ManagePak™ Engineering Workstation host software for Windows™

Model No.s: 17.1000, 17.1001, 17.1002, 17.1003, 17.1004, 17.1005, 17.1006, 17.1007, 17.1008 and 17.1009*
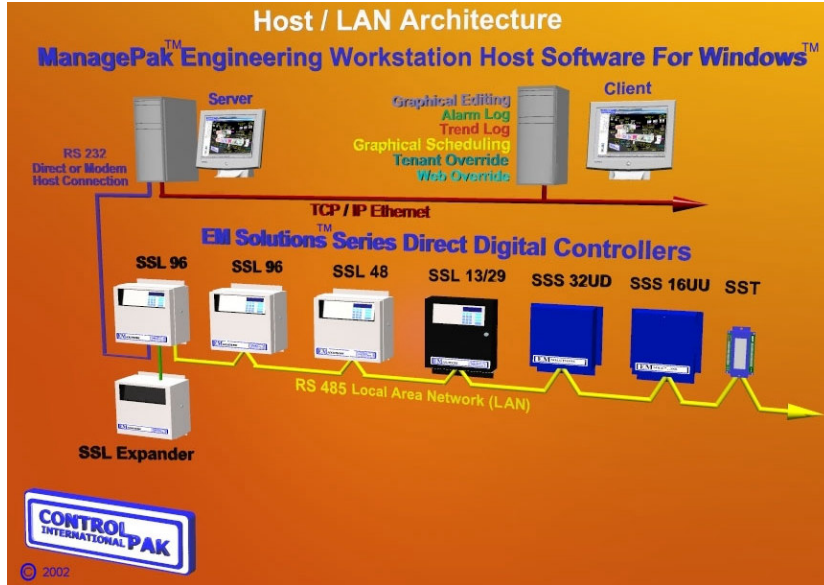
Applications:

ManagePak™ Engineering Workstation host software for Windows (Mpak EW for Windows) is a series of programs for stand alone and networked personal computers which operate in a Server/Client TCP/IP Ethernet based architecture. The Server provides the Graphical User Interface (GUI) and database structure for direct and modem communications with the EM Solutions™ Large, Small, and Terminal Unit Controller (SSL/SSS/SST) series Building Automation Systems. The SSL/SSS/SST are used to monitor and control mechanical/electrical equipment in industrial and commercial heating, ventilating, air conditioning, and lighting operations. A series of optional Client programs communicate with the Server to provide a full array of specialty GUI and database management functions.

Description:

Mpak EW for Windows **Server** is a GUI which provides the user with a simple and intuitive means of accessing virtually any data, feature, or on-line value within a Local Area Network's (LAN) Controller (Unit) to enable the user to understand the relationship of each programmable decision (known as "object") within the unit's application. The Server's features include: User Access Security, Hierarchical Tree View Data Structure, EM Terminal Emulation, Uploads/Downloads of Unit Application Engineering, On-line editing of Object Worksheets, and Trend Log/Alarm Log Records access.

Mpak EW for Windows **Clients** are available as follows:
Graphical Editing: provides full graphical formats for 3D images, Drag and Drop Object/Label placement, hyper linking of display Pages, and Real Time graphic and plotting Data Displays.

Alarm Log: provides Operator awareness of alarm conditions through central reporting, window display, sound attenuation, alarm report, and e-mail messaging.
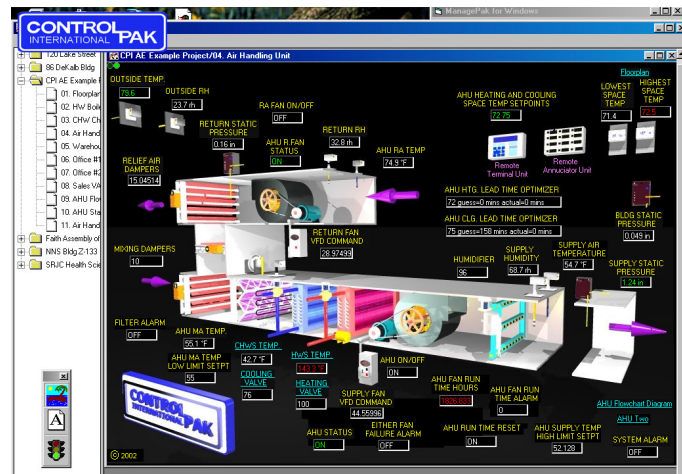
Trend Log: massive database structure for organizing, isolating, and displaying data records of Unit operations in text report and 2D/3D graphing images. Aliases convert values from ON/OFF to ALARM/NORMAL, etc.

Graphical Scheduling: central schedule manager for unique heating/cooling, etc. Set points, Optimizer status and ON/OFF functions to enable changes for many areas to be achieved in a simple drag, drop and click fashion. Year, Month and weekly calendars are used for same schedules for unrelated areas in unrelated buildings such that small changes can be applied to select areas in many buildings to maximize energy savings with minimal operator intervention.

Occupant Override: Touch screen and Telephone Interface Module for Occupants to override the use of their Areas spontaneously. Central Administrator software imports spreadsheet based Area database of grouped Time Clock (TC) and Zone (ZN) functions in unrelated units, User identification, passwords, and authorizations. Provides Tenant invoicing, usage reports and Administrator custom field commands via User Functions.

Web Override: Serves up Web pages of Building Maps with hyper links for Occupant Override functions defined above and uses same database management characteristics while providing usage reports on-line**.**

Web Server: Serves up Web pages of Graphical Editing Client created pages accessible via standard Web Browsers to form a thin client which remotely communicates with controllers to display equipment and decision statuses. As well, hyper links to other Web Pages, object overrides via Override GUI pages with simplified entry, TC/ZN Schedule view/modifications, and User Access Security are standard features.

