AGP3000 Series
Advanced Operator Interface

Corporate Overview
Pro-face America

HMI Solutions Overview
Total HMI Solutions Package

HMI Software
GP-Pro EX

Data Management Software
Pro-Server EX

Operator Interface &
Operator Interface Plus Control
AGP3000 Series
AST3000 Series
LT3000 Series

HMI Connectivity
Drivers and Accessories
Third-Party Support
About Pro-face

Pro-face: A Company You Can Depend On

• We are the leading independent global supplier of industrial computing and visualization solutions for automation and manufacturing applications.
• We are recognized worldwide for innovative designs with the industry’s highest quality and reliability.
• We offer the most extensive product offering of HMI touch screens available with the highest levels of system and network connectivity.

Right-size, Right-technology Visualization Solutions
A Choice of HMI Technology Solutions

Dedicated Operator Interfaces
- Performance-built, factory workhorse graphical touch screens
- Extensive hardware and software connectivity
- Use for maximum reliability and dependability of HMI applications
- 100% solid-state design

Operator Interface Plus Control
- Combined operator interface and PLC logic control in one package
- Supported by one software package
- Offers significant reduction in system cost and panel space
- Ultra-low maintenance

Open-Platform Industrial PCs
- Windows® XP, 2000-based industrial PC touch-screen systems
- Built to withstand high-vibration, -shock and -temperature environments
- Built-in redundancy using RAID-enabled option
- New innovative technology sends alert when PC system status is out of tolerance
- Solid-state drive options available

Flat-Panel Touch-Screen Monitors
- Highly detailed graphical interface with built-in touch screen
- Sizes from 10” to 19” plus built-in keypad option on some models
- Sleek, innovative styling
- Global certifications and ratings

Investment Protection

Built into every unit is investment protection. Our investment protection is all about keeping your machine current with the latest technologies while minimizing migration costs and disruptions to the existing installation.

Minimize your total cost of ownership:
- Pro-face and Xycom brand products have maintained cutout compatibility for more than 21 years
- Upgrade your machine with more capabilities without altering the original design
- Recognized by the industry for providing significant savings to our customers
- It's all included – no product migration service contracts required

No other industrial PC and operator interface supplier can guarantee long-term investment protection value backed by a 21-year track record.

Lowering your total cost of ownership!

Celebrating more than 21 years of cutout compatibility!
More Than an Operator Interface...

HMI Solutions for OEMs, System Integrators and End Users

OEM/System Integrator

**Design**
- Tools for rapid development
- Integrated solution
- Multiplatform development software
- Data management software

**After-the-sale support**
- Remote servicing
- Extensive diagnostic features

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Work smarter, be informed, make the right choices

HMIs for standalone machines

HMIs for extensive networking

Instructional HMIs for a safe and informed workforce
An Enterprise-Wide Solution

End User

Production
- Increase productivity
- Decrease downtime
- Efficient maintenance
- Train/educate operators

Management
- Planning/scheduling
- Reporting
- Continuous improvement
- Make informed decisions

Remote Access, Monitoring and Maintenance

On-demand operator interface
Windows®-based HMIs

See the entire facility through your HMIs

Enterprise Connectivity
Innovative Operator Interface Solutions

Overview

Extensive Family of Operator Interface Solutions

✓ All the standard HMI features you expect and more . . .
  • High-reliability graphic touch screens
  • Sizes from 3.8” to 15” (more than 75 units)
  • Direct camera input, view live video, capture images
  • USB and CompactFlash® ports
  • 10/100 Base-T
  • RS-232/422/485 and MPI serial ports
  • Up to four active protocols simultaneously

Advanced Solutions

✓ Extensive features, including:
  • Built-in security tracks system changes by user ID
  • Event recorder captures video of machine faults
  • Device gateway: share data between different PLC vendors and other fieldbus equipment using the AGP3000 operator interface
  • Built-in logic control eliminates PLC while cutting system costs
  • Built-in discrete and distributed I/O options
  • Real-time logic and device monitoring features help diagnose system problems

Remote PC Access Solutions

✓ RPA
  • Use AGP3000 operator interface to access and control a remote computer/server
  • View PDF, CAD, DOC, XLS or any file type located on a remote server PC
  • Instantly update documentation to an entire plant by storing manual, data sheet, help files on one server
  • Link directly to OEM Web pages for machine updates
  • Remotely monitor SCADA programs while reducing SCADA licensing costs

Third-Party Device Support Solutions

✓ More than 100 drivers supported, including:
  • AB native tag support for EtherNet/IP
  • Modbus, Modbus Plus and Modbus/TCP
  • Siemens, including PROFIBUS and MPI
  • GE serial and ethernet
  • Mitsubishi, Automation Direct/Koyo, Omron
  • Bar-code and 2-D readers
  • PLCs, temperature controllers, inverters and drives
  • Fieldbus support: CANopen, DeviceNet
  • And many more . . .

From the Factory Floor to the Corporate Enterprise and Beyond

AGP3000 Operator Interfaces & LT3000 Logic Controllers

A complete, out-of-the-box, multiplatform HMI solution package

Advanced HMI Development

✓ One HMI development package
✓ Includes built-in logic editor for HMI Plus Control models
✓ Multiplatform solution: Supports both dedicated operator interfaces and open-platform industrial PCs

AGP-Pro EX

And many more . . .
Enterprise-wide Data Management Solutions

✓ Pro-Server EX
- Use Pro-Server EX to enable multiple AGP HMI units to share PLC, fieldbus or HMI data over an ethernet network.
- Upload log data, recipes, images and production data to a back-office computer/server.
- Integrate shared data into Excel®, Access® or ODBC databases, such as Oracle, wherever it is needed in the enterprise.
- Supports DDE, DLL, Access®, Excel®, OPC, SMTP e-mail, ODBC, SQL, MES and API interfaces.
- Pro-Server includes 29 predefined Excel® productivity reports.
- Use Pro-Server’s API to integrate HMI data into your in-house Visual Studio™ application.
- Take advantage of instant health-alert system from select Pro-face industrial computers, reducing unscheduled system shutdowns.

Internet-Based HMI Solutions

✓ FTP server (built-in for ethernet models)
- Upload or download recipes, log files, sampling data, images, etc. to AGP CompactFlash® or USB memory device using a Web browser or FTP client.
- Secured file access using user ID and password features.
- Reduce travel costs by making maintenance changes remotely without having to be on-site.

✓ Web server (built-in for ethernet models)
- View active and historical alarms.
- Modify PLC tag or HMI symbol values.
- Use RSS alarm feed feature. Sends alarm data updates to you without the need to be logged into the AGP HMI unit.
- View AGP HMI driver and runtime versions.
- Launch an FTP connection to the AGP to download or upload files.
- Launch GP-Viewer EX (if installed).

✓ Remote access and control (GP-Viewer EX)
- Monitor, interact and control multiple AGP operator interfaces on a factory floor from a remote PC.
- View the same or different AGP HMI screens as the local operator.
- Remotely view production line status or diagnose problems without expense of traveling to site.
- Used as a remote operator training tool by equipment builders.

Easy Maintenance Solutions

Update AGP3000 units in the field using multiple cost-effective methods. Updates can be done in the field without need for software on-site.

✓ Updating field-installed HMLs
- Via USB memory device or CompactFlash™ memory card.
- Via ethernet, USB cable, modem, serial port.

Enterprise-wide Data Management

✓ Cost-effective data connectivity solution.
✓ Data collection and data sharing.
✓ Internet data access and monitoring.

Data management software

Pro-Server EX

Enterprise-wide and Beyond

A complete, out-of-the-box, multiplatform HMI solution package.

tiplatform HMI solution package
**HMI software solutions**

**GP-Pro EX**

Friendly HMI development environment software

GP-Pro EX software supports:
- All AGP3000 units
- All LT3000 units
- All AST3000 units
- Built-in logic editor for C-Class models
- PS3000 with WinGP

**Pro-Server EX**

Enterprise-wide data collecting, sharing, connectivity solution

Application software for sharing user-defined factory-floor data throughout the corporate enterprise

- **GP-Viewer EX**
  - Remotely monitor and control HMI unit screens from the Internet or via an intranet

- **WinGP**
  - On-demand operator interfaces
  - GP-Pro EX runtime for Pro-face PS3000 Windows®-based PCs

- **RPA software**
  - Harness the power of a PC through your dedicated HMI
  - Access files and documentation located on a remote PC

- **Movie converter**
  - Convert training and maintenance videos for viewing on AGP3000 displays

- **MES license software**
  - Manufacturing Execution System license for Pro-Server EX

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**Right technology, right solutions**

**Office Environment**

Enterprise-wide data sharing

- Server PC
  - Pro-Server EX data management
    - SQL
    - ODBC
    - Access™/Excel®
    - Oracle
    - OPC
    - MES
  - Remote PC Access (RPA) Server
    - PDF manuals and help files
    - CAD drawings

