

General Specifications

GS 04M01F02-11E

Software Package for DARWIN (DA100/DC100/DR130/DR230/DR240)

DARWIN

- DARWIN DAQ32 Plus (Release number: R10)
- DARWIN DAQ32 (Release number: R10)

■ Before Starting to Build Your System

DARWIN is a highly flexible and expandable data acquisition system that offers an continually evolving lineup of components including software packages, input/output modules, and optional functions. The version number of each component can be identified by the style number (Sn X) shown on the data plate, and the version of each DARWIN software package by the release number (Rn X). Be careful to match these versions before starting to configure your system.

- (1) The style number of each input/output module must be equal to or smaller than the style number of the connected main unit or sub unit.
- (2) The release number of each software package must be equal to or larger than the style number of the main unit or sub unit for which the software package is used.

Unless these conditions are met, you will not be able to build up your system. For version upgrades, consult our service network.

■ General

DAQ32 and DAQ32 Plus are software packages developed by YOKOGAWA specially for the DARWIN series. These packages run on a personal computer, achieving highly dependable data acquisition using DARWIN series units (DA100, DC100, DR130, DR230, and DR240) and superb operability. The pursuit of a Graphical User Interface design and easy-to-use human interface resulted in versatile monitoring functions and user-friendly features. DAQ32 and DAQ32 Plus are designed to run under Windows 95, Windows 98, or Windows NT 4.0 operating system.

DAQ32 and DAQ32 Plus can be used for all DARWIN unit models (DA100, DC100, DR130, DR230, and DR240), and display only the setup and functional parameters needed for the particular unit connected.

DAQ32 comes with a DA100 and DC100 as a standard accessory. The DR130, DR230, and DR240 units include DAQ32 only when specified. DAQ32 Plus has enhanced monitoring functions and diversified display and data processing functions, and is available as an optional software package.

■ System Requirements Common for DAQ32 and DAQ32 Plus

Personal Computer

● Personal Computer:

A personal computer running either a Microsoft Windows 95, Windows 98, Windows NT 4.0, or Windows 2000 operating system.

- For DAQ32 (model code DP120-11), a pentium MMX 133 MHz or higher is required (pentium-II recommended) for the processor.
- For DAQ32 Plus (model code DP320-11), a pentium MMX 166 MHz or higher is required (pentium-II recommended) for the processor.

● RAM:

At least 32 megabytes (MB) (64 MB or larger recommended)

● Hard Disk:

100 MB of free hard disk space is required for installation. The program size is 10 MB.

● Floppy Disk Drive:

One 3.5-inch high-density disk drive is required.

● CD-ROM Drive:

A CD-ROM drive compatible with the operating system of the personal computer is required.

● Mouse:

A mouse compatible with the operating system of the personal computer is required.

● Display:

A display compatible with the operating system of the personal computer, having a resolution of 800 x 600 and supporting 32768 colors, is required (1024 x 768 pixels and 65536 colors recommended).

● Communication Interface

- GP-IB: AT-GP-IB/TNT board from National Instruments for an IBM PC/AT-compatible computer (or PCI GP-IB board).
- RS-232-C: Communication port of the personal computer
- RS-422-A: Use the personal computer's RS-232-C communication port and an RS-232-C/RS-422-A converter. (Multi-drop, or two-wire connection is not applicable)
- Ethernet: Use an Ethernet board suitable for the Windows operating system (multi-drop connection is not applicable). TCP/IP connection must be installed in the Operating System. DHCP is not supported.
Note: DAQ32 supports only single unit of DARWIN (multi-drop is not available)

● Operating System:

Microsoft Windows 95, Windows 98, Windows NT 4.0, or Windows 2000

● Supply medium

DAQ32 (DP120), DAQ32 Plus (DP320) or DAQ32 Plus Client Package (DP321) shall be supplied as CD-ROMs from version R9. Some users may wish (or do not have any other choice than) to run DAQ32, DAQ32 Plus or DAQ32 Plus Client Package on a computer that does not have a CD-ROM drive (even over the network). If so, the option code /FC can be specified to have the package supplied as four floppy disks.

● License Number

When installing DAQ32, DAQ32 Plus, or the DAQ32 Plus Client Package, the user will need to enter the license number printed on the label attached to the CD-ROM case (or on the floppy disk labels whatever the case may be).