Specifications:

Minimum Computer Requirements – Windows™ based Personal Computer with a Pentium III processor, 128 Megs of RAM memory, 80 Megs of hard drive space free, SVGA graphics card, One CD-ROM drive, two serial ports, one parallel port, one modem (or Control Pak International direct-connect cable), one HD 3 ½" floppy drive and one mouse. Printers are optional.

Computer Operating System - MS Windows™98 SP2, ME, 2000, XP, 2000 Server, 2000 Server Pro, XP Pro. TCP/IP protocol .

Distribution Media – Compact Disk.

System Protection - A parallel or USB port hardware adapter protects entry to Workstation.

Server Features:

Sign On Screen - Allows sign on/off access to users with the proper password and displays software version.

User Passwords - There are six (6) application switches and thirteen (13) Unit Object Switches available to form custom User access and passwords for an unlimited amount of Users based on their respective responsibilities and levels of expertise.

Local Area Networks and Units - Enables the User to achieve easy creation and maintenance of multiple LANs and Units through the use of a Windows™ Explorer-like "Tree view" hierarchy to add, delete and rename LANs and Units intuitively. Modular Object Oriented Programming based worksheets are available under the respective function to display all Labels, Engineering Units, current value, override value, and select object functions. Communication ports and parameters, as well as System and Unit Variables can be defined and modified swiftly.

Communications - Provides the ability for serial communication to the units via modem or a Control Pak International direct-connect cable. Supports Low-speed (1200 or 2400 baud) or high-speed (56K baud) modems and Direct-connect speeds of 1200 baud, 2400 baud, 9600 baud, or 115Kbaud**. Greater than 2400 Baud requires EM Solutions Series controllers.

EM Terminal Emulation - Window which provides direct User interface to the controller in the manner which emulates the controller's Local Terminal Unit displays and keystrokes for swift Object modifications and Trend Log dump requests. User selectable fonts, scrolling displays, Session Save option, LTU Keyboard tool, Error report , and Hexadecimal character window provide additional Unit communications interface features.

Unit Uploads/Downloads of Application Engineering Programs – Enables Users to gain and maintain multiple Application Engineering (AE) program "images" that have been uploaded from the respective unit at different times. Individual uploads, selectable by the User, can be downloaded into the unit via a simple mouse double-click and confirmation command. Each upload file name can be up to 200 characters long.

On-Line Editing of Object Worksheets – Provides Users with the ability to edit the Unit's objects while on-line using graphical forms called "worksheets". Changes made in the worksheet are modified directly to the unit's application program. Full features are supported for EM Solutions Units' Math, Logic, Timeclock and Zone Worksheets. All Object enable Label, Engineering Unit and Value Overriding features.
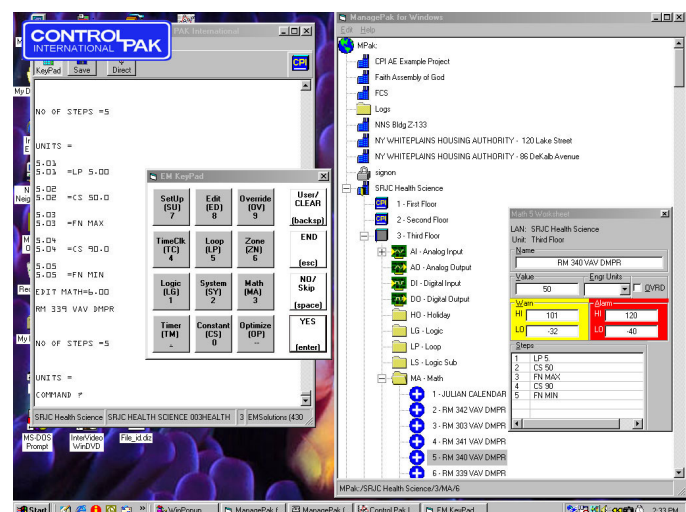
Central Access for Trend and Alarm Log Records – Users can quickly access the raw Trend Log records as they accumulate and are stored by the Server in the Trend Log portion of the hierarchal tree. With each report capable of up to twelve (12) Object values wide and Two hundred and Fifty-four (254) samples tall, the User's access via Notepad or WordPad provides tremendous volumes of data swiftly available for review and printing in selectable fonts.

The ManagePak Server can receive, store and generate reports from incoming Trend Logs and Alarm Logs. Each Trend Log and Alarm Log received is listed in a "Log" window for the user to acknowledge before it's removed from the list. Additional

services can be initiated by an incoming 'log', such as automatically e-mailing notification to a user or list of users or directed to an attached printer. Trend Logs and Alarm Logs can be received by either modem or direct-connect.

Graphical Editing Client (GE Client) Features:

User IDs and Passwords - The **GE Client** validates the user by passing the user ID and password to the **Server**.

Automatic Connection to Mpak EW for Windows Server and LAN/Units – Upon selection of a given "Project", which can be linked to unique **Servers**, Graphic "Page" , and a click on the **GE Client's** Toolbar Traffic Light will initiate an auto connection to the specific Server and Unit, as well as an automatic placement of the background image and the previously defined array of modular monitoring and controlling decisions known as "Objects" will appear with their correct Labels, real time status value and Engineering Unit. The page will continue to display updated values until commanded to stop. The **GE Client** supports an unlimited number of "Projects" each of which can have an unlimited number of "Pages" , each of which can have an unlimited number of "Objects".

Modern Graphic Formats – The **GE Client** supports the importing of all standard Graphic formats such as .gif, .bmp, .jpegs. Images can be imported to become sub-components of an existing Graphic.

Drag and Drop of Objects – While on-line with a Unit through the **Server**, one can simply click on a given Object found in the **Server's** hierarchical data array and "Drag" it onto the **GE Client's** Page display to assign the Object to a given location on the page. Once the page is saved, future requests for page displays will include the latest objects defined in this manner.