**Plant-Floor Control Room or Maintenance Office**

- Monitor and control HMI units on the plant floor
  - GP-Viewer EX
  - Monitor alarms or receive alarms via RSS feeds without asking
  - Web Server
  - Update recipes and collect data logs, images and event files from each HMI
    - FTP Client
    - PC health monitor, instant-alert Pro-Server EX/PS3000
    - Pro-Server EX
  - Update and maintain HMIs
    - Transfer tool

**Enterprise (Office)**

- See production data and run reports
- Load new part parameters and build data
- Log trend information and images

**AGP3000**

- See production data and run reports
- Monitor alarms or receive alarms via RSS feeds without asking
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- Update recipes and collect data logs, images and event files from each HMI
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**RPA Client**

- Direct PLC connectivity
- Use RPA (license required) to harness the power of any program on a PC
- View PDF and CAD files
- More than 70 device drivers included
Overview

Firewall

Standalone Operator Interface Plus Control
- Built-in and expansion I/O to replace the PLC
- Operator interface functions
- Powerful data collection

• Lower installation and setup costs
• Built-in ladder logic to enhance or replace the PLC
• Logic to reduce PLC processor loading

Operator Interface Plus Control

Operator Interface Plus Multimedia
- Video recording and playback across the network
- Inform operators and keep them safe

Open-Platform HMI: WinGP
- Pro-face PS3000 Series with WinGP
- Direct PLC connectivity
- Interact with Windows programs
- Perform “data concentrator” functions
- Instant-alert PC health monitoring

End-User Remote Access
- Remote diagnostics to save you time
- Receive alarms as RSS news feeds
- Monitor/control AGP for maintenance using GP-Viewer EX
- Tie into ERP system using MES Actions and Pro-Server EX to interact with production data live

OEM Remote Maintenance/Servicing
- Reduce travel time by troubleshooting plant HMs from OEM facility
- Upload/download files via FTP
- Monitor/control AGP for training using GP-Viewer EX

Network Connectivity Legend
- Network interconnections
- Remote PC access
- Data sharing (peer-to-peer)
- Internet remote access
- Maintenance access
- Data collection/management

On-demand, open-platform HMI

Pro-Server EX-Enabled Peer-to-Peer Data Sharing

AGP3000
- Switches
- Lamps
- Relays
- Motors
- Sensors

LT3300
- Switches
- Lamps
- Relays
- Motors
- Sensors

AGP3000
- Switches
- Lamps
- Relays
- Motors
- Sensors
Create Your Application in Minutes

Easy as 1, 2, 3, 4

Four Simple Steps

1. Set up communications
   - Choose and set up PLC and third-party devices effortlessly
   - System settings are logically arranged and easy to find

2. Design application/screens
   - Drag-and-drop addressing, parts and colors
   - Efficient features to reduce development time
   - Create consistent look and feel using the user-defined templates

3. Simulate and test
   - Verify before you travel
   - Debug your application without hardware
   - Test without downloading

4. Download/transfer
   - Tamper-proof HMI application – password-protected project source

Thumbnail View
- Visually select the screens you need
- Updated instantly
- Screen number and descriptive label are shown for clarity

Visual PLC Addressing
- Smart visual address mapping for fast PLC-address-to-part communication connections
  - Drag and drop PLC address onto part to quickly link controller address to push button, tank, graph, etc.
  - Gives a quick visual check on how each part is mapped to controller or I/O device
  - Significantly reduces screen development time
  - Quick indication of what controller addresses are still available
Extensive Time-Saving Features

Create consistent look and feel, detailed applications in minutes!

- **Resolution Conversion**
  - Adjusts HMI application to different screen sizes

- **Workspace Tabs**
  - The tools you need at your fingertips
  - Quickly see screen thumbnails, system settings, properties, address map, search-and-replace and more

- **Headers and Footers**
  - One-click access to multiple user-defined headers (e.g. title) and footers (e.g. menu) for perfect placement. Edits to headers/footers update all screens simultaneously!

- **Multifunction Switches**
  - Execute multiple actions with one switch
  - No need to stack switches, leading to possible operator error
  - Choose Bit Switch, Word Switch, Special Function, change screen, etc.

- **Property Window**
  - Quickly make changes to multiple objects with a single mouse click

- **Templates**
  - Reuse complete screens with addressing
  - Create your own
  - Build entire applications by using templates
  - Perfect for OEMs

- **Search and Replace**
  - Easily find text anywhere in the application
  - Quickly replace addresses or text throughout the application

- **Configurable Toolbars**
  - Show the toolbars you use most frequently; hide the ones you don’t to free up more workspace

- **Tabbed Interface**
  - Just like your Internet browser, tabs allow you to keep multiple screens, settings and other windows ready to use

- **Workspace Tabs**
  - The tools you need at your fingertips
  - Quickly see screen thumbnails, system settings, properties, address map, search-and-replace and more

- **Headers and Footers**
  - One-click access to multiple user-defined headers (e.g. title) and footers (e.g. menu) for perfect placement. Edits to headers/footers update all screens simultaneously!
Tools to Build an Expandable HMI

Complete tools for the job...

Easy Bar-code and 2-D Matrix Setup
- As simple as enabling the COM port the reader is connected to
- Data is instantly displayed on the screen or can be logged
- Use for parts tracking or identifying machine operator

Powerful D-scripting
- Extend your serial communications capabilities!
- Write your own simple ASCII protocol to communicate to custom controllers and third-party I/O boards and interface to legacy plant-floor equipment
- Create data logging algorithms – log to internal memory, CompactFlash®, or print directly from AGP’s touch screen, etc.
- Develop custom functions (macros) to execute a sequence of events

CF/USB Memory Support
- OEM machine field upgrades – no software needed
- Log critical data for later retrieval and analysis
- Store images and movies

Select from various types of triggers for maximum flexibility of operations.

Trending
- Logging to internal memory, CF card or USB memory
- Historical or real-time
- Up to 16 pens per trend
- One-touch trend to see value
- Pause
- Zoom
- Scroll

Alarms
- Quick visual of current, event-triggered and historical alarms
- Alarm summary
- Acknowledge alarms
- Trigger help images or movies

Recipes
- Create hundreds of recipes and load them from internal memory or CompactFlash® (CF) card
  - View all recipes on one screen, or use multiple screens
  - Transfer recipe values to and from PLC
  - Create recipes via CSV files and transfer to AGP3000, or write recipes in Excel® or other documents

Security and Operation Log
- Log user ID and level to track changes

Pop-up Keypads
- Prebuilt, or design your own pop-up keypads
- Use with touch-screen or USB keyboard
- Numeric or alpha-numeric
Development

Extensive Image Parts and Symbol Library
- More than 1,800 high-quality 3-D parts provide international recognition, overcoming language barriers
- Users can use the predefined parts or create their own
- Drag and drop directly from the library to the screen, reducing the number of mouse clicks required to create a screen
- Import JPG and BMP image files to create highly detailed HMI machine applications

Cameras
- Stream video via NTSC/PAL video or over ethernet \(^1\)
- Collect pass/fail and other data via ethernet

Multilanguage
- Supports up to 16 different languages simultaneously
- English, French, German, Russian, Spanish, Japanese, Chinese languages, and more
- Operators can view all screen images in the language of their choice

Image Import
- Show machine graphics
- Help diagrams
- Exact location of maintenance zones
- .JPG, .BMP, and .PNG

Multilanguage
- Supports up to 16 different languages simultaneously
- English, French, German, Russian, Spanish, Japanese, Chinese languages, and more
- Operators can view all screen images in the language of their choice

Choice of technology: Pick the right HMI for the application
Dedicated operator interfaces for the factory floor:
- AGP3000
- LT3000
- AST3000

Windows-based for on-demand HMI:
- PS3000 Series with WinGP
- Works with third-party SCADA/vision/motion and SPC

Putting It Together
- AGP3000 or AST3000 S Class, or PS3000 with WinGP installed
- GP-Pro EX software
- PLC cable: see Accessories

Time Scheduling
- Standardize equipment start-up times
- Monitor productivity from each production shift
- Set up periodic routine maintenance schedules
- Use time scheduler to limit access to machine operations

\(^1\) Check driver list for supported cameras
The Value of a Multimedia HMI

Multimedia adds video and audio recording and playback

Efficient information at your fingertips!

✔ Reduce downtime
  • By recording video, find the cause, not the symptoms, quickly
  • Any alarm can trigger a movie playback to show operators how to resolve problems in the shortest time possible

✔ Educate the workforce
  • Reduce damaging mistakes, put training at their fingertips

✔ Training where/when operators need it
  • Make training available any time
  • New operators can rewind and playback training examples as often as needed

✔ Faster maintenance
  • Show maintenance staff the exact repair location and proper procedures

✔ Improve communication
  • Allow operators to leave messages for other shifts
  • Keep an online journal of machine activities

✔ Improved safety
  • Keep operators away from potential hazards
  • Put a camera where a person shouldn’t be, remote monitoring

Make your workforce more efficient and cut down on costly 24/7 on-site technical support and training.

