



User Manual for Forecourt Controllers

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Major overhaul
Added General Information, Warranty information,
Wiring Best Practices, Connector Specifications,
Dispensing and payment devices, carwash, tank gauge,
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Table of Contents

1 General Information.....	4
1.1 Scope	4
1.2 Warranty	4
1.3 FCC Warning.....	5
1.4 PCI PA-DSS	5
1.5 Installation Environment	5
1.6 Power and Data line protection.....	6
1.7 Forecourt Peripherals Overview	6
1.8 Folders.....	7
1.9 Credentials	8
1.10 Desktop	8
1.11 Aegis Differences Compared to NeXGen & NeXGen Prime.....	8
1.12 Windows Settings.....	8
2 Connections	9
2.1 Ethernet.....	9
2.1.1 Setting an IP address (Windows)	9
2.1.2 Setting an IP address (INtime)	9
2.1.3 Peripheral Access	10
2.2 Default RS-232 Serial Port Assignments	10
2.3 Windows Machine Interface Peripherals	10
2.4 Remote Desktop.....	10
3 Startup.....	10
3.1 Audible feedback	10
3.2 Shutdown or Restart (Windows & ANDI)	10
3.3 Restart (ANDI only)	11
3.3.1 Via Allied DGS	11
3.3.2 Via the INtime icon	11
3.3.3 Via INtimeCfg.exe	11
3.4 Firmware Download.....	11
3.4.1 Using DGS	11
3.4.2 Using INtimeCfg.exe	12
3.4.3 Manually	12
4 Configuration XML files	12
4.1 INI files.....	12
4.2 FpCfg.xml	12
4.3 File download	12
5 Utilities.....	13
5.1 INtimeCfg.exe.....	13
5.2 AegisCfg.exe	13
6 Installation & Programming	14

1 General Information

The Aegis system combines ANDI forecourt controller functionality with Windows Embedded systems.

Take note that the term ANDI refers to the Allied Network Dispenser Interface – which is the protocol on which the embedded forecourt controller application is based.

The firmware operates identically on Aegis as it does on NeXGen (NXG) and NeXGen Prime (NXG-P) hardware, with the configuration and reset exceptions detailed in the Installation Manual.

Aegis is a quad-core system. Three cores are running Windows, the other is running INtime, a real-time operating system (RTOS) that hosts the ANDI-based embedded forecourt control application.

Each sub-system has its own Network Interface Controller (NIC) but they share the hard drive.

1.1 Scope

Aegis is, essentially, NXG firmware running on Aegis hardware, with the addition of the Windows component.

1.2 Warranty

The controller has a one-year parts warranty only, from date of installation, which can either be phoned in, submitted using the warranty registration card enclosed with every controller or completed on the Allied Electronics website.

[Allied Electronics: Register your product for warranty](#)

If the start-up information is not registered with our office within thirty (30) days of installation, warranty will begin from the date of shipment. Allied will warrant the controller against defects but not against physical damage or improper installation. All controllers being returned "under warranty" must be accompanied with an Allied RMA number. When calling Allied for an RMA number, you will be asked for the controller serial number, located on the base unit, and a description of the problem. When requesting Allied for an RMA number, you will be asked for the controller serial number, located on the base unit, and a description of the problem. Send your request via e-mail to tom@alliedelectronics.com

1.3 FCC Warning

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class "A" computing device pursuant to Subpart B of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.4 PCI PA-DSS

The Aegis forecourt controller executing the ANDI-based firmware is a PCI PA-DSS validated payment application. As such, it must be deployed in accordance with the PCI PA-DSS guidelines.

Allied Electronics provides an Implementation Guide to aid in this process. See PA-DSS considerations for Installation and Maintenance Personnel.PDF available from Allied Technical Support or through the Allied Sharefile site.

1.5 Installation Environment

1. The Allied Electronics Aegis Controller operates on 115 VAC @60Hz, 36 Watts. The Aegis controller is supplied with approximately 8 feet of 115 VAC power cord, and should be connected to an approved isolated ground receptacle on its own dedicated circuit. The controller must be installed in a temperature-controlled environment (between 32^o F and 100^o F).
2. The controller must be installed in accordance with the National Electrical Code (NFPA 70), the Automotive and Marine Service Station Code (NFPA 30A), and all state and local electrical codes.
3. The controller must be installed indoors, above the Class 1, Division 2 Hazardous location.
4. The controller is designed for use with peripheral devices that are UL Listed.