Auto Size Object Labels, Values and Engineering Units – When performing the above Drag and Drop tactic, one can have the display fields of the three items auto sized and oriented correctly (Label position in relation to Object Value) to expedite Graphic Set-up Sessions. Values begin displaying in a couple seconds. Repositioning of Labels and Objects is simply done by dragging them with a mouse.

Custom Labels and Text Fields – Using the GE Client Toolbar Text feature, one can define the location, size and font of custom Labels and Descriptive Text Fields. Transparent Background, Background Color, Text Color, and Borders are simply selection options.

Page Links – Either by right clicking on a label and editing the definition of the Page to be linked to or by simply dragging and dropping another Page onto a given Project's Page (even if the Target hyper linked page is in a different Project, **Server**, or LAN Unit), one can define the hyper link for auto connection to same upon clicking on that given Label. Hyper Linked Labels appear in a light Blue color. This enables one to easily move between Pages in unrelated **Servers**, LANs and Units for comprehensive virtual building tours of the Building Automation System's Electrical and Mechanical processes graphics.
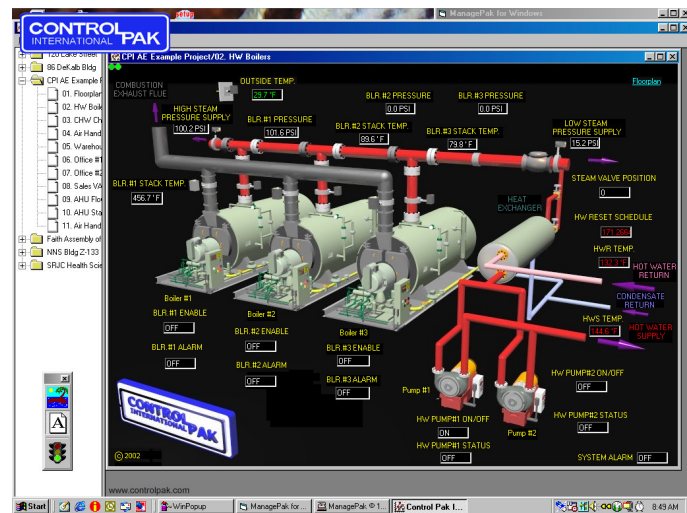
Positioning Grid – A click of a mouse causes the background image to display a "snap to" position grid which auto aligns Object Labels and Value/Engineering Unit Display fields to become horizontally and vertically aligned with other objects for cleaner, more organized looking graphics in the least amount of set-up time.

Lock Page – As the **GE Client** enables perpetual enhancements by addition appropriate Objects during future sessions, One can "lock" a given page to cause the Label, Status and Engineering Display fields to remain in position until unlocked. This enables one button clicks to cause the hyper linking to other Pages.

Project Passwords – By entering a Password at the Project Level, one can prohibit others who do not possess the password from altering the Graphical Pages of the specific Project.

Project Options – Provide Operator Selectable Image, Label and Data Field defaults for Border, Transparent, Background color, Foreground color, Fonts, and Data Label Alignment Selections on a per Project basis. Individual fields can be edited on-line thereafter. Further, Object normal, warning, and Alarm values have custom color and sound wave commands.

Print Screens – The Print Screen option enables one to print a given real time Page with its value to a definable printer using the standard Print commands to display the process in hard copy form.

Save Screens – The Save Screen option provides the selection of "Save To" location and file name for future reference of viewed images.

Graphical Library – The **GE Client** comes with a complete library of three dimensional mechanical systems graphics and an enhanced high resolution graphics library is available as well of all major types of HVAC mechanical processes.

Object Overrides - The Objects which appear on Pages can be selected and Overridden upon Operator command for the

method appropriate for the Object type such as Binary (On/Off/Clear), Value (Value/Clear), or Modal (Override: Until a time, For an amount of Time, Forever, or Clear as well as the On/Off for TCs or Heat/Cool set points for ZNs). Overridden Objects change to defined colors.

Object Plotting - The Objects can also be Plotted in real time with Auto Scaling Displays by simply right clicking on a given Object and selecting the "Plot" option. So one can either "drag and drop" additional Objects onto the same Plotting Window for multiple Objects concurrent Plotting Displays or one can open multiple Plotting Displays in like fashion.

Add/Delete Project/Pages/Objects – The **GE Client** enables simple Add/Delete options for each Project, Page and Object to aid in the fluid enhancement process. Project Deletion commands must be verified prior to execution.

Alarm Log Client (AL Client) Features:

User IDs and Passwords - The **AL Client** validates the user by passing the user ID and password to the **Server**.

Automatic Connection to Mpak EW for Windows Server open alarm Logs (Logs) file records – Upon auto start or manual loading of the AL Client, a link to the **Server** is established and the list of, as yet to be acknowledged, alarm log records are displayed in the AL Client window.

New Alarm Initiated Overlay Window – Window overwrites other Windows™ programs to cause Operator awareness.

Alarm Log Display - One can click on any of the listed alarm logs and the complete file will be displayed.

Alarm Log Print, E-mail, Text Comment Field, Acknowledge and Exit – Enable Operator to perform these tasks via simple button commands to result in writing Alarm Logs to previously assigned printer and e-mail addresses. Comment field allows multiple operators to communicate the actions they have taken to others. Acknowledge button causes removal of Alarm Log from Logs File and defines same with operator identification to database records.

Reminder Time – provides selectable time interval for Operator to be reminded of open Alarms by automatic AL Client window overlay with options to not remind the Operator or for time interval selection of 15, 30, or selectable minutes.