✔ Capture the moment
Record the events that lead to machine breakdown

✔ Keep operators trained
Provide the latest procedures at their fingertips

✔ Convey information fast
A picture is worth a thousand words; a video is worth a thousand pictures

Provide clear instructions to operators and maintenance personnel
Find root causes fast – see what happened before it happened

Reduce Downtime
- Like an airplane “black box,” record the events that led up to a fault, before the fault occurred
- The Event Recorder feature reduces the time required to find the root cause, and not the symptoms

Safe and informed employees work better

Educate the Workforce
- Provide training any time, with no need for a special time or classroom.
- Refresher instructions are an easy way to keep production running smoothly
- Provide critical safety information in a clear way, right at their fingertips

Whoever said, “You can’t be in two places at once” didn’t have a Pro-face AGP3000

Keep Operators Efficient
- With four camera inputs, the video mix unit keeps operators in a central location and visually shows how the rest of the machine is running
- Reduce walking time around long or large machines
- See into otherwise uninhabitable locations

Note: Not all models can connect the VM unit. Supported by AGP 18.4” and 12.1” TFT-type M, C and S classes.

Putting It Together
- AGP3000 M Class
- GP-Pro EX software
- PLC cable
- Movie Converter software (optional)
- Camera & microphone
- User-created training/help videos
Grow Your HMI Functionality: The Operator Interface Plus Control

Ladder logic and I/O directly from the HMI reduces the number of components to purchase, install and learn

Reduce system costs

✓ Eliminate the PLC
  • Combine HMI and PLC functionality into one platform
  • Several I/O types to choose from

✓ One software for HMI and logic
  • IEC61131-3-compliant ladder logic
  • More than 100 ladder instructions supported, including PID, trigonometric and program control functions

✓ Reduce part count
  • Reduce the time to install
    - Hardware
    - Software
    - Wiring

✓ Easier development and troubleshooting
  • One database for all variables
  • No need for exporting and importing between packages

Save time and $$$.
Simplify your system without losing speed and functionality.

Develop logic and HMI screens side-by-side

✓ Drag and drop between logic and screens
✓ Save costly “fat-finger” mistakes
✓ See everything you need without switching programs
✓ One database to save you time

3 I/O options to choose from:

- Built-in I/O (DIO)
- Distributed Flex Network
- Distributed CANopen to Pro-face or third-party slaves

EXAMPLE SAVINGS:

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>$600</td>
</tr>
<tr>
<td>PLC Software</td>
<td>$600</td>
</tr>
<tr>
<td>Annual Contract</td>
<td>$1,500</td>
</tr>
<tr>
<td>Labor</td>
<td>$500</td>
</tr>
<tr>
<td>Training</td>
<td>$2,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$5,200</strong></td>
</tr>
</tbody>
</table>

Putting It Together

✓ AGP3000 C Class
✓ GP-Pro EX software
✓ PLC cable
✓ Flex Network modules or HTB (CANopen slave) modules
✓ Flex Network or CANopen cables
### Powerful Ladder Logic Instructions

**Category** | **Instruction Name** | **Instruction Notation** | **Ladder Symbol**
--- | --- | --- | ---
**Bit Basic** | Normally Open | NO | ![Image of NO Symbol] |
| Normally Closed | NC | ![Image of NC Symbol] |
| Out | OUT | ![Image of OUT Symbol] |
| Negative Out | OUTN | ![Image of OUTN Symbol] |
| Set | SET | ![Image of SET Symbol] |
| Reset | RST | ![Image of RST Symbol] |
| Positive Transition | PT | ![Image of PT Symbol] |
| Negative Transition | NT | ![Image of NT Symbol] |
| Jump to Subroutine | JMP | ![Image of JMP Symbol] |
| Jump to Subroutine | JSR | ![Image of JSR Symbol] |
| Repeat | RET | ![Image of RET Symbol] |
| Required number of times | FOR | ![Image of FOR Symbol] |
| Required number of times (NEXT) | NEXT | ![Image of NEXT Symbol] |
| Inverse | INV | ![Image of INV Symbol] |
| Exit | EXIT | ![Image of EXIT Symbol] |
| Power Bar Control | PBC | ![Image of PBC Symbol] |
| Power Bar Read | PBR | ![Image of PBR Symbol] |
| Logic Wait Instruction | UWA | ![Image of UWA Symbol] |
| **Time Instruction** | On Delay Timer | TON | ![Image of TON Symbol] |
| Off Delay Timer | TOF | ![Image of TOF Symbol] |
| Pulse Timer | TP | ![Image of TP Symbol] |
| Accumulate On Delay Timer | TONA | ![Image of TONA Symbol] |
| Accumulate Off Delay Timer | TOFA | ![Image of TOFA Symbol] |
| **Compare Instruction** | Up Counter | CTU | ![Image of CTU Symbol] |
| Down Counter | CTD | ![Image of CTD Symbol] |
| Up/Down Counter | CTUD | ![Image of CTUD Symbol] |
| Time Read | JD0 | ![Image of JD0 Symbol] |
| Time Set | JSET | ![Image of JSET Symbol] |
| Date Read | NRD | ![Image of NRD Symbol] |
| Date Set | NSET | ![Image of NSET Symbol] |
| Add | ADD | ![Image of ADD Symbol] |
| Subtract | SUB | ![Image of SUB Symbol] |
| Multiplication | MUL | ![Image of MUL Symbol] |
| **Pulse Instruction** | Out | OUT | ![Image of OUT Symbol] |
| **Operation Instruction** | Time Operation | Time Subtraction | ![Image of Time Subtraction Symbol] |
| **Logical Operation** | Logical AND | AND | ![Image of AND Symbol] |
| Logical OR | OR | ![Image of OR Symbol] |
| Logical XOR | XOR | ![Image of XOR Symbol] |
| Logical NOT | NOT | ![Image of NOT Symbol] |
| Move (byte) | MOV | ![Image of MOV Symbol] |
| Block Move (Block Copy) | BLMV | ![Image of BLMV Symbol] |
| Fill Move | FLMV | ![Image of FLMV Symbol] |
| Exchange | EXCH | ![Image of EXCH Symbol] |
| Shift Left | SHL | ![Image of SHL Symbol] |
| Shift Right | SHR | ![Image of SHR Symbol] |
| Arithmetic Shift Left | SAL | ![Image of SAL Symbol] |
| Arithmetic Shift Right | SAR | ![Image of SAR Symbol] |
| Rotate Left | ROL | ![Image of ROL Symbol] |
| Rotate Right | ROR | ![Image of ROR Symbol] |
| Rotate Left with Carry Over | RLC | ![Image of RLC Symbol] |
| Rotate Right with Carry Over | RCR | ![Image of RCR Symbol] |
| **Function Instruction** | Sum | SUM | ![Image of SUM Symbol] |
| Average | AVE | ![Image of AVE Symbol] |
| Square Root | SQRT | ![Image of SQRT Symbol] |
| Bit Count | BCNT | ![Image of BCNT Symbol] |
| PID | PID | ![Image of PID Symbol] |
| **Trigonometric Function** | Sine | SIN | ![Image of SIN Symbol] |

*Instructions with < P> correspond to positive transition instructions (differential transition). By adding P to the end of each instruction notation (LMP, etc.), you can use the instruction as a positive transition instruction (e.g., JMP, JSRP, etc.).

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**How to think scan time**

**START**

1 scan (Min. 10 ms)

I/O driver input

Operation display processing

I/O driver output

Logic processing timing logic

Scan times are composed of a logic program with time for operation and display added because operation/display and logic processing are executed simultaneously by one CPU.

*Including scan time error 0.3%
Tools for Remote Connectivity and Access

Internet HMI solutions: Your global connection!

Off-site OEM or on-site control room remote access tools, saves you time. Don’t travel to the plant or walk to the production floor when you can access the information you need from your office.

**GP-Viewer EX**

- Remotely access and control AGP unit screens
  - View HMI screens remotely: synchronously (same screen as operator) or asynchronously (independent screens from local operator)
  - Great for OEM remote troubleshooting and travel reduction
  - Great for control room supervisor access, viewing alarms or graphs
  - Easy screen-capture capability for project documentation. Access audio and image files on CF/USB storage

**Web Server**

- View AGP information and alerts through a Web browser
  - View AGP alarms on any PC via Web browser or RSS reader
  - Remote troubleshooting, Web viewing of alarms; subscribe to alarm RSS feeds
  - View PLC and internal addresses for troubleshooting
  - View the screens in GP-Viewer EX while monitoring values on the AGP in a Web browser
FTP Server

- Use a standard FTP client to update/retrieve data
  - Remotely read/write alarm, image, sampling data, recipe and video files on the CF card or USB memory
  - Remotely collect alarm or log information
  - Reduce travel to customer site

Transfer Tool

- Included and freely distributable project download utility
  - Great tool for maintenance personnel to transfer project to or from the HMI
  - Upload/download files from CF/USB storage
  - Allows OEM to transfer projects to end users without providing development software
  - Display model, driver & project information for troubleshooting

Remote PC Access (RPA)

- Harness the power of a PC from your dedicated HMI
  - View PDF, CAD, DOC, XLS or any file type located on a remote server PC
  - Instantly update documentation to an entire plant by storing manual, data sheet, help files on one server
  - Link directly to OEM Web pages for machine updates
  - Remotely monitor SCADA programs while reducing SCADA licensing costs

Stop traveling to remote sites – update and troubleshoot from your office!
Enterprise-wide Data Management Solutions

Enhanced data collection and connectivity software

✓ Applications
- Share data with production and maintenance groups
- Share HMI data with another HMI - Peer-to-peer
- Write/log data to/from PLC
- Send instant e-mail alerts
- Collect and write data to Excel®, CSV or databases

✓ Collect and manage data
- Up-to-the-minute production data
- Upstream status information
- Necessary raw material requirements
- Snapshot images of machine faults or instructions

✓ Connectivity Support
- OPC DA server
- DDE
- DLL
- API (VB, VB.NET, VC, C#.NET)
- Access*/Excel®
- ODBC, SQL, Oracle
- E-mail via SMTP
- MES actions

Collect and view up-to-the-minute, accurate data to optimize your productivity.

