
**Instruction
Manual**

VARILINK™

Recorder Interface Software

Yokogawa Corporation License Agreement

BY OPENING THE SEALED DISK PACKAGE, YOU AGREE TO BE BOUND BY THE TERMS OF THIS AGREEMENT, WHICH INCLUDE THE SOFTWARE LICENSE AND THE LIMITED WARRANTY (collectively the "Agreement"). THIS AGREEMENT APPLIES TO YOU AND ANY SUBSEQUENT LICENSEE OF THIS SOFTWARE PROGRAM ("software").

IF YOU DO NOT ACCEPT OR AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT OPEN THE DISK PACKAGE. PROMPTLY RETURN THE UNOPENED DISK PACKAGE AND ALL OTHER MATERIAL IN THIS PACKAGE WITH PROOF OF PAYMENT TO THE SOURCE WHERE YOU OBTAINED THE PRODUCT FOR A FULL REFUND.

Johnson Yokogawa Corporation retains ownership of the enclosed program. This program is licensed to you for use under the following conditions:

Permitted Uses / You May:

Use the software on any compatible computer, provided you use the software on only one computer at a time.

Use the software on a network, file server or virtual disk provided that access is limited to one user at a time and that you have the original copy of the documentation and the program disks.

Permanently transfer the software to another user if you transfer the documentation and all disks and the other user agrees to the terms and conditions of this Agreement.

Prohibited Uses / You May Not:

Make copies of the documentation or program disks, except as described in the documentation.

Loan, rent, sublicense, or otherwise transfer the software or the documentation, except as provided above.

Alter, modify or adapt the software or documentation, including, but not limited to, translating, decompiling, disassembling, or creating derivative works.

This license and your right to use the software automatically terminate if you fail to comply with any provision of this license agreement. Upon termination you will destroy all documentation and disks.

Johnson Yokogawa Corporation retains all rights not expressly granted. Nothing in this Agreement constitutes a waiver of Johnson Yokogawa Corporation's rights under the U.S. Copyright laws or any other federal or state law.

Limited Warranty

Johnson Yokogawa Corporation warrants that for a period of 90 days after shipment, the software supplied hereunder will meet Johnson Yokogawa Corporation's published functional specifications. Johnson Yokogawa Corporation will, at its option, repair or replace software media that do not execute programming instructions if Johnson Yokogawa Corporation receives notice of such defects during the warranty period. Johnson Yokogawa Corporation does not warrant that the operation of the software shall be uninterrupted or error free.

A Return Authorization (RA) number must be obtained from the factory and clearly marked on the outside of the package before any material will be accepted for warranty adjustment. Johnson Yokogawa Corporation will pay the shipping costs of returning to the licensee items which are covered by warranty.

Johnson Yokogawa Corporation believes that the information in this manual is accurate. The document has been carefully reviewed for technical accuracy. In the event that technical or typographical errors exist, Johnson Yokogawa Corporation reserves the right to make changes to subsequent editions of this document without prior notice or transmittal to holders of this edition. The reader should consult Johnson Yokogawa Corporation if errors are suspected. In no event shall Johnson Yokogawa Corporation be liable for any damages arising out of or related to this document or the information contained in it.

EXCEPT AS SPECIFIED HEREIN, JOHNSON YOKOGAWA CORPORATION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. JOHNSON YOKOGAWA CORPORATION WILL NOT BE LIABLE FOR DAMAGES RESULTING FROM LOSS OF DATA, PROFITS, USE OF PRODUCTS, OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF ADVISED OF THE POSSIBILITY THEREOF. This limitation of the liability of Johnson Yokogawa Corporation will apply regardless of the form of action, whether in contract or tort, including negligence. Any action against Johnson Yokogawa Corporation arising out of this license, must be brought within one year after shipment of the software covered hereby. Johnson Yokogawa Corporation shall not be liable for any delay in performance due to causes beyond its reasonable control. The warranty provided herein does not cover damages, defects, malfunctions, or service failures caused by licensee's failure to follow the Johnson Yokogawa Corporation installation, operation, or maintenance instructions; licensee's modification of the product; licensee's abuse, misuse, or negligent acts; and power failure or surges, fire, flood, accident, actions of third parties, or other events outside reasonable control. In no event shall Johnson Yokogawa Corporation's liability hereunder exceed the price paid to Johnson Yokogawa Corporation for this license.

Copyright

Under the copyright laws, this book may not be copied, photocopied, reproduced, or translated, in whole or in part, without the prior written consent of Johnson Yokogawa Corporation.