Option Functions – Include ability to *Sign in* as a viable Operator/Password, to change **Server** Computer selection, to *select printers* on the PC Network, to enable *automatic printing* of new Alarm Logs received, to define *Sound* bite files for custom audible attenuation of open Alarm Status, and a series of *e-mail* addressing functions for automatic e-mailing of Alarm Logs to an unlimited number of e-mail addresses.
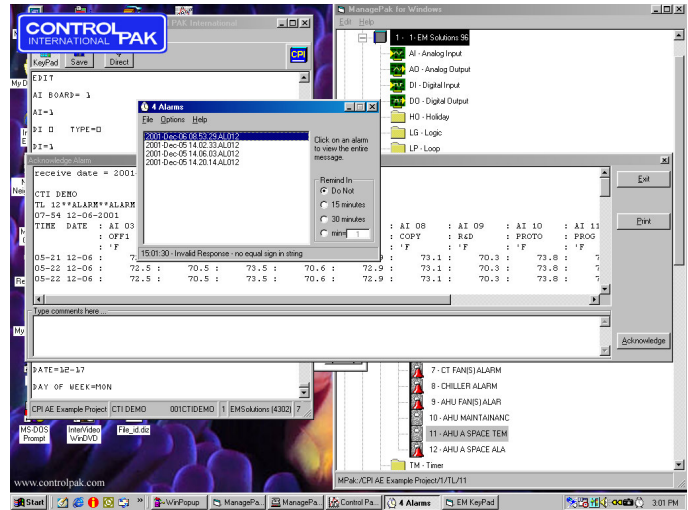
Trend Log Client (TL Client) Features:

User IDs and Passwords - The **TL Client** validates the user by passing the user ID and password to the **Server**.

Massive Database Access – automatic accumulation and data structuring is performed by the **Server** of received Trend Logs (TL) by LAN, Unit and Trend Log Number to form an on-going expansion of application data experiences. Each TL contains up to 12 modular decision "Objects" wide and 254 samples tall (as frequent as every 3 seconds) and can be dumped on a time or event basis to the Server. The data is stored in a database designed for perpetual growth and can be imported into conventional spreadsheet programs for high level data analysis.

Date/Time Isolation – Start and ending dates/time are easily entered for narrowing the data into meaningful time periods.

Object Selection – All Objects in the TL's data are displayed and can be individually eliminated from a given report with a mouse click.

Aliases – a Map Object Value feature enables one to redefine data into custom words to make better understanding of data such as normal/alarm, open/closed, enabled/disabled resulting in the representation of the alias name on subsequent reports.
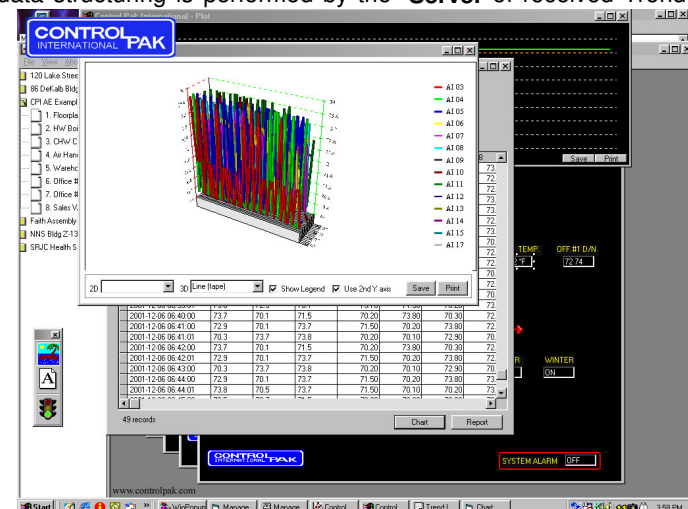
Custom Reports – a Reports button generates a custom report which offers individuals the ability to select text fonts, printing, exporting, size zooming, and pages. Reports automatically include the selected headers, object identifiers, date/time stamp and object data (actual or alias) as requested for the time interval selected. Exported reports can be e-mailed to others.

Custom Charts/Graphs – above parameters can be quickly charted or graphed with the Chart button. The operator can easily choose from a series of two and three dimensional graphing tools. The two dimensional tools include bar/pictograph, line, area, step, combination, pie, and X Y scatter charting and the three dimension tools include bar(column), line (tape), area, step and combination graphs. Additional check boxes quickly enable the addition of "show Legend" and "use second Y axis" displays. Charts/Graphs can be saved and/or printed via buttons provided. Saved Charts/Graphs can be e-mailed for isolating defined operational trends and displaying same to all involved individuals.

Graphical Scheduling Client (GS Client) Features:

User IDs and Passwords - The **GS Client** validates the user by passing the user ID and password to the **Server**.

Log Window – provides English language display of time stamp of each query and command executed to the **Server**.

Unassigned - hierarchal tree format enables one to "drag and drop" individual Time Clock (TC: time based On/Off commands) Objects, Zone (ZN: time based heating/cooling set points with minimum lead time calculation Optimizer) Objects, entire Units (field controllers) or entire LANs (network of field controllers) into the "unassigned" file of the GS Client for subsequent assignment to specific Calendars.

Schedules – 24 hour period of time GUI form for identifying a combination of TC and ZN commands to include time of day based heating/cooling (etc.) set points, optimization of specific schedule entries and on/off commands. Can be individually defined for label and color, then can be copied to form similar schedules or deleted. Unique schedules define the commands of TC/ZN objects on the days of the year for which they are assigned (see Calendar below). The same schedule can be used for multiple days in the same or multiple calendars forming a massive database of commands which can be enhanced and commanded to individual units or multiple units in seconds. Therefore the ease with which one can customize their schedules and implement them becomes the greatest ability to reduce energy consumption by properly tailoring operations to actual occupancy.