Information where you want it, when you want it

✓ Data collection/management
✓ Reporting
✓ Data sharing
✓ Remote IPC health monitoring
✓ Enterprise integration
✓ Save thousands of dollars per year

Fast and simple

No programming required
1. Select data
2. Choose data operation
3. Update network

✓ Fill in the blank data configuration, no programming!
✓ Built-in templates save you time and get you started quickly
✓ Share data with Windows®-based applications
✓ Automatically puts DDE scripts into clipboard, ready to paste directly into Excel®
### Data collection/management

- Collect data on a remote server
- In plant or across the Internet
- Send data to another department or around the world in real-time
- Update recipes/production parameters remotely
- No more clipboard collection of data

#### Enterprise integration

- Connect to existing enterprise system
- Enhance existing designs
- Use common communication methods

<table>
<thead>
<tr>
<th>Third-party software</th>
<th>Pro-Server EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the AGP3000, you can use production data with any third-party software for increased productivity and reduced cost.</td>
<td></td>
</tr>
</tbody>
</table>

With the AGP3000, you can use production data with any third-party software for increased productivity and reduced cost.

<table>
<thead>
<tr>
<th>OPC DA server</th>
<th>DDE</th>
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<tbody>
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<table>
<thead>
<tr>
<th>API (VB, VB.NET, VC, C#.NET)</th>
<th>DLL</th>
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<tr>
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<table>
<thead>
<tr>
<th>Access™/Excel®</th>
<th>ODBC, SQL, Oracle</th>
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</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Image management</th>
<th>PC health</th>
</tr>
</thead>
<tbody>
<tr>
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<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E-mail via SMTP</th>
<th>MES</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Expand data management simply by connecting the site AGP3000 to the office.
Data Where You Need It

**Reporting**
- Includes 29 easy-to-use Excel® report templates
  - Daily/monthly/yearly reports
  - Shift downtime
  - Failure data rates
  - Preparation time graphs
- Use prebuilt templates or customize

**Data sharing – Interdevice communication**
- Enable peer-to-peer data sharing
- Act as a gateway between HMIs or different brand PLCs
- Send build data directly from one HMI to the next

PC is only temporarily needed for configuration
Remote line data is referenced from the operation site
PLC of Company A
PLC of Company B
The AGP3000 Series allows up to four protocols simultaneously.

Across the plant or across the world, let Pro-face data management solutions work for you!
Instant Alert Notification:
*Keep your machine/process running*

Reduce Downtime:
*Use Pro-face industrial PCs with remote health monitor*

- Instant notification of Pro-face industrial PCs’ health status
- Open-platform HMIs alerting you before problems occur
  - CPU and core voltages
  - Fan RPM
  - Temperatures
  - Backlight
  - SMART hard-disk monitoring
- Power off the PC remotely in a controlled manner
- The PC knows what’s happening before you do – let it tell you!

*If you want to learn more about Pro-face industrial PCs with health monitor, please visit www.profaceamerica.com*
**Right-Size Operator Interface Solutions**

### Multimedia M Class:
Operator interface with video/audio recording/playback to reduce downtime and increase safety

### Control C Class:
Operator interface and PLC controller all-in-one solution. Simplify your machine design while reducing overall system cost.

<table>
<thead>
<tr>
<th>Expansion Unit Interface</th>
<th>USB Interface (Host)</th>
<th>Ethernet Interface (LAN)</th>
<th>Video Mix Unit Interface</th>
<th>AUX/Sound Output Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>15-inch</strong></td>
<td><strong>XGA</strong></td>
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<tr>
<td>AGP3200</td>
<td>AGP3250-T1-D24</td>
<td>AGP3200-T1-D24</td>
<td>AGP3200-T1-D24</td>
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<td><strong>12-inch</strong></td>
<td><strong>SVGA</strong></td>
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<tr>
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<td>AGP3550-T1-AF</td>
<td>AGP3550-T1-AF</td>
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</tr>
<tr>
<td><strong>10.4-inch</strong></td>
<td><strong>VGA</strong></td>
<td></td>
<td></td>
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<td>AGP3250-T1-AF</td>
<td>AGP3250-T1-AF</td>
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<tr>
<td><strong>7.5-inch</strong></td>
<td><strong>CF Card Interface</strong></td>
<td><strong>Expansion Unit Interface</strong></td>
<td><strong>AUX/Sound Output Interface</strong></td>
<td></td>
</tr>
<tr>
<td>AGP3200</td>
<td>Use CF cards to support data logging, recipe data and &quot;travel-free&quot; field updates.</td>
<td>For fieldbus networking modules, e.g. DeviceNet™, PROFINET communication.</td>
<td>This interface accommodates external reset, alarm output, buzzer output and sound output.</td>
<td></td>
</tr>
</tbody>
</table>
Standard S Class: Operator interface with extensive communications and networking capability

AST and LT Classes: AST: Entry-level operator interfaces with serial ports and many powerful features
LT: OEM HMI touch controllers ideal for standalone machines

### Display Size

<table>
<thead>
<tr>
<th>5.7-inch</th>
<th>3.8-inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6 V</td>
<td>2.8 V</td>
</tr>
</tbody>
</table>

### Video Input Interface
Stream or record live video to solve problems quickly. See "inside" the machine or process.

### Sound Input Interface
Record audio to leave messages/instructions for other operators.

### DIO Interface
Reduce system cost by connecting directly to switches, lamps and stack lights.

### FLEX NETWORK/CANopen Interface
Distributed I/O architectures reduce wiring and installation costs by putting I/O where you need it.

### Model Number Nomenclature

- **AGP3**
  - **1-**
  - **Rev.**

### Display Type

- **T:** TFT color LCD
- **S:** STN color LCD
- **M:** Monochrome LCD
- **A:** Amber monochrome LCD

### Power Supply

- **G:** AC 100-240V
- **O:** DC

### I/O Type (C Class only)

- **D81K**
- **D81C**
- **D81K**
- **D81C**
- **D81K**
- **D81C**
- **D81K**
- **D81C**

Note: Additional suffixes indicate various added functions.
The only HMI you need

The AGP3000’s extensive array of connectivity options makes it easy to standardize on one HMI family

**Interface to Anything on the Factory Floor**

---

### Hardware

**DIO**
- Direct connection to wide range of third-party I/O

**Flex Network/ CANopen**
- Featuring I/O expansion
- Space-saving, less wiring

**CompactFlash® Card Socket**
- Storing images
- Storing recipe (filing) data
- Download via CF card
- Storing video
- And more...

**Sound Input**
- Microphone

**Video Input**
- Direct input 1 channel
- NTSC, PAL, SECAM

**Video Input/ Output**
- Speaker output

**Expansion Bus**
- Communication modules
  - DeviceNet™ slave
  - PROFIBUS DP slave
  - Others planned

**Ethernet 10/100 BaseT**
- Transfer screen data
- PLC and other controllers (see drivers list)

**USB 1.1 Host Interface**
- (1 or 2 ports)
  - Transfer screen data (using CA3-USBCB-01)
  - Modbus Plus communication module
  - Barcode/2D readers (see barcode/2D list)
  - Printers (see printers list)
  - USB flash memory
  - Modem transfer
  - Download via USB memory
  - Storing recipe (filing) data
  - Storing images
  - And more...

**USB 1.1 Host Interface**
- (1 or 2 ports)
  - PLC and other controllers (see drivers list)

**Ethernet**
- Transfer screen data
- PLC and other controllers (see drivers list)

**Video Input/Output**
- Support for GP2000 VM module
- 4 inputs - NTSC or PAL

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- Support for GP2000 VM module
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**USB 1.1 Host Interface**
- (1 or 2 ports)
  - Transfer screen data (using CA3-USBCB-01)
  - Modbus Plus communication module
  - Barcode/2D readers (see barcode/2D list)
  - Printers (see printers list)
  - USB flash memory
  - Modem transfer
  - Download via USB memory
  - Storing recipe (filing) data
  - Storing images
  - And more...

