workstation Manual	*1153.2*
N30 Supervisory Controller System Communications Manual	*689.3*
N30 Supervisory Controller User's Manual	*689.2*
N30 Supervisory Controller Technical Manual	*689.1*
Metasys Companion Technical Manual	*628.1*
Facilitator FMS Technical Manual	*1628.1*
M-Alarm User's Guide	*1153.2 (LIT-1153750)*
M-Graphics User's Manual	*644.0*
M-Trend User's Manual	*645.0*
M-Historian Technical Manual	*646.0*
M-Applications Manual	*653*

M3 Workstation Overview

The M3 Workstation represents a set of software components installed on the same machine and used in conjunction with one another to manage facility operations. The M3 Human-Computer Interface (HCI) application organizes the included software components, allows navigation between the components, and orchestrates their interactions.

The M3 HCI is the central point for user login, initiating Site connections (for remote applications), and selecting between software applications. These applications are used to view and manipulate the online data at the sites and the historical site data archived on the workstation. The M3 HCI also reports alarms from the sites and allows their acknowledgement. The M3 Workstation may be extended by the end user to provide quick access to additional tools via a configurable menu.

One of the unique features of the M3 Workstation is its ability to manage or contain a number of other applications within an encompassing shell application. The M3 Workstation represents the included feature applications using a tabbed, or workspace, presentation style. These workspaces represent active documents that may be used standalone, as well as in the M3 Workstation container. As each workspace is selected, the M3 Workstation main menu changes appropriately to include the menus from the contained application.
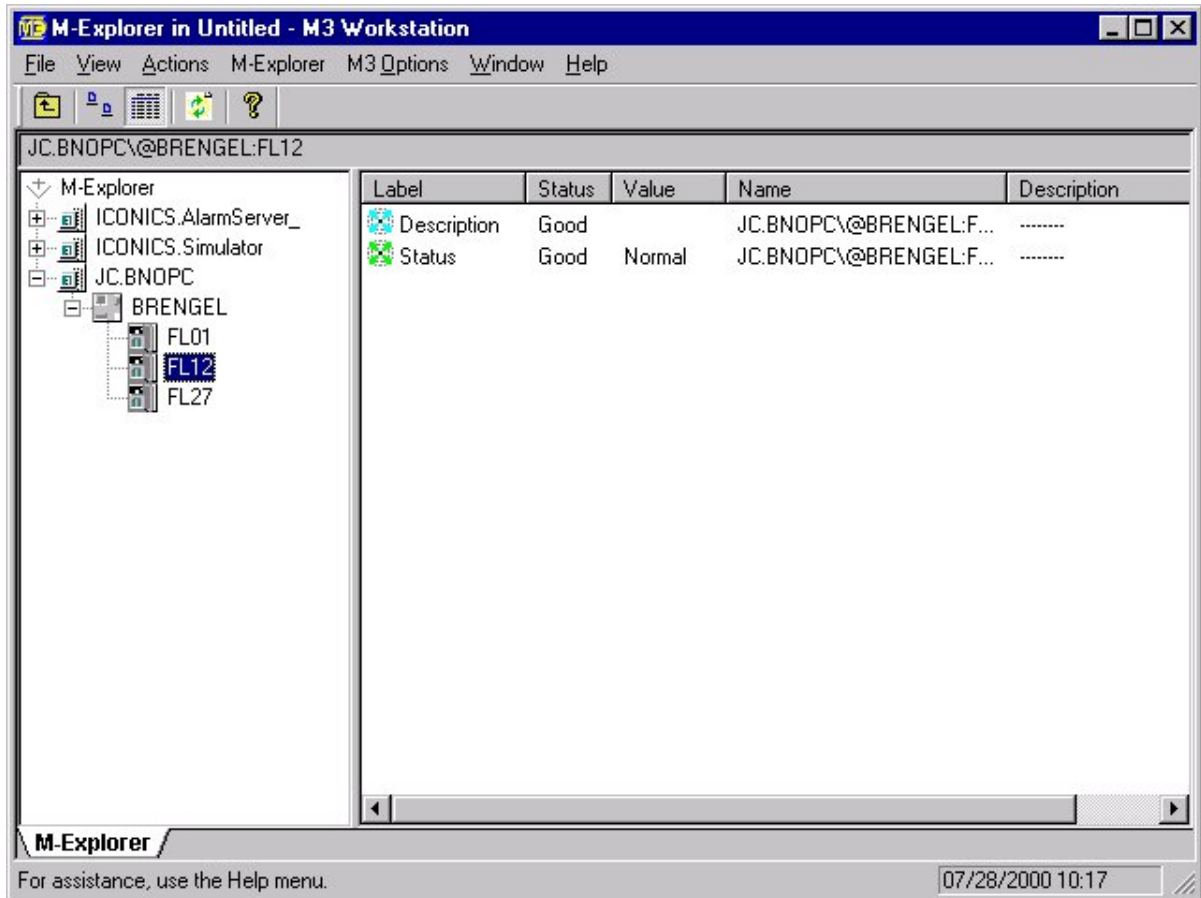