1.6 Power and Data line protection

Allied Electronics recommends that the controller be installed with the appropriate power and data line protection devices in order to protect against power surges, transients, low voltage (brown outs), and lightning.

Note: Due to the magnitude of power that is contained within a lightning strike, it is impossible to eliminate totally the possibility of damage, but we feel with the introduction of high-quality protection devices the incidence of failure can be greatly reduced.

1.7 Forecourt Peripherals Overview

The Aegis controller interfaces to the following devices:

Dispensers

Gilbarco and Wayne dispensers via the 20/30/45 mA current loop & RS485 4-port board, which is connected to the manufacturer's Universal Distribution Box

Bennett and Gasboy dispensers through an RS-485 port

Tokheim dispensers through a dedicated 12v and RS-485 board

Payment Terminals:

Gilbarco Generic CRINDs Monochrome / Info-Screen Graphics displays and Cash acceptors via the 20/30/45 mA current loop & RS485 4-port board which is connected to the Universal Distribution box or through Ethernet

Bennett Verifone CAT via RS-485

Wayne CAT via RS-485 or Ethernet

Tokheim DPT via RS-485

EMV support for Gilbarco, Wayne, and Bennett. Contact Allied Technical Support for details.

Point Of Sale (POS)

Point-Of-Sale via Ethernet port or RS-232 port supporting the ANDI protocol interface

OPW OPT

OPW OPT via an RS485 port. Software Version 18.01A, or newer, must be installed in the OPT.

Tank Gauge

Veeder-Root TLS 250, 350 & 350R or equivalent tank gauge system via an RS-232 port or the TLS 450 through Ethernet.

Any Tank Gauge system that supports the Veeder Root protocol.

Car Wash

Ryko III, Ryko IV, Unitec POS 4000, Unitec/Enterlink, Unitec Portal Ti, Unitec Smart Terminal, PDQ, Kesseltronics and Exacta Car Wash controllers via a fully populated RS-232 board

Ryko protocol/compatible controllers

Fuel Price Sign

Daktronics, Future Media, Able, PWM, Skyline, Sunshine Price sign via a fully populated RS-232 board.

Legacy Devices

Contact Allied Technical Support for specific information on legacy device support.

1.8 Folders

Certain folders located in the root of the Solid-State Drive (SSD) contain ANDI application configuration and data files.

These are:

C:\CERTS
C:\DOWNLOAD
C:\IMG
C:\RESET
C:\XML

Aegis-specific files are located in two additional folders:

C:\users\public\Allied – INtime executable (Aegis.rta) and Allied configuration utilities.
C:\users\public\INtime – INtime license files and installer.

1.9 Credentials

Windows user name: Aegis

Windows password: Allied

These default credentials should be changed by the user before Aegis is deployed. Further, depending on customer needs, Remote Desktop may be disabled if required.

N.B: In accordance with PA-DSS requirements, the forecourt controller application does not contain default credentials.

1.10 Desktop

On the Windows desktop are shortcuts to Allied DGS and the Allied and INtime folders.

1.11 Aegis Differences Compared to NeXGen & NeXGen Prime

In most ways, the ANDI application on Aegis is identical to that which executes on the NXG/NXG-P hardware. COM 1-16 are available, configurable via the NEXGEN.INI and FpCfg.xml files. (see more on NEXGEN.INI in section 2.2)

The ANDI side IP address cannot be configured via these files; one of the utilities detailed in section 5 must be used.

1.12 Windows Settings

In general, the Windows configuration settings are left to the user. However, for proper operation, certain settings should be maintained.

- **AegisMonSvc**

The AegisMonSvc starts automatically when Windows boots. This service monitors the real-time node and must be running for the ANDI download/reset operations to work correctly.

- **Windows Sleep**

ANDI will not function correctly if the Windows system goes to “sleep.” The Windows power configuration should disable the “sleep” function.

- **INtime icon**

The presence of the INtime icon in the system tray is controlled by a registry entry in HKEY_CURRENT_USER.

If a new Windows user is added, the INtime node and ANDI code will start up correctly, but the INtime status icon will not appear in the system tray for the new user.

The icon may be started manually (C:\Program Files (x86)\INtime\bin\intimestatus.exe) or started automatically via the registry entry at HKCU\Software\Microsoft\Windows\CurrentVersion\Run\INtime Status.

2 Connections

2.1 Ethernet

Ethernet – Windows (higher MAC address)
Ethernet – ANDI (lower MAC address)

2.1.1 Setting an IP address (Windows)

Use the normal Windows tools to set the IP address, subnet mask and gateway.