Trademarks

VARILINK™ is a trademark of Johnson Yokogawa Corporation.

Product names listed are trademarks of their respective manufacturers. Company names listed are trademarks or trade name of their respective companies.

VARILINK™

Preface

This manual is a tutorial and user guide for Johnson Yokogawa's VARILINK™ Recorder Interface Software (Version 1.4). VARILINK™ dynamically interfaces Johnson Yokogawa industrial recorders with personal computers (PCs) for data acquisition and remote programming.

This software allows PC users to retrieve and display process data directly from μ R1000, μ R1800, μ R100T, μ R100F, μ R180T, HR2400 and HR2500E recorders as well as the DA2500 data acquisition terminal. The software runs on any IBM compatible PC equipped with an RS232C port or an RS422A port. Users can send or retrieve data to and from the recorder by:

- ◇ direct RS232C or RS422A cable link between a desktop or laptop PC and the recorder, or;
- ◇ downloading information to a disk for transport/storage.

This VARILINK™ manual is divided into six chapters covering step by step instructions for each recorder product (line):

1. μ R1000 Dot Model Hybrid Strip Chart Recorder
2. μ R1800 Dot Model Hybrid Strip Chart Recorder
3. μ R1000/ μ R1800 Pen Model Hybrid Strip Chart Recorders
4. HR2400 Hybrid Recorder
5. HR2500E Hybrid Recorder and DA2500 Data Acquisition Terminal
6. μ R100T, μ R180T and μ R100F Hybrid Strip Chart Recorders

Each chapter takes the user through every step of the configuration process, from recorder setup to computer setup. The manual is a tutorial showing every **KEY STROKE** in the process and an accompanying **EXPLANATION** of each entry.

The following typefaces are used in this manual to help the user distinguish between the different types of keystrokes involved in the setup procedures:

TYPEFACE	SIGNIFICANCE
Times Roman Normal	Used to signify normal instruction text within this document.
HELVETICA ALL CAPS	Used to signify the recorder display seen by the user at each stage of the tutorial.
Courier Normal	Used to signify the computer screen display seen by the user at each stage of the tutorial.
<i>Times Roman Italic</i>	Used to signify an example actually typed by the user under the KEY STROKE column during the tutorial.

If you need assistance, please call Johnson Yokogawa at 1/800-524-SERV (TAC Group).

VARILINK™

Table of Contents

μR1000 Dot Model Recorders	1
Software Limitations	1
Requirements	1
Recorder Setup	1
Computer Setup	2
Display and Data Acquisition Menu	4
Setup Data Acquisition	4
Main Data Menu	6
Display Data	7
Data Acquisition	7
Edit Configuration	8
Temperature Units	9
Edit μR1000 Dot Model Configuration	9
Edit Menu	9
Ranges, Tags, Units, Printout, Alarms, Zones and Partial	10
Charts, Print, Messages and Daylight Savings Setting	11
Math Channels, Tags, Units, Printout and Alarms	12
Math Constants	13
End Edit	14
Load Configuration to Recorder	14
 μR1800 Dot Model Recorders	 15
Software Limitations	15
Requirements	15
Recorder Setup	15
Computer Setup	16
Display and Data Acquisition Menu	18
Setup Data Acquisition	19
Main Data Menu	20
Display Data	21
Data Acquisition	21
Edit Configuration	22
Temperature Units	23
Edit μR1800 Dot Model Configuration	23
Edit Menu	23
Ranges, Tags, Units, Printout, Alarms, Zones and Partial	24
Charts, Print, Messages and Daylight Savings Setting	26
Math Channels, Tags, Units, Printout and Alarms	26
Math Constants	27
End Edit	28
Load Configuration to Recorder	28

VARILINK™

Table of Contents

μR1000/μR1800 Pen Model Recorders	29
Software Limitations	29
Requirements	29
Recorder Setup	29
Computer Setup	30
Display and Data Acquisition Menu	32
Setup Data Acquisition	33
Main Data Menu	34
Display Data	35
Data Acquisition	35
Edit Configuration	36
Temperature Units	37
Edit μR1000/μR1800 Pen Model Configuration	37
Edit Menu	37
Ranges, Tags, Units, Printout, Alarms, Zones and Partial	38
Charts, Print, Messages and Daylight Savings Setting	40
Math Channels, Tags, Units, Printout and Alarms	140
Math Constants	42
End Edit	42
Load Configuration to Recorder	42
HR2400 Recorders	45
Software Limitations	45
Requirements	45
Recorder Setup	45
RS232C	46
RS422A	46
Computer Setup	47
Display and Data Acquisition Menu	49
Setup Data Acquisition	49
Main Data Menu	51
Display Data	51
Data Acquisition	52
HR2400 IC Card Measurement Data Retrieval	53
HR2400 Report Retrieval	53
Edit Configuration	54
Temperature Units	55
Edit HR2400 Configuration	55
Edit Menu	56
Ranges	56
Alarms	57
Interpolation	58
Zones/Partial/Print Format	59