■ System

● Connection

- Connectable units: DA100, DC100, DR130, DR230, DR240
- Number of units that can be connected: 1 unit
- Number of channels: Maximum of 360 channels (300 channels for measured values; 60 channels for calculated values)

● Communication Method:

GP-IB, RS-232-C, RS-422-A/485 (multi-drop, or two-wire connection is not applicable); or Ethernet (multi-drop connection is not applicable)

■ DARWIN DAQ32

● Overview

The DAQ32 package from YOKOGAWA runs under the Windows 95, Windows 98, Windows NT 4.0, or Windows 2000 operating system on a personal computer. It realizes highly dependable data acquisition with high operability using a DARWIN unit (DA100, DC100, DR130, DR230, or DR240). Its extensive graphical tools allow you to easily perform DARWIN hardware setup, diagnostics, measurement condition setup, data acquisition, historical data display and analysis, data conversion, and more.

DAQ32 is bundled with a DA100 and DC100 as standard accessories. The DR130, DR230, and DR240 units include DAQ32 only when specified. In comparison to the logging and viewer functions of the optional DAQ32 Plus, DAQ32 only features the generally required functions. The main differences between the two packages are in the monitoring functions. The DAQ32 only offers two display formats — waveform trend and digital; has 2 groups of 10 channels/window; and does not support alarm display. If simultaneous multi point monitoring or more flexible display forms of data such as level meter, analog meter, and thermometer faceplates, and alarm indications are required, use the optional DAQ32 Plus.

● Software Configuration

- Data logging software
- Data viewer software
- System setup, diagnostics, calibration software
- Parameter setting software
- Launcher software

Data Logging Software

The data logging software displays the measured values as a trend graph in real-time and saves them to hard disk at the same time.

● Logging Interval

- Sample rate: The scan interval can be selected from 0.5, 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60 seconds and multiplied by an integer of 1 to 128
- Display update rate: The same as the sample rate
- Data saving interval: The sample rate multiplied by an integer of 1 to 128
(The display interval depends on the performance and current conditions of the personal computer and its operating system.)

● Display Functions

- Display formats: Analog trend waveform display, digital display
- Number of channels displayed: 10 channels in analog waveform display; 10 channels in digital display
- Number of pages: Switches between 2 groups of channels
- Time axis zoom-in: Can be changed during real-time trending. (The zoom-in range depends on the window size.)
- Playback function: The real-time trend display can be paused and can display past data of up to 1,800 points.
- Window functions: The window can be resized. 2 groups can be displayed at the analog trend waveform display of 10 channels and digital value display 10 channels.

● Other Functions

- Communication retry function: Automatically reconnects after disconnection due to failure of the DARWIN unit (for example, after power failure).

Data Viewer Software**● Historical Data Display**

- Display formats: Analog trend waveform display, digital value display.
- Number of channels displayed: 10 channels in analog waveform display; 10 channels in digital display
- Number of pages: As required for the 2 groups of channels
- Time axis zoom-in: The time axis can be magnified, reduced, and scrolled.
- Data file display: Multiple files can be opened at the same time.

● File Conversion

- File format: A specified range of data can be saved as a Lotus 1-2-3, Microsoft Excel, or text (ASCII code) file.
- Range of data to be saved to a file: Can be specified by cursor.
- Channels: Data of the currently displayed group of channels, data of 240 channels (when saving as a Lotus 1-2-3 file or Microsoft Excel file), or data of 360 channels (when saving as a text file) can be saved to a single file all at once.

● Report Data Display

Using the report function that is provided on the DARWIN main unit (with /M3 option), statistics can be received on hourly, daily, and monthly bases to create report files.

The report data calculated by the DARWIN with /M3 option can be Re-displayed using the viewer software. The data can also be printed using an external printer.

In addition, the auto-processing function can be used to automatically convert data files or periodically make printouts.

System Setup, Diagnostics, calibration Software**● System setup:**

Used to select the method of communication with the DARWIN unit and set the directory for data acquisition files.

● System Diagnostics:

Diagnoses the operation statuses of the DARWIN unit and subunits, input/output modules, and communication, and checks the version of the ROM in the DARWIN unit.

● Reconfiguration:

The modules can be identified and the system can be reconfigured (except for stand-alone models).

● Calibration:

Calibration of the measurement ranges can be performed.

● Network:

The IP address of the Ethernet module installed in the DARWIN unit can be set.

● Initialization:

The setting of hardware is initialized.

Parameter Setting Software

Used to upload and download the measurement parameter and preference settings. Also, it is possible to upload / download these settings with floppy disk for the DC100 and DR recorders.

● Parameters That Can Be Set

- Set mode: Measurement range, calculation formula, chart speed, timer, event/action, message, constant, writing action, etc.
- Setup mode: A/D integration time, recording format, alarm, relay, key lock, burn-out action, measurement interval, display update interval, report action, etc.