Figure 1: M3 Workstation

The following component applications are tested and qualified as M3 Workstation workspaces:

- Johnson Controls M-Trend Display (Release 2.0)

- Johnson Controls M-Graphics Display (Release 4.0)

- Johnson Controls M-Explorer Document (Release 2.0)

- Johnson Controls Terminal Document (Release 2.0, Companion/Facilitator only)

- M-Alarm container, includes M-Alarm Current Events Viewer (Release 1.0) and Alarm Panel

- Johnson Controls Data Visualization Applications (Release 1.1), Comfort Chart, Starfield, Analog Profile

- Johnson Controls Metasys Historical Data Visualization Applications (Release 1.0), River of Time, Data VCR, Metasys System Analysis Tool, Color Spectrum
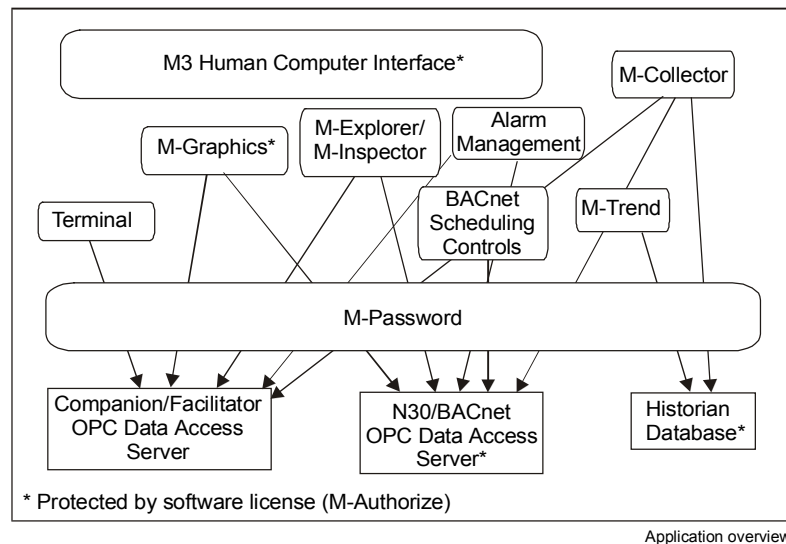

Application overview

Figure 2: M3 Workstation Software Applications Overview

Other applications may work, but are not tested or officially supported. The list of available feature applications displays when the M3 Tools > Add option is selected. The application list only includes the applications installed and registered on the computer.

Summary of Features

The following is a brief list of M3 Workstation features:

- Windows 98 SE and Windows NT compatibility

Note: The M3 Workstation software uses standard Microsoft® Windows installation and operating characteristics. For this reason, the M3 Workstation should run on the most recent versions of the supported operating systems. Install the most recent service packs. The minimum, qualified service pack levels are listed in the *Installing the M3 Workstation Technical Bulletin (LIT-1153100).*

- Remote access to multiple sites. The ability to support multiple concurrent site connections is dependent on the capabilities of the OLE for Process Control (OPC) Data Access servers. For example, two N30 sites and one Companion/Facilitator site can be connected simultaneously.