VARILINK™

Table of Contents

Tags/Messages/Headers/Title	60
Chart Speeds/Intervals/System	62
Moving Average	64
User Linearization	65
Math Channels	66
Constants	67
End Edit	67
Load Configuration to Recorder	67
HR/DA 2500	69
Software Limitations	69
Requirements	69
Recorder/Data Acquisition Setup	69
Computer Setup	70
Display and Data Acquisition Menu.....	73
Setup Data Acquisitions	73
Main Data Menu	75
Display Data	75
Data Acquisition	75
Edit Configuration	76
Save Configuration from Recorder.....	76
Edit Configuration	77
Temperature Units	77
Edit HR2500 Configuration.....	78
Edit Menu	78
Ranges (Trend or Logging Format)	78
Alarms	80
Groups	81
Print Format (Trend Format)	82
Print Format (Logging Format)	83
Tags, Messages and Title	83
Chart Speeds/Intervals (Trend Format)	85
Chart Speeds/Intervals (Logging Format)	86
List Format	86
Pulse Input	87
Math Channels (Trend Format)	88
Math Channels (Logging Format)	89
Constants	90
End Edit	91
Load Configuration to Recorder	91

VARILINK™

Table of Contents

μR100T, μR180T and μR100F	92
Software Limitations	92
Requirements	92
Recorder Setup	92
Parameter Display and Contents	93
Computer Setup	94
Display and Data Acquisition Menu	96
Setup Data Acquisition	96
Main Data Menu	98
Display Data	98
Glossary of Terms	99

μR1000 Dot Model

Software Limitations

VARILINK™ 1.4 performs data acquisition for the μR1000 Dot Model strip chart recorder. Items in the Setup Mode of the recorder cannot be set from VARILINK™ 1.4. Refer to Instruction Manuals IM 4D5B1-01E and IM 4D5B1-10E for a detailed explanation of items in the Setup Mode.

The clock in the recorder cannot be accessed or set through VARILINK™ 1.4.

The following items can be configured from VARILINK™ 1.4: Ranges, Alarms, Zones, Partial, Print Format, Tags, Messages, Chart Speeds, Math Channels, Constants and Engineering Units.

- Exceptions:**
- 1) The constant 1E + 29 may not be entered through this software.
 - 2) 10Ω copper RTD inputs cannot be configured via VARILINK™.

Requirements

1. IBM or compatible computer;
2. DOS 2.1 or higher;
3. Johnson Yokogawa Corporation VARILINK™ 1.4 software;
4. Recorder with RS422A:
 - a. Refer to IM 4D5B1-01E
 - b. If computer is equipped with a RS232C port, a RS422A to RS232C converter is required.

Recorder Setup

KEY STROKE	EXPLANATION
< Enter >	Power-up recorder while pressing < Enter > on the recorder panel. Refer to Parameter Display and Contents for setting information.
< ⑦ >	SETUP is displayed, ALARM is flashing
< Enter >	Until OPT (option) is displayed and flashing
< Enter >	OPT= is displayed, COMM is flashing
< ⑦ >	ADDRESS= is displayed, 01 is flashing
< Enter >	Select a number (01-16). See note below.
	BAUD RATE= is displayed

VARILINK™

μR1000 Dot Model Recorders

< ⑦ >< ⑨ >	Select 9600
< Enter >	
	D. LEN= (data length) is displayed
< ⑦ >< ⑨ >	Select 8 DATA BITS
< Enter >	
	PARITY= is displayed
< ⑦ >< ⑨ >	Select NONE
< Enter >	
	STOP BIT= is displayed
< ⑦ >< ⑨ >	Select 1
< Enter >	
	COMM SET is displayed
< Enter >	
< ESC >	To return to setup display
< ⑦ >< ⑨ >	Until END is displayed
< Enter >	
	END = STORE is displayed
< Enter >	Settings are complete

Caution: Do not turn off power to the recorder while information is being stored. The recorder will reboot automatically.

Note: Device #1 = Address 1, Device #2 = Address 2, etc.

Computer Setup

Boot up computer on DOS and install Johnson Yokogawa Corporation VARILINK™ software in your disk drive.