Calendars – multiple years of past/present/future daily/monthly based assignments of 24 hour day schedules attained by simply "drag and dropping" selected Schedules to given days in the Calendar. Enables one to define actual events for complete years and for many years in advance. Multiple Calendars can be established for each uniquely occupied area of a given building and the same Calendar can be used for controlling the same schedule of occupancy in different buildings without regard to the physical location or LAN/unit thus forming virtual schedules which become easier to maintain and to tighten to actual occupancy for maximum energy savings. Calendars also include the following features:

1.   Advance by year or Month
2.   View individual Month at a glance
3.   Drag and Drop assignment of a given month to other months to copy
4.   View individual Week at a glance to display command details, left/right scroll and print buttons
5.   Global Holiday Schedule to command same "holiday" schedule for all TC/ZNs assigned to calendar
6.   Holiday enables spontaneous non-occupancy or occupancy command to be executed per calendar

Update Unit – enables operator to command either just the changed schedules or update all schedules to select individual units or to all units. Command takes couple seconds to issue and automatically enhances defined schedules without regard to the LAN/unit in which they occur. The change all schedules in a given Unit feature enables one to recommission a unit's application engineering from earlier upload via Server and to correct all schedules to current commands.

Set Global Holiday – provides a simple command to define each Unit's global holiday to occur on a given start date which defaults to "today's" date for a select number of days to cause all units to operate based on their individual TC/ZN Holiday schedules for spontaneous non-occupancy (such as a "snow" day, etc.) or occupancy for all assigned buildings. In addition, "select units" feature enables unique areas of buildings to be controlled in event of same (such as a chiller failure day, etc.).
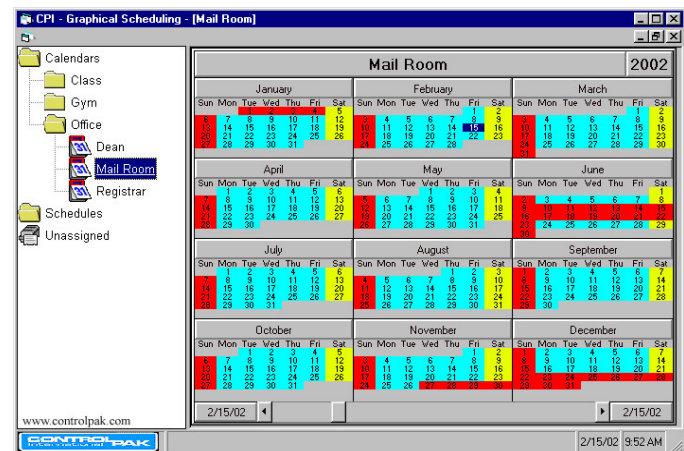
Servers – provides operator with ability to gain unassigned TC/ZNs from remote Servers by enabling Switch Server, get TC/ZNs, or to establish a different Server connection functions. Thereafter, TC/ZNs in unrelated Servers/LANs/Units can be combined into the same Calendar as defined above to operate based on common schedules for ease of central schedule maintenance through multiple Servers.

Occupant Override Client (OO Client) Features:

Touch screen and Telephone Interface – enables Occupants to override the use of their virtual Areas spontaneously to execute TC/ZN Commands via Touch Screen Menus/forms or Telephone Voice Menu prompts.

Central Database Management – The **AdminPak** ™ software module of the OO Client enables the Operator to independently manage the following database administrator functions:

1. Configure System Options: Host communication, Host Timing, Override, Database Paths and Voice Command.
2. Define Users, Areas, and Authorizations: enables select individuals to command their respective virtual area and tools to define lists by Area and by User. Areas can be individual or groups of TC/ZNs in same or different Units/LANs.
3. Establish Time Clock and Zones: Define TC/ZN, their Area groupings, Listings, and assignment checks.
4. Track Billing Information and generate Invoices: Extend after hours usage can be grouped as Area/User Billing and User Invoices can be generated upon request based on Operator defined kwh and btu rate charges.
5. Override Logs: used by operator for Log Records to view, purge history, list by User, or list by Area. Also provides direct access and display of massive Trend Log Record Database.
6. User Functions: enable Administrator Level Operators to execute custom commands in multiple units from a single action to cause custom simple/complex control actions or Trend Log Data Dumps to the Server/ TL Client. Also enables one to view Logs, purge history, List by User, or view User Function definitions.

Command Queue Manager – provides throughput commands from TouchPak™ or VoicePak™ modules for multiple concurrent commands to be executed to the respective Servers to the Field Controllers. English based commands are time stamp logged for ease of operator verification of specific executed commands. Allows selection of Server, Port, manual Connection for Server command simulation and port "listening" for monitoring data exchange. Automatically transmits Override and User Function Commands and retries as defined in AdminPak™ above with automatic time adjustment and pending, success, or failure status determination.

TouchPak™ - Touch screen module enables multiple occupants to execute Area (TC/ZN) Override and/or User Function commands via a touch screen monitor at a central location such as a building lobby to gain after hours usage of electrical and HVAC equipment via simple commands such as:

1. User/Password identification
2. Area to be overridden
3. Hours/Minutes of Override
4. Lights On, Off or no lights (or electrical equipment)
5. No HVAC/Set HVAC: Heat/Cool Set points
6. Administrator enabled User Functions
7. Previous/Clear and numerical command buttons
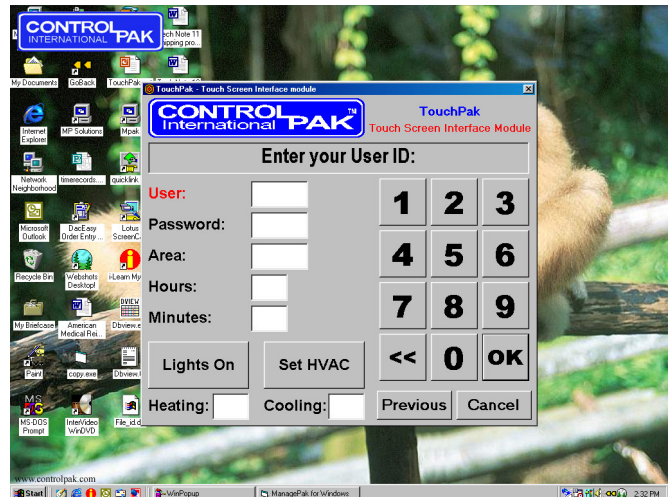
VoicePak™ - Telephony interface module for voice recorded menu system to achieve above mentioned TouchPak™ commands via touch tone telephones. Enables unique commands to be executed from anywhere via telephone. Supports 1-64 concurrent telephone lines so all occupant requests can be processed during high telephone traffic moments.