2.1.2 Setting an IP address (INtime)

Aegis is shipped with a default IP address. Unless otherwise specified by the purchaser, the defaults are as follows:

IP Address= 10.0.0.100
Gateway IP Address= 10.0.0.1
Subnet Mask= 255.255.255.0.

The Allied Diagnostic Application Program (DGS) was developed as a means to communicate with Allied controllers. DGS provides a suite of services for field technicians and analysts. For example, DGS can function as a means to load firmware, download files, and/or specify configuration, to name a few.

Use DGS to set a different IP address based on site specifics.

The AegisCfg.exe (command line utility) can also be used to set the IP address, subnet mask and gateway address.

2.1.3 Peripheral Access

Payment terminals and other forecourt peripherals employing Ethernet communications must be configured so that they are accessible to the controller. In accordance with PA-DSS, this network segment must be segregated from any public network segments.

2.2 Default RS-232 Serial Port Assignments

Default serial port assignments are the same as NXG and NXG-P.

COM	Default Usage
1	POS
2	TLS
3	CRW
4	FPS

These serial ports can be defined via NEXGEN.INI, located in C:\. Aegis controllers can be configured via the NEXGEN.INI and are read only at boot time. A warm-start or cold-start is required for them to take effect. Please contact Allied Support for more information on the NEXGEN.INI file.

2.3 Windows Machine Interface Peripherals

A monitor, mouse, and keyboard may be connected, but aren't required.

2.4 Remote Desktop

Remote Desktop may be used to access Aegis. A default username and password are supplied with each system.

3 Startup

After power is applied, the installed Windows system will boot. After Windows has loaded, the INtime RTOS will start up and run the ANDI application.

3.1 Audible feedback

- BIOS boot: one or several short beeps, shortly after power is applied.
- ANDI application startup: two beeps, after Windows boot.
- ANDI has acquired an IP address: three beeps.

3.2 Shutdown or Restart (Windows & ANDI)

The entire system (Windows & ANDI) may be safely shut down in several ways.

- Pressing the power key
- Via the normal Windows shutdown mechanism.
- Start->Run->shutdown /s /f or shutdown /r /f to restart.

If a shutdown is initiated, it is critical to wait for the shutdown to complete before removing the power cord. Shutdown is complete when the power and disk LEDs go out and the fan stops spinning.

3.3 Restart (ANDI only)

The ANDI application can be restarted without rebooting Windows by any of the following:

- Use Allied DGS to warm or cold start.
- Use the INtimeCfg.exe (in users\public\allied).
- Use the INtime icon (in the system tray).

3.3.1 Via Allied DGS

Sign on to DGS with administrative credentials, select the “Utilities” tab and then click the “Reset” button.

3.3.2 Via the INtime icon

Left-click the INtime icon, then select “restart node.” The ANDI application will restart within 30 seconds.

3.3.3 Via INtimeCfg.exe

Start INtimeCfg.exe (see [INtimeCfg.exe](#) below). “Find” the node, then “Restart” the node. The ANDI application will restart within 30 seconds.

3.4 Firmware Download

ANDI firmware downloads are best done via the Allied DGS utility. However, new firmware can be loaded via INtimeCfg.exe or manually placing the executable on the SSD.

Only valid INtime executables will run on the Aegis controller hardware. These executables have an extension of “RTA.”

3.4.1 Using DGS

Follow the normal Allied DGS procedures, exactly as you would with a NXG or NXG-P controller.

Sign on using Administrative credentials, navigate to the Utilities tab and click “Download,” then supply the location for the RTA file and the INI file.

3.4.2 Using INtimeCfg.exe

- Select “Find Nodes” then click “Take Action.” Click “Ok”.
- Select “Delete AutoLoad” then click “Take Action”.
- Select “Add AutoLoad” and navigate to the executable when prompted. Click “Ok” to select the executable and “Ok” again when the function completes.
- Select “Restart Node” and click “Take Action.” Click “Yes” and then “Ok.”

3.4.3 Manually

- Stop the node via the INtime icon in the system tray.
- Delete c:\users\public\allied\aeGIS.rta.
- Place the new RTA file in c:\users\public\allied.
- Rename the new RTA file to Aegis.rta.
- Start the node via the INtime icon in the system tray.

4 Configuration XML files

4.1 INI files

NexgenIni.xml has been deprecated. NEXGEN.INI is fully supported, so that NEXGEN.INI files may be used on the NXG, NXG-P, and Aegis platforms.