KEY STROKE	EXPLANATION
-------------------	--------------------

VARILINK™ < Enter >	After a moment, the Main Menu will appear as follows:
< F1 >	Display & Data Acquisition Menu.
< F2 >	Edit Configuration.
< F3 >	Setup Computer.
< F4 >	Save All Setup Parameters.
< F5 >	Save Configuration From Recorder.
< F6 >	Load Configuration to Recorder.
< F7 >	HR2400 IC Card.
< F8 >	HR2400 reports.
< F10 >	End Program.

VARILINK™

μR1000 Dot Model Recorders

From Main Menu

KEY STROKE	EXPLANATION
< F3 >	Setup Computer
< F1 >	Setup Com Ports
< F2 >	Select Devices
< F10 >	Prior Menu

KEY STROKE	EXPLANATION
< F1 >	Setup Com Ports
< Enter >	
< F1 >	change Com Port 1
< F2 >	change Com Port 2
< F3 >	change Com Port 3
< F4 >	change Com Port 4

Repeatedly pressing the appropriate function key will scroll the various Baud Rate choices. (Minimum = 300, maximum = 9600). Select the appropriate rate.

Then press:

< F10 >	Prior Menu.
---------	-------------

From Setup Computer Menu

KEY STROKE	EXPLANATION
< F2 >	Select Devices.
< Enter >	Enter number of device to be edited:
< F2 >	Select Devices Menu appears.
< F2 >	Device Number:
< F3 >	Device Type:
< F4 >	Start Channel:
< F5 >	End Channel:
< F6 >	Interface:
< F7 >	Address:
< F10 >	Prior Menu

Note: For Data Display and Acquisition, device types are limited to only those devices which are connected to the computer. Failure to do so will create a program error. A maximum of 144 devices may be selected. A maximum of 1200 input channels may be selected.

VARILINK™

μR1000 Dot Model Recorders

KEY STROKE	EXPLANATION
< F3 >	Device type: press repeatedly until μR1000 appears.
< F4 >	Start Channel: Enter new starting channel number: (sequential order, lowest original channel)
< Enter >	
< F5 >	End Channel Enter new ending Channel: (sequential order, highest original channel)
< Enter >	
Note:	< F4 > and < F5 > functions only pertain to data acquisition and data display of information.
< F6 >	Interface; press < F6 > repeatedly to select Com Port (this is the Com Port on your computer to which you have connected the μR1000 dot model recorder, Com 1 through Com 4).
< F7 >	Address: Press < F7 > repeatedly until you reach the address set during the recorder setup procedure.
Note:	The address setting must match the setting in the recorder. For more information, refer to the recorder setup for the μR1000 Dot Model.
< F10 > 3 times	Return to MAIN MENU. The computer is now Setup for communications with the μR1000 dot model recorder.
< F4 >	Save All Setup Parameters.

Display and Data Acquisition Menu

From Main Menu

KEY STROKE	EXPLANATION
< F1 >	Display & Data Acquisition Menu. Setup Data Acquisition Menu will appear.

Setup Data Acquisition

< F1 >	Help
< F2 >	Sampling rate: (seconds)
< F3 >	Filename to store data to: (your filename)
< F4 >	File type:

VARILINK™

μR1000 Dot Model Recorders

< F5 >	Number of rows in data file: (samples per channel)
< F6 >	Number of columns in data file: (number of channels)
< F8 >	Save All Setup Parameters
< F9 >	Start Main Program (start Display or Data Acquisition)
< F10 >	Prior Menu

Note: Spreadsheet software places a limitation on the number of columns that are available for use in data acquisition. The limit is 250 columns or, as used in VARILINK™ 1.4, a total of 250 Channels. When the number of channels to be acquired exceeds 250, VARILINK™ 1.4 will automatically write multiple files to disk to accommodate the excess over the 250 limit. See Example #1 below.

The ability to write multiple files simultaneously could also be used to segregate data as desired. See example #2 below.

Example 1: Selected Devices 1 through 42 are μR1000 Dot models with 6 channels each and 252 total points. All other devices are set NA.

Set number of columns in data file to 250 (max allowed), File name = TEST.
VARILINK™ 1.4 will save the data to 2 separate files.
File Name #1 will be TESTA00.WK1 (Inputs 1-250).
File Name #2 will be TESTB00.WK1 (Inputs 251-252).

Example 2: Selected devices 1, 2, 3, 4 and 5 are μR1000 Pen Models with 4 points each and 20 total points. All other selected devices are set to NA.