**Communication Bus**
- DeviceNet™ slave
- PROFIBUS DP slave
- Others planned

**AUX/Sound Output**
- Speaker output

---

1. AGP3302-B type model only has RS-232C asynchronous transmission
2. AGPS4xx, 35xx, 38xx and 37xx models include AUX/sound outputs
3. Requires CA3-USBCB-01 for transfer of screen data
4. Not available on 3302B or 32xx
5. Not available on 3302B or 32xx
6. Compatible with AGP35xxT and 36xxT TFT display models only

---

These interfaces represent the entire line of AGP3000 products. See data sheets for individual model specifications.

- **USB** - See driver list for supported third-party devices
- **Up to four PLC protocols simultaneously (AGP33xx supports two).**
- **Please refer to documentation for allowable configurations.
**Operator Interface Plus Multimedia**

### 15"
- **AGP 3750T**
  - **Certifications**
  - UL/CSA
  - CE
  - FCC
- **Display**
  - TFT color LCD (65K colors)
  - 1024 x 768 pixels
  - Analog touch screen (no grid)
- **Environmental**
  - Operating temp.: 0 °C to 50 °C
  - Humidity: 10-90% noncondensing
  - **Ports & Interfaces**
    - Ethernet (2) USB
    - CF Type II
    - Expansion Bus
    - Speaker
    - Microphone
    - Video: NTSC/PAL/SECAM
- **Model Numbers**
  - AGP3750-T1-AF
  - AGP3750-T1-D24

### 12.1"
- **AGP 3650T**
  - **Certifications**
  - UL/CSA
  - CE
  - FCC
- **Display**
  - TFT color LCD (65K colors)
  - 800 x 600 pixels
  - Analog touch screen (no grid)
- **Environmental**
  - Operating temp.: 0 °C to 50 °C
  - Humidity: 10-90% noncondensing
  - External Dimensions: W313mm [12.31in] x H239mm [9.41in] x D56mm [2.2in]
  - **Ports & Interfaces**
    - Ethernet (2) USB
    - CF Type II
    - Expansion Bus
    - Speaker
    - Microphone
    - Video: NTSC/PAL/SECAM
- **Model Numbers**
  - AGP3650-T1-AF

### 10.4"
- **AGP 3550T**
  - **Certifications**
  - UL/CSA
  - CE
  - FCC
- **Display**
  - TFT color LCD (65K colors)
  - 640 x 480 pixels (AGP3550)
  - 800 x 600 pixels (AGP3560)
  - Analog touch screen (no grid)
- **Environmental**
  - Operating temp.: 0 °C to 50 °C
  - Humidity: 10-90% noncondensing
  - External Dimensions: W270.5mm [10.65in] x H212.5mm [8.37in] x D57mm [2.24in]
  - **Ports & Interfaces**
    - Ethernet (2) USB
    - CF Type II
    - Expansion Bus
    - Speaker
    - Microphone
    - Video: NTSC/PAL/SECAM
- **Model Numbers**
  - AGP3550-T1-AF
  - AGP3560-T1-AF

### 7.5"
- **AGP 3450T**
  - **Certifications**
  - UL/CSA
  - CE
  - FCC
- **Display**
  - TFT color LCD (65K colors)
  - 640 x 480 pixels
  - Analog touch screen (no grid)
- **Environmental**
  - Operating temp.: 0 °C to 50 °C
  - Humidity: 10-90% noncondensing
  - External Dimensions: W215mm [8.46in] x H170mm [6.69in] x D60mm [2.36in]
  - **Ports & Interfaces**
    - Ethernet (1) USB
    - CF Type II
    - Expansion Bus
    - Speaker
    - Microphone
    - Video: NTSC/PAL/SECAM
- **Model Numbers**
  - AGP3450-T1-D24
**Standard Operator Interface**

### 12.1" Models
- **AGP 3600**
  - **Display**: TFT color LCD (68k colors), 800 x 600 pixels, Analog touch screen (no grid)
  - **Environmental**: Operating temp. 0 ° to 50 °C, Ratings: NEMA, 4x/13, IP65f, Humidity: 10-90% noncondensing
  - **External Dimensions**: W313mm [12.32in] x H239mm [9.41in] x D56mm [2.2in]
  - **Ports & Interfaces**: Ethernet, Com1: RS-232/422/485, Com2: RS-422/485
  - **Model Numbers**: AGP3600-T1-AF, AGP3600-T1-D24

### 10.4" Models
- **AGP 3500**
  - **Display**: TFT color LCD (68k colors), 800 x 600 pixels, Analog touch screen (no grid)
  - **Environmental**: Operating temp. 0 ° to 50 °C, Ratings: NEMA, 4x/13, IP65f, Humidity: 10-90% noncondensing
  - **External Dimensions**: W313mm [12.32in] x H239mm [9.41in] x D56mm [2.2in]
  - **Ports & Interfaces**: Ethernet, Com1: RS-232/422/485, Com2: RS-422/485
  - **Model Numbers**: AGP3500-T1-AF, AGP3500-T1-D24

### 7.5" Models
- **AGP 3400**
  - **Display**: TFT color LCD (68k colors), 640 x 480 pixels, Analog touch screen (no grid)
  - **Environmental**: Operating temp. 0 ° to 50 °C, Ratings: NEMA, 4x/13, IP65f, Humidity: 10-90% noncondensing
  - **External Dimensions**: W215mm [8.46in] x H170mm [6.69in] x D60mm [2.36in]
  - **Ports & Interfaces**: Ethernet, Com1: RS-232/422/485, Com2: RS-422/485
  - **Model Numbers**: AGP3400-T1-AF, AGP3400-T1-D24

### 5.7" Models
- **AGP 3300**
  - **Display**: TFT color LCD (68k colors), 640 x 480 pixels, Analog touch screen (no grid)
  - **Environmental**: Operating temp. 0 ° to 50 °C, Ratings: NEMA, 4x/13, IP65f, Humidity: 10-90% noncondensing
  - **External Dimensions**: W167.5mm [6.59in] x H135mm [5.31in] x D59.5mm [2.34in]
  - **Ports & Interfaces**: Ethernet, Com1: RS-232/422/485, Com2: RS-422/485
  - **Model Numbers**: AGP3300-T1-AF, AGP3300-T1-D24

Note: Ethernet supported only by AGP3300, not 3301 or 3302. AGP3302 Com1 RS-232 only.
### Display
- **STN color LCD (256 colors)**
- Blue LCD (8 shades)
- 320 x 240 pixels
- Analog touch screen (no grid)

### Environmental
- Operating temp: 0 ° to 50 °C
- Ratings: NEMA, 4x/13, IP65f
- Humidity: 10-90% noncondensing
- External Dimensions: W167.5mm [6.59in] x H135mm [5.31in] x D59.5mm [2.34in]

### Ports & Interfaces
- 1 (1) USB
- Expansion Bus
- Com1: RS-232
- Com2: RS-422/485

### Model Numbers
- AST3301-B1-D24
- AST3301-S1-D24

---

### Display
- **TFT color LCD (256 colors)**
- Monochrome amber LCD (8 shades)
- 320 x 240 pixels
- Analog touch screen (no grid)

### Environmental
- Operating temp: 0 ° to 50 °C
- Ratings: NEMA, 4x/13, IP65f
- Humidity: 10-90% noncondensing
- External Dimensions: W130mm [5.12in] x H104mm [4.09in] x D40mm [1.57in]

### Ports & Interfaces
- 1 (1) USB
- Ethernet
- Com1: RS-232

### Model Numbers
- AGP3200-T1-D24
- AGP3200-A1-D24

---

### Display
- Monochrome amber LCD (8 shades)
- 320 x 240 pixels
- Analog touch screen (no grid)

### Environmental
- Operating temp: 0 ° to 50 °C
- Ratings: NEMA, 4x/13, IP65f
- Humidity: 10-90% noncondensing
- External Dimensions: W130mm [5.12in] x H104mm [4.09in] x D40mm [1.57in]

### Ports & Interfaces
- 1 (1) USB
- Com1: RS-232
- Com2 (AST3201): RS-422/485
- Com2 (AST3211): Siemens MPI (RS-485)

### Model Numbers
- AST3201-A1-D24
- AST3211-A1-D24

---

**Right-size, right-technology solutions**

Consider your HMI requirements for today and tomorrow:

- What size displays do you need?
- What PLCs/protocols will you use?
- What ports (serial, ethernet, USB, etc.) do you need?
- What other devices will you need, ie bar-code, temperature controllers or other third-party devices?
Control Class: Lowering Overall System Cost

Operator Interface Plus Control: All-in-one-box solution

Reduce cost by reducing component count

- One development software for both ladder logic and screen graphics
- Built-in I/O interface
- Use industry-standard I/O

EXAMPLE SAVINGS:

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>$600</td>
</tr>
<tr>
<td>PLC Software</td>
<td>$600</td>
</tr>
<tr>
<td>Annual Contract</td>
<td>$1,500</td>
</tr>
<tr>
<td>Labor</td>
<td>$500</td>
</tr>
<tr>
<td>Training</td>
<td>$2,000</td>
</tr>
</tbody>
</table>

TOTAL $5,200

Diagnostics at your fingertips

- Monitor built-in ladder logic without a laptop
- See logic flow and variable values
- No more guessing of the machine’s status