Web Override Client (WO Client) Features:

Web based enhancement to OO Client above – enables Occupants to override the use of their virtual Areas spontaneously to execute TC/ZN Commands via thin client browsers through the Internet.

Custom Homepage Screen – shows organization's name, logo, contact e-mail, web site, map of area to graphically select individual buildings, and alphabetically listed buildings for same. Also shows both CPI Distributor and CPI contact persons' names, e-mail addresses and web sites for user assistance. Hyper links connect to selected buildings' WO Client pages.

Custom Building Screens – shows building floor plan, link back to homepage, check box for Occupancy Usage Profile (OUP) charts (see below), Areas selection options via lists or graphical location within building to select Area to be overridden or for OUP Chart rendering. Entire Building selection provides overrides of all Areas within the building for "snow day" or service day commands. When in OUP mode, entire building shows OUP Charts for all areas within the building for ease of

comparison of actual area occupancy.

Occupancy Usage Profiles – displays seven days at a glance of combined charts of occupancy defined as yellow (normal), green (reduced), and red (excessive) actual occupancy. Provides left/right display options to move the chart by individual days, weeks or months. Used by Administrator and occupants to define successful improvements in actual occupancy and areas excessively occupied for focused schedule improvements.

Area Override Forms – provide occupant entry fields for commands defined in TouchPak™ above but have automatic insertion of defined Area Number and name. Execute Override button displays entry errors or successful Override Log commands with Override ID number. Successful Overrides are executed via the Command Queue Manager as defined in OO Client above.

User Function Forms – Administrator level operators can execute custom User Functions as defined above.

Reports – provide feedback of control actions as User Functions, Area Overrides, or Occupancy Usage Profiles from given starting and ending dates. Reports can be structurally queried to define all, pending, success or failure commands and identify override ID, User, Area, Clocks/HVAC, duration, heating/cooling set points and success status of each command.

Administration Menu – provides on-line, remote access to all key functions defined in OO Client AdminPak ™ above.

Web Server Client (WS Client) Features:

Microsoft™ Windows™ Based Internet Security Access – User name and password database can be established and maintained by Information Technology (IT) Department personnel in same manner as other Personal Computers (PCs) on the network through standard methods.

User IDs and Passwords - The **WS Client** validates the user by passing the user ID and password to the **Server**.

Thin Client Browser Access – Using standard Internet Browsers, one can access their Building Automation System (BAS) without the need to carry a laptop PC, host software, copy protection devices, or current database disks. Merely possessing the above security access information and the web site address enables one the freedom to enhance their BAS operations from anywhere at any time.

Real Time Graphical Displays – A list of created graphic pages are provided for Operator selection. Page displays provide all control decision "Objects" with their respective label and engineering unit overlaid in logical locations on graphical images of mechanical processes, etc. for accurate monitoring of system operations. All standard graphic formats, along with digitized photos and CAD based images, can be used as background graphics to form display "pages". An unlimited number of pages and objects per page enable ongoing system expansion. Point and click to select a specific Graphic and this automatically instructs the Server to communicate with the appropriate unit and request/display the correct objects.

GE Client based Page creation – Simple "drag and drop" method of page creation via GE Client (see above) enable fast, functional graphic development forming a "Project" database. Multiple "Project" files can be "drag and dropped" to the WS Client database for instant access of all populated graphics. Therefore, individuals who already have GE Client based graphics can immediately re-utilize this investment and everyone can use the GE Client to perpetually expand their own systems to maximize energy and labor savings through on-going enhancements.

Hyper Linking – Labels on graphics can be links to other pages for swift, single mouse click access to other pages and units where assigned. This method enables Operators to conduct a very fast tour of their facilities via unparalleled depth of information and images for accelerated comprehension of operational conditions for maximum confidence in building system control conditions.

Object Overrides via GUI forms – Click on any object on any graphic to display the appropriate object override method in simple command format, thus complex actions can be easily commanded with a few keystrokes.
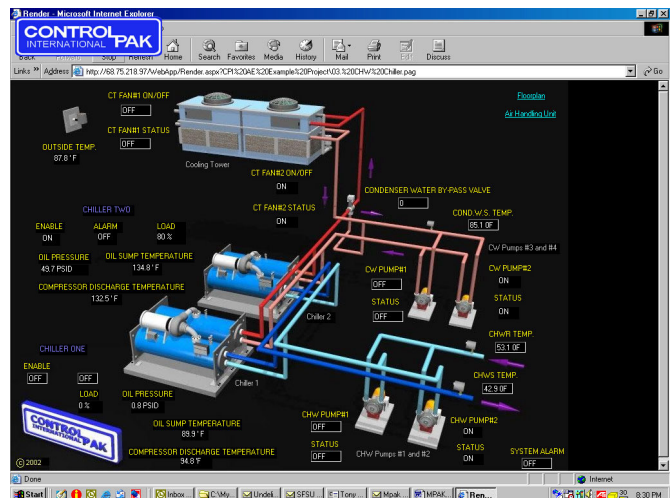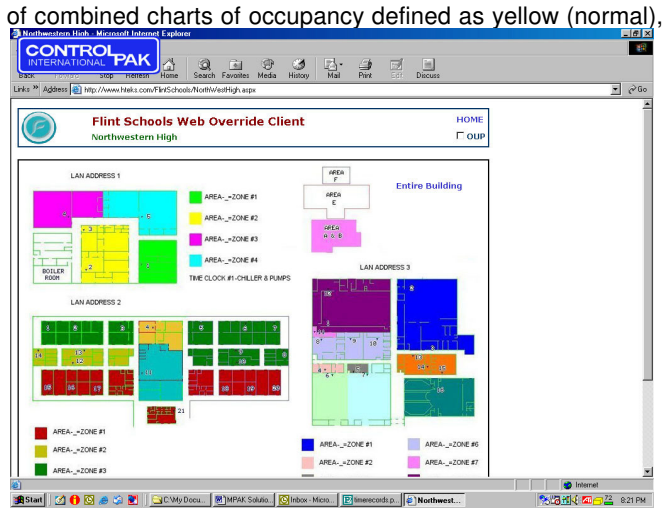
View Units' actual Time Clock (TC) and Zone (ZN) Schedules – Actual time based TC (On/Off Commands) and ZN (Heating/Cooling set points with optional minimum lead time "optimizer" functions) from the unit itself (a feature unique to Control Pak International) can be displayed via a single mouse click for Operator viewing of scheduled actions.