■ DAQ32 Plus

● Overview

The DAQ32 Plus package from YOKOGAWA runs under the Windows 95, Windows 98, Windows NT 4.0, or Windows 2000 operating system on a personal computer. It realizes highly dependable data acquisition with high operability using a DARWIN unit (DA100, DC100, DR130, DR230, or DR240). Its extensive graphical tools make it easy to setup DARWIN hardware, measurement conditions and tag numbers, and to perform diagnostics, data acquisition, historical data display and analysis, data conversion, and so on.

Enhanced monitoring functions allow you to configure your own display format by assembling various graphical display forms including level meter, analog meter, and thermometer faceplates, and alarm indications.

● Software Configuration

- Data logging software
- Data viewer software
- System setup, diagnostics, calibration software
- Tag setting software
- Parameter setting software
- Launcher software
- File utility software
- Remote monitor software

Data Logging Software

The data logging software displays the measured values as a trend graph in real-time and saves them to hard disk at the same time.

● Logging Interval

- Sample rate: The scan interval selected from 0.5, 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60 seconds and multiplied by an integer of 1 to 128
- Display update rate: The same as the sample rate
- Data saving interval: The sample rate multiplied by an integer of 1 to 128
(The logging interval depends on the performance and current conditions of the personal computer and its operating system.)

● Display Functions

- Display formats: Analog trend waveform display, digital display, meter faceplates (level meters, analog meters, and thermometers), alarm overview, alarm log
- Number of channels displayed: Up to 32 channels per display group
- Number of pages: As required for 30 display groups
- Time axis zoom-in: Can be changed during real-time trending. (The zoom-in range depends on the window size.)
- Playback function: The real-time trend display can be paused and can display past data of up to 1,800 points.
- Window functions: The window can be resized. Multiple windows can be displayed at the same time.

● Other Functions

- Communication retry function: Automatically reconnects after disconnection due to failure of the DARWIN unit (for example, after power failure).
- Automatic start: Data logging starts upon power-on.
- DDE server function, etc.
- Monitor server: A server function to connect the remote monitor software in client PCs to DAQ32 Plus in the PC server (the local computer) over a network.
- Auto processor function: Report data are automatically printed at specified intervals and data files automatically converted to the specified format when saved.

Data Viewer Software

● Historical Data Display

- Display formats: Analog trend waveform display, digital value display.
- Computations: The minimum, maximum, peak-to-peak width, average, and root-mean-square values in a period specified by cursor.
- Number of channels displayed: 32 channels per display group.
- Number of pages: As required for 30 display groups
- Time axis zoom-in: The time axis can be magnified, reduced, and scrolled.
- Data file display: Multiple files can be opened at the same time.

● File Conversion

- File format: A specified range of data can be saved as a Lotus 1-2-3, Microsoft Excel, or text (ASCII code) file.
- Range of data to be saved to a file: Can be specified by cursor.
- Channels: Data of the currently displayed group of channels, data of 240 channels (when saving as a Lotus 1-2-3 file or Microsoft Excel file), or data of 360 channels (when saving as a text file) can be saved to a single file all at once.

● Report Data Display

Using the report function that is provided on the DARWIN main unit (with /M3 option), statistics can be received on hourly, daily, and monthly bases to create report files.

The report data calculated by the DARWIN with /M3 option can be Re-displayed using the viewer software. The data can also be printed using an external printer.

In addition, the auto-processing function can be used to automatically convert data files or periodically make printouts.

System Setup and Diagnostics Software

● System setup:

Used to select the method of communication with the DARWIN unit and set the directory for data acquisition files.

● System Diagnostics:

Diagnoses the operation statuses of the DARWIN unit and subunits, input/output modules, and communication, and checks the version of the ROM in the DARWIN unit.

● Reconfiguration:

The modules can be identified and the system can be reconfigured (except for stand-alone models).

● Calibration:

Calibration of the measurement ranges can be performed.

● Network:

The IP address of the Ethernet module installed in the DARWIN unit can be set.

● Initialization:

The setting of hardware is initialized.

File Utility Software

Data files or file directories that contain data files can be divided, combined, converted, or reconfigured.

● Divide

- Extract: Extract needed sections of data and divide the files
- Divide: Divide in units of the number of data points or time range
- Hourly: Divide in units of days or hours

● Combine

View the data files in a directory, select multiple files, and combine them into a new file.

● Convert

Convert to Lotus/Excel/ASCII format in units of data files or data directories and store the result in a specified directory.

● Reconfigure

Combine and divide multiple data files with one action.