- dial-in alarms from the controller networks (Windows NT only from N30 sites)

- alarm management workspace (includes M-Alarm Current Events Viewer and Alarm Panel)

- user access system (M-Password)

- trend collection into a historian database (M-Collector)

- dynamic graphics with animation capabilities (M-Graphics)

- graphical viewing of archived trend data (M-Trend)

- online object explorer (M-Explorer)

- online object inspector (M-Inspector, N30s only)

- VT100 Terminal Interface to currently connected Companion/Facilitator Sites

- graphical scheduling for N30 sites

Configurations

Figure 3 shows an example of a Building Automation System (BAS) with M3 Workstations and Companion/Facilitator Panel units.
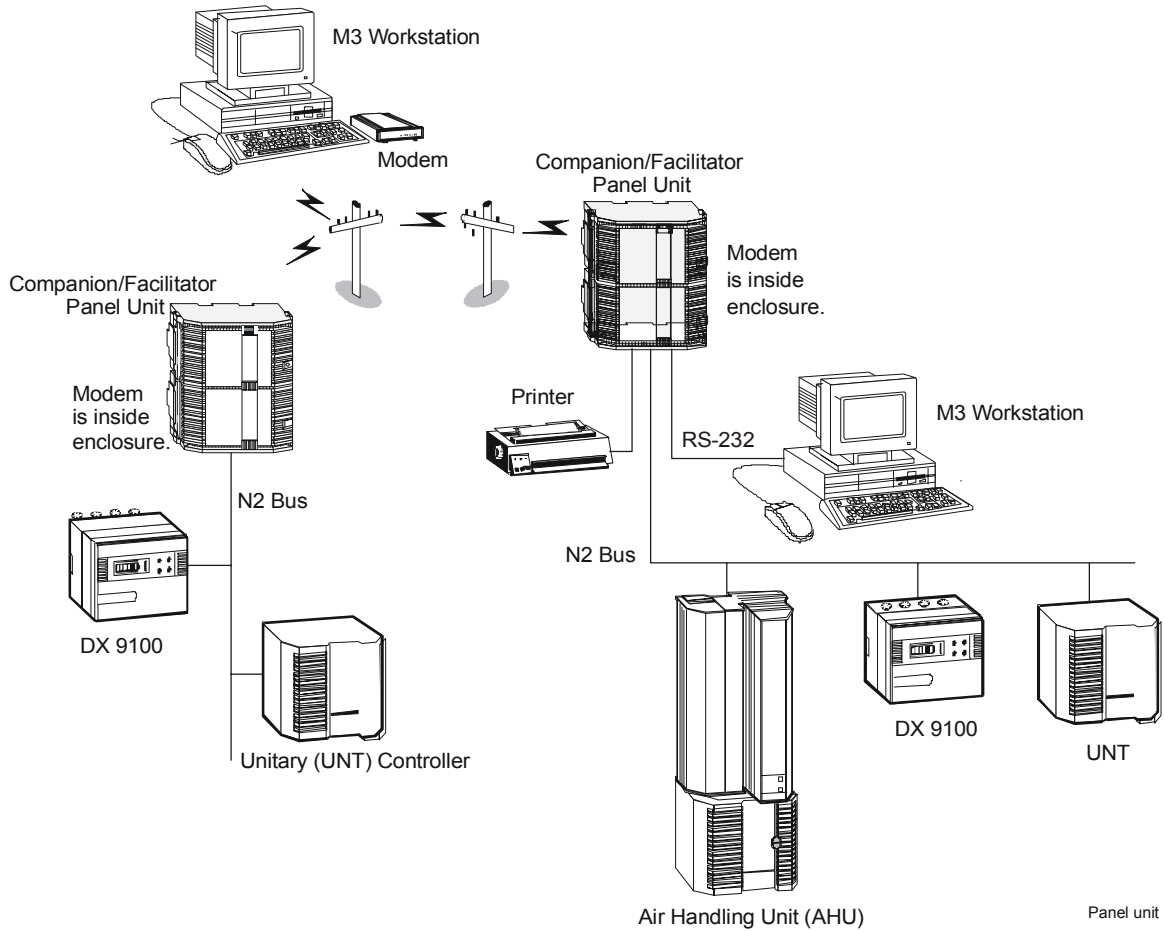