Instant editing of TC/ZN Schedules – Once viewed, schedules can be easily modified via individual entries or through the use of "copy and paste" text editor commands to tailor them to actual occupancy. Complex schedules are easily implemented and maintained for maximum energy and labor savings.

Alarm Notification via E-mail – Alarm Log Reports are automatically e-mailed to all assigned individuals via the AL Client (see above). Open Alarms pending acknowledgement can be viewed in a list and individually acknowledged and/or e-mail comments transmitted to define alarm response actions taken by designated personnel.

Server based Unit creation – Database paths reference units and communication structures of the Server (see above) so established systems already have the appropriate features in place and new applications can be commissioned in a swift and accurate manner.

Bundled Hardware – Control Pak International can provide a current Web Appliance, complete with an advanced Microsoft™ based Operating System, on which to run the WS Client bundled with the appropriate software, along with the system set-up services ready for Project File application. As well, CPI or our Authorized Distributors can generate all standard and custom graphics and database services to form a "turnkey" system.

MPak EW for Windows Tutorial (Tutorial) Features:

Screen Recordings with voice over Narrative – "Point and Click" selection of specific functions enable one to take a guided tour through the various Mpak EW for Windows products to gain a complete working understanding of all User selectable features.

Grouped by Software Product – The Tutorial is organized by Software functions with logical sub sets to walk Operators through all ManagePak™ EW host software for Windows™ (Mpak EW Windows) software products in the following order:
1. Server
2. Graphical Editing Client
3. Alarm Log Client
4. Trend Log Client
5. Graphical Scheduling Client
6. Occupant Override Client
7. Web Override Client
8. Web Server Client

Start to finish format – The Tutorial guides one through the initial commands from establishing and maintaining User ID and passwords in the Server through the final "drag and drop" of finished Project data files in the Web Server Client to form a complete system commissioning and subsequent maintenance guide.

Expert Level System/Expert Level Results – Using the proper terminology and command actions in the correct order enables Operators to reach their Applications' full potential with confidence, thus enabling them to answer any question and display improvement procedures to interested individuals for a systematic approach to BAS operational enhancements. Thus, greater energy and labor savings result from better decisions being executed. Further, improved data gathering and displaying methods form a quicker means to convey this information to other technical and non-technical individuals while forming the backbone of a "reasonable person theory" to help avoid litigation issues with occupants by validating the thermal and air quality of delivery systems.

ORDERING INFORMATION:

☐ **ManagePak™ EW for Windows™ Bundled:** M/N 17.1000
Includes Mpak EW for Windows Server, Graphical editing Client, Alarm Log Client, Trend Log Client and ninety (90) day free trial copy of Graphical Scheduling Client.

☐ **ManagePak™ EW for Windows Server:** M/N 17.1001
Mpak EW for Windows **Server** is a GUI which provides the user with a simple and intuitive means of accessing virtually any data, feature, or on-line value within a Local Area Network's (LAN) Controller (Unit) to enable the user to understand the relationship of each programmable decision (known as "object") within the unit's application. The Server's features include: User Access Security, Hierarchical Tree View Data Structure, EM Terminal Emulation, Uploads/Downloads of Unit Application Engineering, On-line editing of Object Worksheets, and Trend Log/Alarm Log Records access.

☐ **ManagePak™ EW for Windows™ Alarm Log Client:** M/N 17.1002
Mpak EW for Windows **Alarm Log Client** provides Operator awareness of alarm conditions through central reporting, window display, sound attenuation, alarm report, and e-mail messaging.

☐ **ManagePak™ EW for Windows™ Graphical Editing Client:** M/N 17.1003
Mpak EW for Windows **Graphical Editing Client:** provides full graphical formats for 3D images, Drag and Drop Object/Label placement, hyper linking of display Pages, and Real Time graphic and plotting Data Displays.

☐ **ManagePak™ EW for Windows™ Trend Log Client:** M/N 17.1004
Mpak EW for Windows **Trend Log Client**: is a massive database structure for organizing, isolating, and displaying data records of Unit operations in text report and 2D/3D graphing images. Aliases convert values from ON/OFF to ALARM/NORMAL, etc.

☐ **ManagePak™ EW for Windows™ Graphical Scheduling Client:** M/N 17.1005
Mpak EW for Windows **Graphical Scheduling Client** is a central schedule manager for unique heating/cooling, etc. Set points, Optimizer status and ON/OFF functions to enable changes for many areas to be achieved in a simple drag, drop and click fashion. Year, Month and weekly calendars are used for same schedules for unrelated areas in unrelated buildings such that small changes can be applied to select areas in many buildings to maximize energy savings with minimal operator intervention.