Logic monitoring for AGP3000 C-Class units

Logic Display
Display ladder logic program on the operator interface so you can check status and troubleshoot without a laptop

Address Display
Display addresses used in logic program. See current values and real-time updates

Read/write PLC data directly

- Provides convenient access to PLC behind locked cabinet door
- Increase safety: Eliminate the need for personal protective equipment (PPE)
- Instant access to all I/O by creating only one graphic button

PLC Device Monitor
Display I/O from any PLC or controller without creating extra operator interface screens

Change PLC Values
Change PLC I/O, bit or word values without the need for a laptop

Not supported by EtherNet/IP™ native tag driver. Check the Pro-face Device PLC manual for details.
### Hardware

#### Operator Interface Plus Control

<table>
<thead>
<tr>
<th>Display</th>
<th>Environmental</th>
<th>Ports &amp; Interfaces</th>
<th>I/O Architectures</th>
<th>Model Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGP 3600</td>
<td>TFT color LCD (65K colors)</td>
<td>Ethernet</td>
<td>DIO 1: 6 in/2 out</td>
<td>AGP3600-T1-AF-D81K, AGP3600-T1-AF-D81C, AGP3600-T1-AF-FN1M, AGP3600-T1-AF-CA1M, AGP3600-T1-D24-D81K, AGP3600-T1-D24-D81C, AGP3600-T1-D24-FN1M, AGP3600-T1-D24-CA1M</td>
</tr>
<tr>
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<td>TFT color LCD (65K colors)</td>
<td>Ethernet</td>
<td>DIO 1: 6 in/2 out</td>
<td>AGP3500-T1-AF-D81K, AGP3500-T1-AF-D81C, AGP3500-T1-AF-FN1M, AGP3500-T1-AF-CA1M, AGP3500-T1-D24-D81K, AGP3500-T1-D24-D81C, AGP3500-T1-D24-FN1M, AGP3500-T1-D24-CA1M</td>
</tr>
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<td>TFT color LCD (65K colors)</td>
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<td>DIO 1: 6 in/2 out</td>
<td>AGP3400-T1-AF-D81K, AGP3400-T1-AF-D81C, AGP3400-T1-AF-FN1M, AGP3400-T1-AF-CA1M, AGP3400-T1-D24-D81K, AGP3400-T1-D24-D81C, AGP3400-T1-D24-FN1M, AGP3400-T1-D24-CA1M</td>
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<td>AGP3300-T1-AF-D81K, AGP3300-T1-AF-D81C, AGP3300-T1-AF-FN1M, AGP3300-T1-AF-CA1M, AGP3300-T1-D24-D81K, AGP3300-T1-D24-D81C, AGP3300-T1-D24-FN1M, AGP3300-T1-D24-CA1M</td>
</tr>
</tbody>
</table>

**Certifications**

- UL
- CE
- FCC
- C-tick
- CB

**Operating Temp.**

- 0 °C to 50 °C

**Ratings:**

- NEMA, 4x/13, IP65f

**Humidity:**

- 10-90% noncondensing

**External Dimensions:**

- W313mm [12.32in] x H239mm [9.41in] x D56mm [2.2in]

**Ports & Interfaces**

- Ethernet (2) USB
- CF Type II Expansion Bus

**I/O Architectures**

- DIO 1: 6 in/2 out
- Flex Network
- CANopen

- DIO 2: 6 in/2 out
- Flex Network
- CANopen

**Model Numbers**

- AGP3600-T1-AF-D81K, AGP3600-T1-AF-D81C, AGP3600-T1-AF-FN1M, AGP3600-T1-AF-CA1M, AGP3600-T1-D24-D81K, AGP3600-T1-D24-D81C, AGP3600-T1-D24-FN1M, AGP3600-T1-D24-CA1M
- AGP3500-T1-AF-D81K, AGP3500-T1-AF-D81C, AGP3500-T1-AF-FN1M, AGP3500-T1-AF-CA1M, AGP3500-T1-D24-D81K, AGP3500-T1-D24-D81C, AGP3500-T1-D24-FN1M, AGP3500-T1-D24-CA1M
- AGP3400-T1-AF-D81K, AGP3400-T1-AF-D81C, AGP3400-T1-AF-FN1M, AGP3400-T1-AF-CA1M, AGP3400-T1-D24-D81K, AGP3400-T1-D24-D81C, AGP3400-T1-D24-FN1M, AGP3400-T1-D24-CA1M
- AGP3300-T1-AF-D81K, AGP3300-T1-AF-D81C, AGP3300-T1-AF-FN1M, AGP3300-T1-AF-CA1M, AGP3300-T1-D24-D81K, AGP3300-T1-D24-D81C, AGP3300-T1-D24-FN1M, AGP3300-T1-D24-CA1M
C-Class models with built-in discrete I/O

**AGP3000 D81C or D81K models**

- Reduces system cost by eliminating need for PLC in simple control applications
- I/O is built-in, with no extra modules needed for connection to local I/O
- Directly connect to buttons, limit switches, lamps, sensors or indicators
- Supports
  - 6 inputs/2 outputs (choose sink or source models)
  - I/O update rate = 10ms (minimum)
- Control a stack light or buzzer directly from the HMI

**C-Class models with Flex Network interface**

**AGP3000 FN1M models**

- Pro-face dedicated I/O network for use in distributed I/O applications
- Uses low-cost, industry-standard, twisted-pair network wiring
- Supports:
  - 256 discrete inputs and 256 discrete outputs (512 bits)
  - 64 analog inputs and 64 analog outputs (128 words)
  - I/O update rate = 10ms (minimum)
  - Distance of up to 200 meters
- Reduces system cost by eliminating need for PLC in simple control applications

Use any mix of Flex Network distributed I/O modules

**Flex Network FN modules**

**Discrete I/O**

- **8-Relay**
  - 8-relay discrete output, 1 common
  - FN-Y08RL41

- **16-Point**
  - 16-point discrete input, 16-point sink transistor output
  - FN-XY16SK41

- **32-Point**
  - 32-point discrete input, 32-point sink transistor output
  - FN-XY32SKS41

**Analog I/O modules**

- **2-Channel**
  - 2-channel analog input: 0-10VDC 0-20ma, 4-20ma
  - FN-AD02AH41

- **4-Channel**
  - 4-channel analog input: 0-10VDC, +/-10VDC, 0-20ma, 4-20ma
  - FN-AD04AH11
### C-Class models with CANopen interface for distributed I/O

**AGP3000 CA1M models**
- CANopen-based network for use in distributed I/O applications
- Uses Pro-face CANopen slave (HTB module) or any third-party CANopen slaves
- Supports
  - 256 discrete inputs and 256 discrete outputs (512 bits)
  - 64 analog inputs and 64 analog outputs (128 words)
  - I/O update rate = 10ms (minimum)
  - Distance of up to 1000 meters
- Reduces system cost by eliminating need for PLC in simple control applications

### Pro-face CANopen interface supports:
- Pro-face brand CANopen slaves (HTB)
- Third-party CANopen slaves

### EXM analog and discrete I/O modules
Compatible with LT3000 units and AGP3000 C-Class CANopen units

<table>
<thead>
<tr>
<th>Discrete input modules</th>
<th>Discrete output modules</th>
<th>Mixed discrete I/O modules</th>
<th>Analog I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Point 8-point input module</td>
<td>8-point relay output module</td>
<td>4-point input / 4-point output module</td>
<td>2-channel analog input module</td>
</tr>
<tr>
<td>16-Point 16-point input module</td>
<td>module</td>
<td>EXM-DRABRT</td>
<td>EXM-AMI2HT</td>
</tr>
<tr>
<td>8-Point 8-point sink output module</td>
<td>8-point sink output module</td>
<td>Mixed discrete I/O modules</td>
<td>2-channel temperature input / 1-channel analog output module</td>
</tr>
<tr>
<td>16-Point 16-point sink output module</td>
<td>module</td>
<td>EXM-DD08UT</td>
<td>EXM-ALM3LT</td>
</tr>
<tr>
<td>8-point output source module</td>
<td>8-point output source module</td>
<td>Analog I/O modules</td>
<td>2-channel analog input / 1-channel analog output module</td>
</tr>
<tr>
<td>16-Point 16-point output source module</td>
<td>module</td>
<td>EXM-DD08ST</td>
<td>EXM-AMM3HT</td>
</tr>
<tr>
<td>8-point output source module</td>
<td>16-point output source module</td>
<td></td>
<td>1-channel analog output module</td>
</tr>
<tr>
<td>16-point output source module</td>
<td>module</td>
<td>EXM-DD016TK</td>
<td>EXM-AMO1HT</td>
</tr>
</tbody>
</table>
LT3000 Series - Standalone Machine Controller

Reduce machine costs while increasing performance
- Reduce component count
- Eliminate PLC/custom controls
- Cut remote maintenance costs
- Eliminate multiple software packages and support