Remote Monitor Software

● Overview

Client software for remotely accessing the DAQ32 Plus monitor server that is installed on a server PC on the Ethernet. Up to eight client PCs can access the server via the Ethernet. In addition, up to eight servers can be monitored from one remote location via the monitor software.

● Connection condition

- Install DAQ32 Plus in the PC server. Install DAQ32 Plus or DAQ32 Plus client software package on the client PC.
- Up to eight client PCs running the remote monitor software can access the monitor server (PC).
- Up to eight monitor servers (PCs) can be accessed from one client PC. The DAQ32 Plus and DAQ32 Plus client software packages are managed using license numbers. A server cannot be accessed from multiple PCs running the remote monitor software having the same license number.

Tag Setting Software

The tag setting software allows you to set the tag numbers and tag IDs.

● Tag number:

Up to 16 characters

● Tag ID:

Up to 8 characters

Parameter Setting Software

Used to upload and download the measurement parameter and preference settings, and to modify those settings. Also, it is possible to upload / download these settings with floppy disk for the DC100 and DR recorders.

● Parameters That Can Be Set

- Set mode: Measurement range, calculation formula, chart speed, timer, event/action, message, constant, writing action, etc.
- Setup mode: A/D integration time, recording format, alarm, relay, key lock, burn-out action, measurement interval, display update interval, report action, etc.

■ DARWIN DAQ32 Plus Client Package

● Overview

- A package of remote monitor software, remote viewer software, and file utilities.
- DAQ32 Plus Client Package does not include any data setting and acquisition functions because its sole purpose is to provide a means of monitoring via remote access over Ethernet. As a result, the low-priced DAQ32 Plus Client Package delivers great cost benefits when multiple clients are used to access a PC server.
- DAQ32 Plus Client Package does not function alone. It connects to the monitor server in DAQ32 Plus over a network to configure client/server architecture. Thus, it must be used together with a PC server that runs DAQ32 Plus.

● Software Configuration

- Remote monitor software
- Viewer software
- File utility software

Remote Monitor Software

● Overview

Note that a DAQ32 Plus Client Package must be purchased for each client PC used. The DAQ32 Plus Client Package version R9, a new package added to the DARWIN DAQ series of packages, includes the following software:

- Remote monitor: By specifying a host name, up to eight client PCs can simultaneously access the DAQ32 Plus monitor server installed in a PC server for real-time monitoring. A remote monitor can access up to eight monitor servers simultaneously for remote real-time monitoring.
- Viewer software: Allows the user at a client PC to select a measured-value data file in the data file storage directory within a networking PC server and display the measured values.
- File utilities: Allows the user at a client PC to select a measured-value data file in the data file storage directory within a networking PC server, and divide, assemble, convert, and reconfigure the file.

● Connection condition

- Install DAQ32 Plus in the PC server. Install DAQ32 Plus or DAQ32 Plus client software package on the client PC.
- Up to eight client PCs running the remote monitor software can access the monitor server (PC).
- Up to eight monitor servers (PCs) can be accessed from one client PC. The DAQ32 Plus and DAQ32 Plus client software packages are managed using license numbers. A server cannot be accessed from multiple PCs running the remote monitor software having the same license number.

File Utility Software

Data files or file directories that contain data files can be divided, combined, converted, or reconfigured.

● Divide

- Extract: Extract needed sections of data and divide the files
- Divide: Divide in units of the number of data points or time range
- Hourly: Divide in units of days or hours

● Combine

View the data files in a directory, select multiple files, and combine them into a new file.

● Convert

Convert to Lotus/Excel/ASCII format in units of data files or data directories and store the result in a specified directory.

● Reconfigure

Combine and divide multiple data files with one action.

Data Viewer Software

● Historical Data Display

- Display formats: Analog trend waveform display, digital value display.
- Computations: The minimum, maximum, peak-to-peak width, average, and root-mean-square values in a period specified by cursor.
- Number of channels displayed: 32 channels per display group.
- Number of pages: As required for 30 display groups
- Time axis zoom-in: The time axis can be magnified, reduced, and scrolled.
- Data file display: Multiple files can be opened at the same time.

● File Conversion

- File format: A specified range of data can be saved as a Lotus 1-2-3, Microsoft Excel, or text (ASCII code) file.
- Range of data to be saved to a file: Can be specified by cursor.
- Channels: Data of the currently displayed group of channels, data of 240 channels (when saving as a Lotus 1-2-3 file or Microsoft Excel file), or data of 360 channels (when saving as a text file) can be saved to a single file all at once.