☐ **ManagePak™ EW for Windows™ Occupant Override Client:** M/N 17.1006
Mpak EW for Windows **Occupant Override Client:** Includes Touch screen and Telephone Interface Module for Occupants to override the use of their Areas spontaneously. Central Administrator software imports spreadsheet based Area database of grouped Time Clock (TC) and Zone (ZN) functions in unrelated units, User identification, passwords, and authorizations. Provides Tenant invoicing, usage reports and Administrator custom field commands via User Functions.

☐ **ManagePak™ EW for Windows™ Web Override Client:** M/N 17.1007
Mpak EW for Windows **Web Override Client:** Serves up Web pages of Building Maps with hyper links for Occupant Override Client functions defined above and uses same database management characteristics while providing usage reports on-line.

☐ **ManagePak™ EW for Windows™ Web Server Client:** M/N 17.1008
Mpak EW for Windows **Web Server Client:** Serves up Web pages of Graphical Editing Client created pages accessible via standard Web Browsers to form a thin client which remotely communicates with controllers to display equipment and decision statuses. As well, hyper links to other Web Pages, object overrides via Override GUI pages with simplified entry, TC/ZN Schedule modifications, and User Access Security are standard features.

☐ **ManagePak™ EW for Windows™ Tutorial:** M/N 17.1009*
Mpak EW for Windows **Tutorial**: is a CD which provides dynamic instruction on all features of the Mpak EW for Windows Product Family with Instructor's voice over. All Set-up, modification and operational features are illustrated with actual screen recordings to guide the Operator through the software features and operational methods to help the Operator gain full beneficial use of the features swiftly. Divided into above products and specific features, the Tutorial CD is great for initial training, quick reference, and new employee orientation.

EXPANDED SYSTEM ARCHITECTURE:
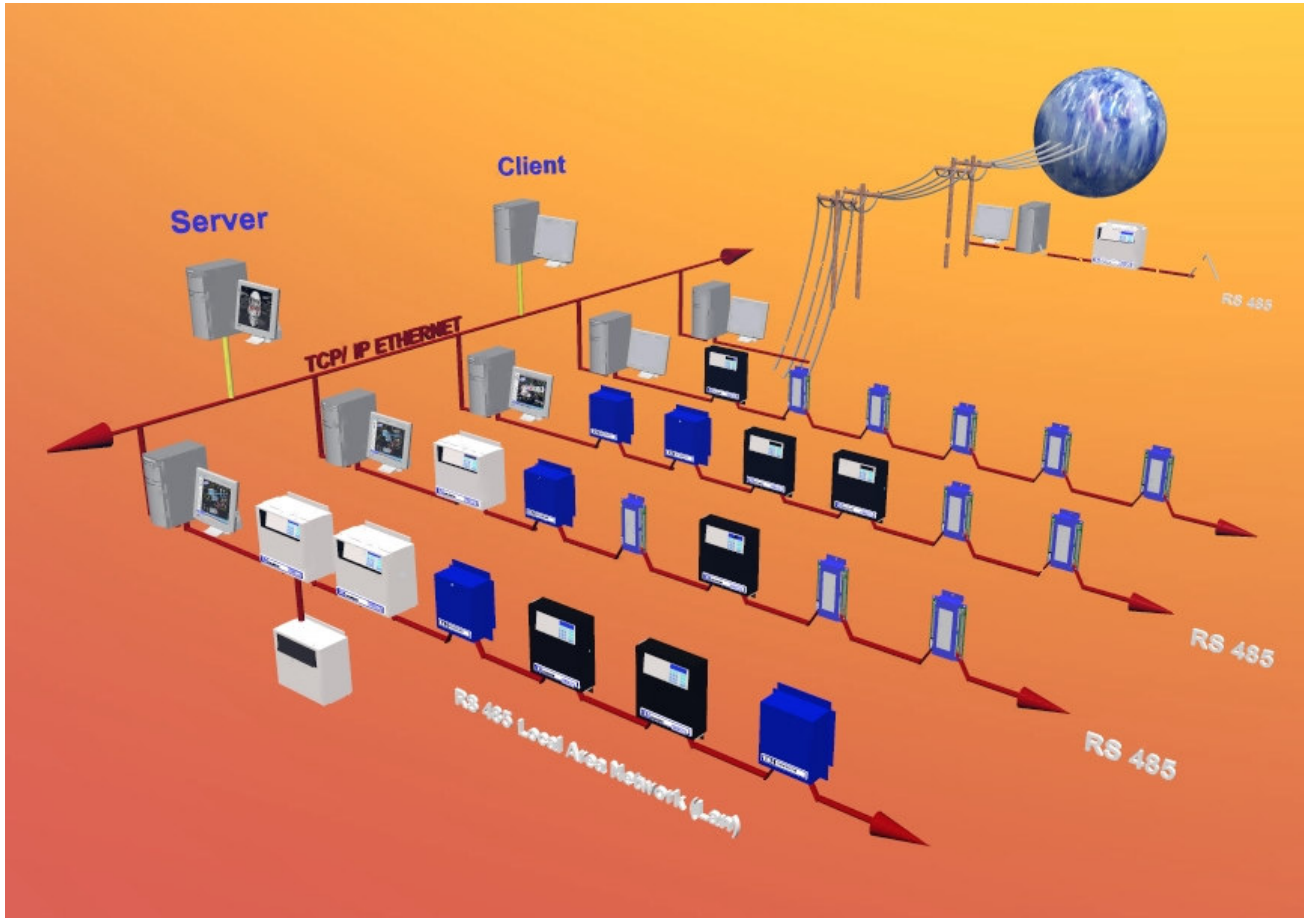
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* = Product scheduled availability is Third Quarter 2006

** = Future Feature in Firmware Evolution (present Hardware is capable)