LT3000 Series - A space-saving control solution

LT3000 Series Features

Touch-Screen Display
Ideal for:
- Tight spaces
- Alternative to text displays

Ethernet
(LT3300 only)
Ideal for:
- Data collection
- Remote reporting

Serial Port
(LT330x only)
Ideal for:
- Temperature controllers
- Drives and inverters
- Multidrop communications
- Sending/receiving ASCII

Expansion
Ideal for:
- Expansion to 80 I/O points
- Adaptive machine design

CANopen Master
(Requires optional communication module)
Ideal for:
- Interfacing to third-party CANopen devices
- Enhancing your machine functionality

USB
- Data storage
- Bar-code input

Pulse Output
- Stepper: pulse out to 65 kHz
- Speed: up to 7,800 RPM
- Four-axis single-direction/
  Two-axis cw/ccw

Built-in I/O
- 24 VDC
- Inputs for sensors, switches
- Outputs for
  - lamps, stack lights, valves

High-Speed Counter
- 100 Kpps input
  Ideal for:
  - Encoder output

OEM Solution Examples

Stretch wrapping
- Three drives
- Help menus
- Replace the PLC

Inspection system
- Tie into pass/fail vision sensors
- Metal detector
- Drive alarms and stack light

LT3000 I/O Options

Use built-in
or
CANopen I/O

HTB modules with EXM I/O
HTB module
Up to 7 EXM modules
Third-party CANopen slaves
Up to 63 CANopen slaves
# LT3000 OEM HMI Touch Controllers

<table>
<thead>
<tr>
<th>LT 3300</th>
<th>LT 3301</th>
<th>LT 3201</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display</strong></td>
<td>• STN color LCD (4,096 colors)</td>
<td>• Monochrome B/W LCD (16 shades)</td>
</tr>
<tr>
<td></td>
<td>Monochrome B/W (16 shades)</td>
<td>(16 shades)</td>
</tr>
<tr>
<td></td>
<td>320 x 240 pixels</td>
<td>320 x 240 pixels</td>
</tr>
<tr>
<td></td>
<td>Analog touch screen (no grid)</td>
<td>Analog touch screen (no grid)</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>• Operating temp. 0 °C to 50 °C</td>
<td>• Operating temp. 0 °C to 50 °C</td>
</tr>
<tr>
<td></td>
<td>• Ratings: NEMA, 4x/13, IP65f</td>
<td>• Ratings: NEMA, 4x/13, IP65f</td>
</tr>
<tr>
<td></td>
<td>• Humidity: 10-90% noncondensing</td>
<td>• Humidity: 10-90% noncondensing</td>
</tr>
<tr>
<td></td>
<td>• External Dimensions: W167.4mm [6.59in] x H135.0mm [5.31in] x D77.6mm [3.06in]</td>
<td>• External Dimensions: W167.4mm [6.59in] x H135.0mm [5.31in] x D77.6mm [3.06in]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ports &amp; Interfaces</strong></th>
<th><strong>Ethernet</strong></th>
<th><strong>Com1:</strong></th>
<th><strong>(1) USB</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Built-in DIO:</strong></td>
<td>16 in/16 out¹</td>
<td>(1) USB</td>
<td>(1) USB</td>
</tr>
<tr>
<td><strong>Expansion I/O</strong></td>
<td>up to 3 EXM modules</td>
<td><strong>CANopen</strong></td>
<td><strong>RS-232/422/485</strong></td>
</tr>
<tr>
<td>¹DIO can be configured as standard input/outputs or used for PWM, PLC, HSC or pulse-catch.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>I/O Architectures</strong></th>
<th><strong>Built-in DIO:</strong></th>
<th><strong>Expansion I/O</strong></th>
<th><strong>CANopen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16 in/16 out¹</td>
<td>up to 3 EXM modules</td>
<td>Pro-face or third-party slaves (Requires optional communication module)</td>
</tr>
</tbody>
</table>

| **Model Numbers** | LT3300-S1-D24K | LT3300-S1-D24C | LT3300-L1-D24K | LT3300-L1-D24C |

## Choose from 13 EXM modules:

### Discrete input modules:

<table>
<thead>
<tr>
<th><strong>8-Point</strong></th>
<th>8-point input module EXM-DD08DT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>16-Point</strong></td>
<td>16-point input module EXM-DD16DT</td>
</tr>
</tbody>
</table>

### Discrete output modules:

<table>
<thead>
<tr>
<th><strong>8-Point</strong></th>
<th>8-point relay output module EXM-DRA8RT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>16-Point</strong></td>
<td>16-point relay output module EXM-DRA16RT</td>
</tr>
</tbody>
</table>

### Analog I/O modules:

<table>
<thead>
<tr>
<th><strong>2-Channel</strong></th>
<th>2-channel analog input module EXM-AM02HT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2-Channel/1-Channel</strong></td>
<td>2-channel temperature input / 1-channel analog output module EXM-ALM3LT</td>
</tr>
</tbody>
</table>

### Mixed discrete I/O modules:

<table>
<thead>
<tr>
<th><strong>4-Point/4-Point</strong></th>
<th>4-point input / 4-point output module EXM-DM08DRT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2-Channel</strong></td>
<td>2-channel analog input module EXM-AM02HT</td>
</tr>
<tr>
<td><strong>2-Channel Temp. or 1-Channel Output</strong></td>
<td>2-channel temperature input / 1-channel analog output module EXM-ALM3LT</td>
</tr>
<tr>
<td><strong>1-Channel</strong></td>
<td>1-channel analog output module EXM-AM01HT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Model Numbers</strong></th>
<th>LT3301-L1-D24K</th>
<th>LT3301-L1-D24C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Numbers</strong></td>
<td>LT3201-A1-D24K</td>
<td>LT3201-A1-D24C</td>
</tr>
</tbody>
</table>
### Software and Accessories

<table>
<thead>
<tr>
<th>Software/Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GP-Pro EX HMI Development Software</strong></td>
<td>Includes one user license.</td>
</tr>
<tr>
<td><strong>Additional GP-Pro EX Development License</strong></td>
<td>EX-ED-LICENSE</td>
</tr>
<tr>
<td><strong>AGP3000 Movie Converter Software</strong></td>
<td>EX-MOVCON-LICENSE</td>
</tr>
<tr>
<td><strong>GP-Viewer EX Remote Monitoring Software</strong></td>
<td>(Requirements: One license for each GP3000 Series with Ethernet port)</td>
</tr>
<tr>
<td><strong>Pro-Server EX Data Management Software</strong></td>
<td>EX-SDV-Vxx (Includes one user license)</td>
</tr>
<tr>
<td><strong>Online Adapter</strong></td>
<td>CA4-ADPONL-01 9-pin D-sub plug to 9-pin D-sub socket adapter for AGP3000 COM port 1. Not intended for AGP3302 model.</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Hardware Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AUX Connector CA5-AUXCNALL-01</strong></td>
<td>The AUX connector for AGP3000 series required in case an external output is used.</td>
</tr>
<tr>
<td><strong>Terminal Block Conversion CA3-ADPTRM-01</strong></td>
<td>9-pin male D-sub to screw terminal.</td>
</tr>
<tr>
<td><strong>Siemens COM Port Conversion Adapter CA3-ADPSEI-01</strong></td>
<td>9-pin D-sub to MPI adapter. Adapts COM port to accept Profibus MPI-style connectors and cables.</td>
</tr>
<tr>
<td><strong>COM Port Conversion Adapter CA3-ADPSCOM-01</strong></td>
<td>9-pin D-sub plug to 9-pin D-sub socket adapter for AGP3000 COM port 1. Not intended for AGP3302 model.</td>
</tr>
<tr>
<td><strong>Online Adapter CA4-ADPONL-01</strong></td>
<td>9-pin D-sub plug to 9-pin D-sub socket adapter for AGP3000 COM port 2 only. NOTE: Includes network pull-up/pull-down resistors. Not intended for AGP3302 model.</td>
</tr>
<tr>
<td><strong>DC Power Supply Connector for AGP330x and AGP34x0 models CA5-DCCNM-01</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DC Power Supply Connector for AGP35x0 and AGP36x0 models CA5-DCCNL-01</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mitsubishi PLC A, QnA, FX Series 2-Port Adapter II GP070-MD11</strong></td>
<td>Allows simultaneous use of an AGP3000 Series unit and a Mitsubishi PLC A, QnA, FX series peripheral device.</td>
</tr>
<tr>
<td><strong>USB Cable Clamp (2-port) CA5-USBATL-01</strong></td>
<td>USB cable clamp for 2-port HMI units to prevent disconnection.</td>
</tr>
<tr>
<td><strong>USB Cable Clamp (1 port) CA5-USBATM-01</strong></td>
<td>USB cable clamp for 1-port HMI units to prevent disconnection.</td>
</tr>
<tr>
<td><strong>Installation Fastener CA3-ATFALL-01</strong></td>
<td>Used to install the AGP3000 Series into a solid panel (included with unit).</td>
</tr>
<tr>
<td><strong>PROFIBUS Slave Unit CA5-PFSALL/EX-01</strong></td>
<td>PROFIBUS slave communication module for connecting AGP to PROFIBUS DP network.</td>
</tr>
<tr>
<td><strong>DeviceNet™ Slave Unit CA6-DNSALL/EX-01</strong></td>
<td>DeviceNet™ slave module for connecting AGP to DeviceNet network.</td>
</tr>
<tr>
<td><strong>CompactFlash® card CA3-CFALL/512MB-01</strong></td>
<td>Inserts into the unit’s CF card slot. 512MB</td>
</tr>
<tr>
<td><strong>CompactFlash® Card Adapter GP077-CFAD10</strong></td>
<td>Used for read/write of CF card data via a PC’s PCMCIA slot.</td>
</tr>
<tr>
<td><strong>Panel Cutout Adapter for AGP3500 Series CA4-ATM10-01</strong></td>
<td>Panel cutout adapter for mounting in cutout of GP3500 (TFT).</td>
</tr>
<tr>
<td><strong>Panel Cutout Adapter for AGP3300 Series CA4-ATM5-01</strong></td>
<td>Panel cutout adapter for mounting in cutout of GP3300 (TFT).</td>
</tr>
<tr>
<td><strong>Panel Cutout Adapter for AGP3500 Series CA4-ATM10-01</strong></td>
<td>Panel cutout adapter for mounting in cutout of GP3500 (TFT).</td>
</tr>
<tr>
<td><strong>Panel Cutout Adapter for AGP3300 Series CA4-ATM5-01</strong></td>
<td>Panel cutout adapter for mounting in cutout of GP3300 (TFT).</td>
</tr>
</tbody>
</table>
### Hardware