4.2 FpCfg.xml

Because Aegis firmware supports any combination of manufacturer (Gilbarco, Wayne, Bennett, Verifone, et cetera) for dispenser or in-pump card reader, the FpCfg.xml file is used to specify information about each fueling point.

4.3 File download

There are 2 ways to deploy data files (e.g. XML and graphics files) to an Aegis system:

- Using RFA via Allied *DGS or some other utility.
- Accessing c:\xml directly and putting the XML files there.

If the second mechanism is used, the ANDI application is not aware that the files have changed. Thus, the Node must be restarted for those files to be recognized. The first method uses an internal notification mechanism to inform the firmware that new data files are available – and is accordingly recommended by Allied.

*Please note that if files are downloaded via DGS to the controller, the DGS application cannot be running on the Windows system of that same Aegis controller.

5 Utilities

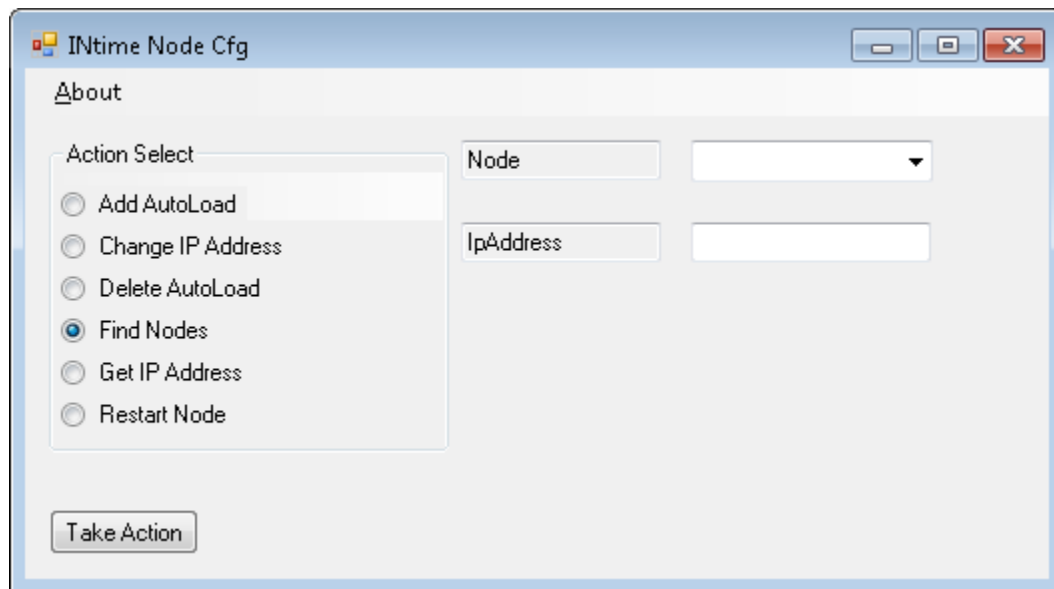
In addition to the INI and XML files described above, ANDI behavior can be changed using two utilities. Both change the configuration of the INtime RTOS (real-time operating system) on which the ANDI embedded application executes.

5.1 INtimeCfg.exe

This is a small utility, located c:\users\public\allied, which presents a GUI allowing the user to do the following:

- Set/Delete IpAddress (static or DHCP).
- Set/Delete the option for the ANDI application to be auto-started.
- Restart the INtime node (kernel).

Use the radio buttons to select an action, then click “Take Action” to execute the action. For changes to be applied, the “Restart Node” function must be executed after changes have been made.



5.2 AegisCfg.exe

This is a small utility, located c:\users\public\allied, which is executed from the command line so that scripting mechanisms can be used to set ANDI-related startup parameters.

Usage: AegisCfg -a (ip address or DHCP) -s (subnet mask) -d1 (Dns1) -d2 (Dns2) -d3 (Dns3)
- g (gateway) -q (quiet) -r (restart node) -v (verbose)

In the default quiet mode, there is no output.

Example 1: Set DHCP and restart, verbose mode

Command:

AegisCfg -a DHCP -r -v

Output:

*** AegisCfg V 1.1 ***

AegisCfg -a DHCP -r -v

*** Success! ***

Example 2: Set IP Address and subnet mask, quiet mode

Command:

AegisCfg -a 10.0.1.48 -s 255.255.0.0

Output:

6 Installation & Programming

Please refer to the Installation Manual for all dispenser specific wiring, programming, and system related inquiries. All Allied Controller Installation Manuals can be found by visiting the following site: <https://www.alliedelectronics.com/installation-startup-guides.html>