● Report Data Display

- Using the report function that is provided on the DARWIN main unit (with /M3 option), statistics can be received on hourly, daily, and monthly bases to create report files.
- The report data calculated by the DARWIN with /M3 option can be Re-displayed using the viewer software. The data can also be printed using an external printer.
- In addition, the auto-processing function can be used to automatically convert data files or periodically make printouts.

Model and Suffix Codes

Model	Suffix Code	Description	Release Number
DP120		DARWIN DAQ32	R10
Operating system	-1	Windows 95, Windows 98, Windows NT 4.0, or Windows 2000	
Language	3	English	
Option	/FC	DP120-13 is supplied as four floppy disks (rather than a CD).	
DP320		DARWIN DAQ32 Plus	R10
Operating system	-1	Windows 95, Windows 98, Windows NT 4.0, or Windows 2000	
Language	3	English	
Option	/FC	DP320-13 is supplied as four floppy disks (rather than a CD).	
DP321		DARWIN DAQ32 Plus Client Package	R10
Operating system	-1	Windows 95, Windows 98, Windows NT 4.0, or Windows 2000	
Language	3	English	
Option	/FC	DP321-13 is supplied as four floppy disks (rather than a CD).	

Note: The DP120, DP320 and DP321 are supplied as CD-ROMs unless otherwise specified with the /FC option.

Comparison of Functions (See Attached Table for Display Groups and Number of Channels)

(* : The number of display channels is limited.)

Software	Model	Functions									
		DARWIN Configuration	System Setup, Diagnosis and Calibration	Real-time Monitor	Data Acquisition	Data Viewer	Monitor Server	Remote Monitor	File Utilities	Tag Setting	Auto Processor
DAQ32	DP120	✓	✓	Limited*	✓	Limited*					
DAQ32 Plus	DP320	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DA32 Plus Client Package	DP321			✓		✓		✓	✓		

Supplement: Differences between Editions

Function (s)	Difference
DARWIN configuration, system setup, diagnosis, and calibration	The DP321 client software package is for remote access over a network. Hence, it does not include these functions.
Data acquisition	The DP321 client software package is for remote monitor over a network. Hence, it does not include the data acquisition function.
Real-time monitor	The DP120 is capable of displaying analog trends of 10 channels for every 2 windows as well as a digital value display of 10 channels for every 2 windows in real time. It is not capable of displaying any other real-time monitors. The DP320 and DP321 are capable of displaying a variety of graphical displays including analog trends, digital monitors, color monitors, meter (analog, level meter, and thermometer) displays, and an alarm monitor in real time.
Viewer	The DP120 only has limited viewer functions for report display and printing, a cursor point display for the analog trends of 10 channels and a digital value display for the 10 channels. The DP320 and DP321 have extensive viewer functions. The analog trend and digital values for this package can be displayed for 32 channels in 30 windows of the Viewer. Features calculations of values between two specified cursor points, as well as an alarm/mark search function and report display and printing functions for those channels.
Monitor server	Available with the DP320 only.
Remote monitor	Available on all except the DP120.
File utilities	Available on all except the DP120.
Tag setting	Available with the DP320 only. Tag indication is possible with the DP321.
Auto processor	Available with the DP320 only.

■ Software function comparison

Item	DAQ32 (DP120)	DAQ32 Plus (DP320)	DAQ32 Plus Client Package (DP321)
Launcher	Tusk bar Display	S	NA
	Project Registration	NA	NA
	Password Protection	NA	NA
Setting (Full Setting)	S	S	NA
Configuration, Diagnostic, Calibration	S	S	NA
Tag. Setting	NA	S	NA (Tag indication is possible)
Logger	Data Logging (to PC)	S	S
	Display Modes	Analog Trend, Digital	Analog Trend, Digital, Meter, Alarm, Color graph
	Display Groups	2	30
	Channel Number	10 ch/1 group	32 ch/1 group
	Historical Buffer	1800	1800
	Alarm Beep	NA	S
	Multiple Y-axis scale	NA	S
	Logarithmic Y-axis scale	NA	S
	DDE server	NA	S
	Auto processor	NA	S
	Comm. Retry	S	S
Monitor Server	NA	S	NA
Remote Monitor (Client)	NA	S	S
Viewer	Display modes	Analog Trend, Digital	Analog Trend, Digital
	Display groups	2	30
	Channel number	10 ch/1 group	32 ch/1 group
	Computation between cursor	NA	S
	/M3 report result display	S	S (automatic conversion/printing with auto processor)
	File conversion	S	S
File utility	NA	S	S
License number	S	S	S
Model	DP120	DP320	DP321

S: Standard function NA: Not available

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