Figure 3: BAS with M3 Workstation and Companion/Facilitator Panel Units

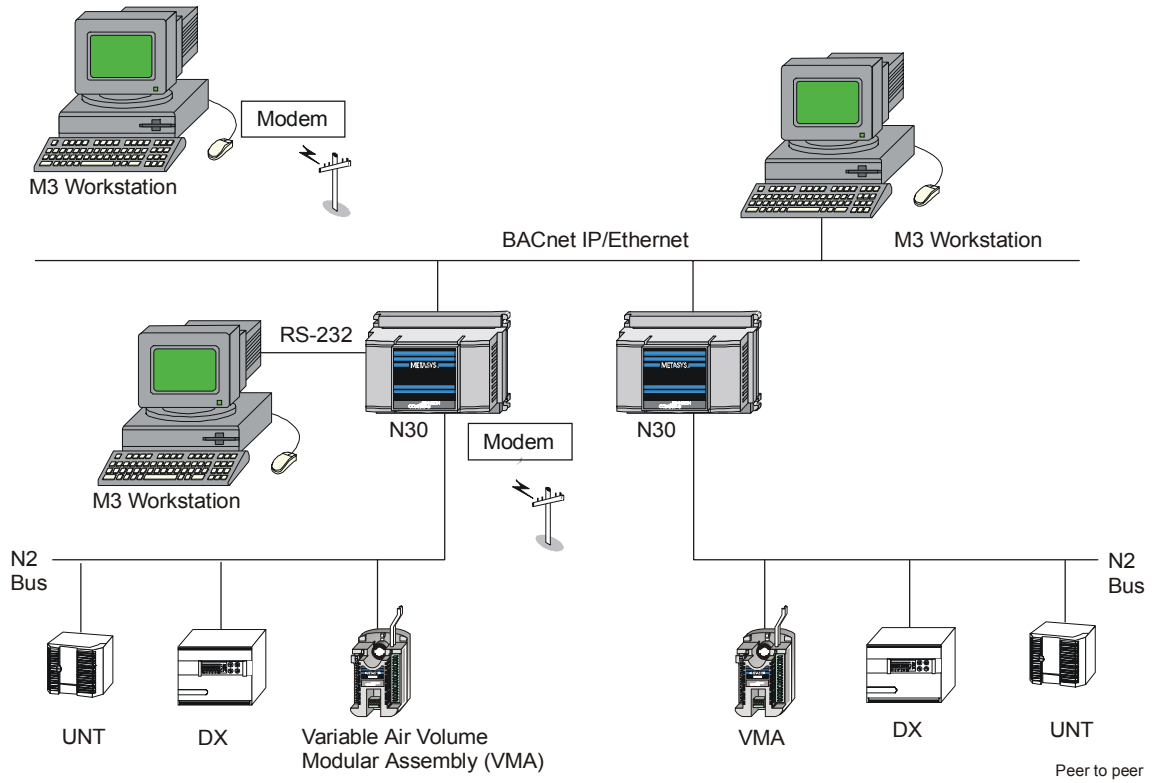Figure 4 shows an example of a BAS with M3 Workstations and N30 controllers.