#### USB Transfer Cable (1m)
- **CA3-USBCB-01**
  - Downloads project data created with GP-Pro EX from PC's USB port to AGP's USB port.

#### USB Cable (5m)
- **FP-US00**
  - USB extension cable.

#### USB Front Cable (1m)
- **CA5-USBEXT-01**
  - Connects Mitsubishi PLC A-Series to AGP RS-232 COM port.

#### RS-232 Cable (5m)
- **CA3-CBL232/5M-01**
  - Connects Mitsubishi PLC A-Series and QnA-Series programming console port to AGP.

#### GP RS-422 Cable (5m)
- **CA3-CBL422-01**
  - Connects AGP RS-232 COM port 2 via 9pin plug to host controller via open wires.

#### RS-422 Cable (5m)
- **CA3-CBL422/5M-01**
  - Connects AGP RS-232 COM port 1 via 9pin socket to host controller via open wires.

#### Mitsubishi PLC A-Series Connection Cable (5m)
- **CA3-CBLA-01**
  - Connects Mitsubishi PLC A-Series and QnA-Series programming console port to AGP.

#### Mitsubishi PLC Q-Series Cable (5m)
- **CA3-CBLLNKMKQ-01**
  - Connects Mitsubishi PLC Q-Series to the AGP RS-232C COM port.

#### Mitsubishi PLC FX-Series Cable
- **CA3-CBLFX/5M-01**
  - Connects Mitsubishi PLC FX-Series programming console port to AGP RS-422 COM port.
- **CA3-CBLFX/1M-01**
  - Connects Mitsubishi PLC FX-Series programming console port to AGP RS-232C COM port.

#### Omron PLC SYSMAC Link Cable (5m)
- **CA3-CBLSYS-01**
  - Connects Omron PLC SYSMAC Series unit to AGP RS-232C port.

#### Ethernet Crossover Cable
- **HMI-CAB-ETH**
  - 6-ft. HMI to PLC ethernet port or to program HMI.

#### MicroLogix™ PLC Cable
- **HMI-CAB-ST106**
  - Connects AGP3000/ST401 to PLC RS-232 8-pin DIN port.

#### PLC Adapter Cable
- **HMI-CAB-ST001**
  - Connects to AGP3000/ST40x serial port with 9-conductor open-ended wires for connecting to third-party screw terminal devices.

#### Protection Sheets
- **Disposable, dirt-resistant cover for screen (5 sheets/set)**
  - 15” for AGP3750 series (**CA3-DFS15-01**)
  - 12” for AGP3600 series (**CA3-DFS12-01**)
  - 10” for AGP3500 series (**CA3-DFS10-01**)
  - 8” for AGP3400 series (**PS400-DF00**)
  - 6” for AGP/AST/LT 32xx (**CA6-DFS6-01**)
  - 3.8” for AGP/AST/LT 32xx (**CA6-DFS4-01**)

### Additional Components

#### Serial USB Cable for Modem Download
- **CA6-USB232-01**

#### 1-Amp Power Supply
- **510-1000-004**
  - 24VDC Din-Rail Mount
  - Class 1 Div 2.

#### 2-Amp Power Supply
- **510-1000-041**
  - 24VDC Din-Rail Mount
  - Class 1 Div 2.

#### RS-485 Isolation Unit
- **CA3-ISO485-01**
  - Unit for electrically isolating a serial interface signal from the AGP internal current (RS-422 and RS-485 are switchable, or RS-232 and RS-422 are switchable).

#### AGP3500T/AGP3550T Backlight Replacement
- **CA5-BLU10T-01**

#### AGP3750T Backlight Replacement
- **CA5-BLU15T-01**

#### AGP3600T/AGP3650T Backlight Replacement
- **CA6-BLU12T-01**

#### AGP3500S/AGP3400 Backlight Replacement
- **PS501S-BLU00**
  - Note: AGP3300, AGP3400 and AGP3500L backlights cannot be replaced in the field.
Third-Party Device Support

**PLC Drivers**

- Rockwell Automation
  - DF1
  - DH-485
- EtherNet/IP (SLC500/PLC5/MicroLogix)
- EtherNet/IP (ControlLogix/CompactLogix Tag-Based)

**Drivers**

**Third-Party Device Support**

<table>
<thead>
<tr>
<th>Serial Manufacturers</th>
<th>Model</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aimex Corp.</td>
<td>BR-530RS</td>
<td>Pen</td>
<td>Requires BB-60 power supply</td>
</tr>
<tr>
<td>OPT Electronics</td>
<td>OPT-6125-RS</td>
<td>Touch scanner (read width: 65mm)</td>
<td>Requires DC5300T for power</td>
</tr>
<tr>
<td>Denso Co.</td>
<td>HC-381ITR</td>
<td>Touch scanner (read width: 61mm)</td>
<td>Requires P-200 for power; also requires KRS-423-XF1K connector cable (from Sanwa Supply)</td>
</tr>
<tr>
<td>HHP</td>
<td>IT3800LR-12</td>
<td>Linear imager</td>
<td>Requires cable 42203758-03 (IT3800LR-12 reader has been shown to work but is not fully tested)</td>
</tr>
<tr>
<td>Cognex</td>
<td>Dataman 7500</td>
<td>1-D and 2-D bar-code scanner</td>
<td>Requires cable 42206139-04E cable, also requires power supply</td>
</tr>
<tr>
<td>Any/All</td>
<td>Any Printer</td>
<td>ASCII text</td>
<td></td>
</tr>
</tbody>
</table>

**USB**

<table>
<thead>
<tr>
<th>USB Manufacturers</th>
<th>Model</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aimex Corp.</td>
<td>BR-530UK</td>
<td>Pen</td>
<td>Power supply not required</td>
</tr>
<tr>
<td>OPT Electronics</td>
<td>OPT-6125-USB</td>
<td>Touch scanner (read width: 65 mm)</td>
<td>Power supply not required</td>
</tr>
<tr>
<td>Denso Co.</td>
<td>HC-38TU-K</td>
<td>Touch scanner (read width: 61mm)</td>
<td>Power supply not required</td>
</tr>
<tr>
<td>HHP</td>
<td>IT3800</td>
<td>Hand-held industrial scanner</td>
<td>5800SR050-0F00 is complete with USB cable</td>
</tr>
<tr>
<td>Symbol</td>
<td>LS3408-FZ</td>
<td>Hand-held industrial scanner</td>
<td>Part #LS3408-FZ20005 needs cable CBA-U01-S07ZA</td>
</tr>
<tr>
<td>Symbol</td>
<td>LS2800</td>
<td>1-D bar-code scanner</td>
<td></td>
</tr>
<tr>
<td>Epson</td>
<td>Stylus Photo R200/R260</td>
<td>Inkjet printer</td>
<td>Use USB cable FP-US00 or commercial type</td>
</tr>
<tr>
<td>Epson</td>
<td>Any</td>
<td>ECS/P24-J844(C) compatible</td>
<td>Use USB conversion cable IEE1284 (commercially available)</td>
</tr>
<tr>
<td>NEC</td>
<td>Any</td>
<td>PC-PR201-PL compatible</td>
<td>Use USB conversion cable IEE1284 (commercially available)</td>
</tr>
<tr>
<td>Any/All</td>
<td>Any</td>
<td>Remote print server</td>
<td>Use ethernet network to connect to remote print server</td>
</tr>
</tbody>
</table>

**Other Connections**

- Digital Electronics Corp.
  - Memory Link (SIO and Ethernet)
  - General Ethernet (using D-Script)
- Banner Engineering Corp.
  - PresencePlus Ethernet Cameras
- IAI
  - X-Sel Controller

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