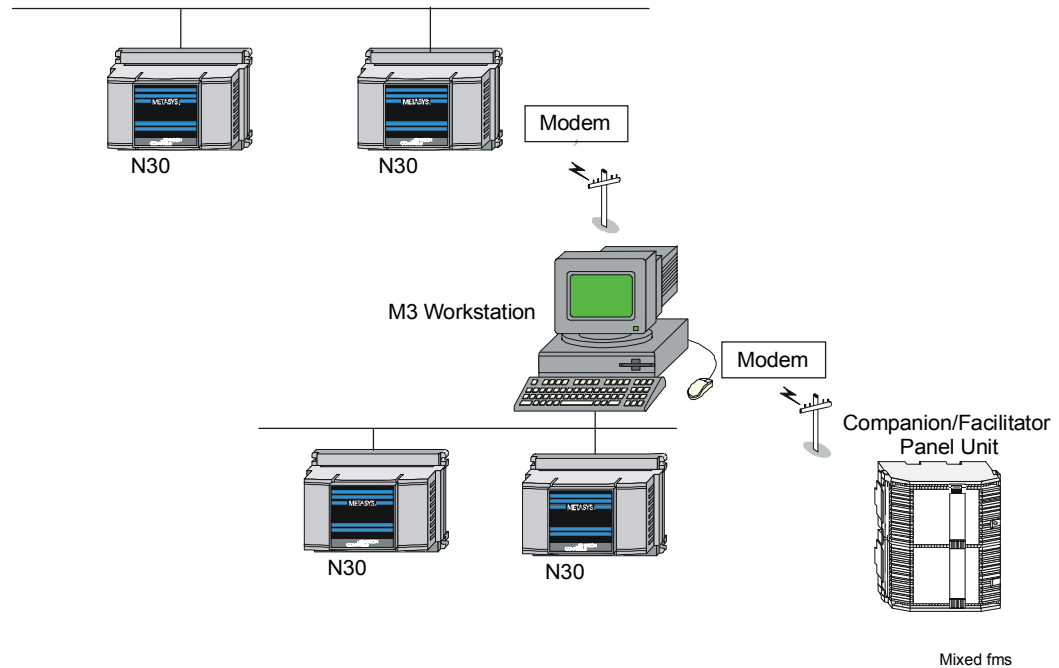**Figure 4: BAS with M3 Workstation and N30 Supervisory Controllers**

Mixed fms

Figure 5: FMS with M3 Workstation, Companion/Facilitator Panel Units, and N30 Supervisory Controllers

Note: Two N30 sites and one Companion/Facilitator site can be connected simultaneously.

Software Architecture

With the introduction of the M3 Workstation, the latest technology is used in the architecture. To assist in understanding this technology, a brief explanation of terms is provided.

OLE

Object Linking and Embedding (OLE) allows users to create and edit documents containing items or objects created by multiple applications.

ActiveX®

ActiveX is an extension of Microsoft OLE technologies. It not only includes OLE controls, it adds a series of Internet and multimedia services to create feature-rich applications.

Workspace

The M3 Workstation organizes software components using a tabbed, or workspace, presentation style. These workspaces represent Active Document applications, which may be used standalone as well as in the M3 Workstation. Refer to the *Using Workspaces* chapter in the *M3 Workstation User's Guide (LIT-1153200).*

OPC Server

OLE for Process Control (OPC) is a specification for applying OLE in the process control industry. Its goal is to provide standard methods to integrate (share/exchange) system data with other business systems. OPC servers are the key component. They control the interaction and communication between a client requesting information and the physical data provider (hardware and/or software). For example, the M3 Workstation applications (clients) communicate with OPC servers resident on the Personal Computer (PC) that communicates with the Companion/Facilitator or N30 Supervisory Controller.

ODBC

Online Database Connectivity (ODBC) provides an interface to allow M-Trend to make a standard set of requests for data regardless of the actual database package used. For example, in an M3 Workstation, historical data is defined in the format used by Microsoft Access. Using ODBC, M-Trend can view data stored in this database even though it has no knowledge of the Access database format.

Data Source Name (DSN)

A DSN file is used to define a connection to an archived database for M-Trend to access. When defining an ODBC data source for M-Trend, you are actually naming a connection, or map, to the M-Historian database.

Notes

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