Set Number of columns to 4, File name = DATUM.
VARILINK™ 1.4 will save the information to 5 separate files.
File Name #1 will be DATUMA00.WK1 (Recorder #1)
File Name #2 will be DATUMB00.WK1 (Recorder #2)
File Name #3 will be DATUMC00.WK1 (Recorder #3)
File Name #4 will be DATUMD00.WK1 (Recorder #4)
File Name #5 will be DATUME00.WK1 (Recorder #5)

Note: The maximum number of files that can be created is 14.

Example 3: Selected Device #1 is a μR1000 Dot Model with 6 Channels. Channels 1, 2 & 3 to be saved in one file and Channels 4, 5 & 6 to be saved in a different file. Data samples every 30 seconds. Number of samples per point is 1000. File name is TEST. All other Selected Devices are set to NA.

See the following data entries.

VARILINK™

μR1000 Dot Model Recorders

KEY STROKE	EXPLANATION
< F1 >	Help screen for Data Acquisition.
< F10 >	To return Main Menu.
< F2 >	Sampling rate. This setting is in seconds: minimum setting is 2 seconds, maximum setting is 21,600 seconds or 6 hours. This setting determines how often data is saved from the recorder to the file.
30 < Enter >	
< F3 >	Filename to store data to: Enter complete path and your own file name with a maximum of 5 characters.
Test < Enter >	
< F4 >	File type: you have 2 choices: .WK1 (Lotus spreadsheet format) or .DIF (Data interchange format). This is accomplished by pressing < F4 > (each time you press < F4 > .WK1 and .DIF will toggle on the screen).
< F5 >	Number of rows in data file: minimum 500, maximum 8,180. This is the number of samples of each acquired channel to be stored in each file.
1000 < Enter >	1000 samples of each acquired channel will be taken before a new file is created.
< F6 >	Number of columns in data file: minimum 1 column, maximum 250 columns. (Number of columns equals number of channels.)
2 < Enter >	File #1 name: TESTA00.WK1 (Channels 1, 2 & 3) File #2 name: TESTB00.WK1 (Channels 4, 5 & 6)
< F8 >	Save All Setup Parameters: this will save the settings < F2 > through < F6 > to the default file for Data Acquisition.
< F9 >	Start main program. The computer screen will display Testing Communications. Also, at the bottom left of the screen you will observe data being read from the μR1000 dot model recorder. After approximately one minute, Main Data Menu will appear.

Main Data Menu

< F1 >	Display Data
< F2 >	Data Acquisition
< F3 >	HR2400 IC Card
< F10 >	Main Menu

VARILINK™
μR1000 Dot Model Recorders

Display Data

KEY STROKE	EXPLANATION
< F1 >	Display data.
< ⑦ > < ⑨ >	To scroll through channels, use these keys.
< Page Up >	
< Page Down >	Scrolls pages of channels.

Note: You may move directly to a given channel by typing that channel's defined tag name.

< F10 > Return to Main Data Menu.

Data Acquisition

KEYSTROKE	EXPLANATION
< F2 >	Data Acquisition. Start/Stop Data Acquisition Menu will appear. At this point in the program, you may change any of the parameters < F2 > through < F6 > described in the Data Acquisition Menu section discussed earlier.
< F1 > or < F10 >	To start Data Acquisition. Return to Main Data Menu.
< F1 >	If < F1 > was selected Stop Data Acquisition when Data Acquisition is complete.

Note: The number of samples taken is displayed in the lower left portion of the screen. Also, the current file is displayed to the right of samples taken. Once a file is full, the program will create another file automatically. A maximum of 224 files will be created. However, if disk space is depleted, program will stop.

File creation Example: File name = Test
Current File: Test?00 will appear; once this file is full, the current file:
Test?01 will appear.

Note: After Data Acquisition is complete, the Menu will return to Start/Stop Data Acquisition. If < F1 > is pressed and the file name has not been changed, a box will appear under < F10 > Prior Menu: Do you want to overwrite the existing files (Y/N). If Y is selected, the current file will be overwritten.

KEY STROKE	EXPLANATION
< F10 >	Return to Main Menu.

VARILINK™

μR1000 Dot Model Recorders

Edit Configuration

From Main Menu

Save Configuration from Recorder

Note: A configuration file must be in the default directory before "Edit Configuration" can begin.

If you have a new disk or a disk that does not have an existing file:

KEY STROKE	EXPLANATION
-------------------	--------------------

Note:	Configuration files are .PNL extension files.
--------------	---

< F5 >	Save configuration from recorder. Select recorder to save data from.
--------	---

< Enter > Test < Enter >	Enter File name to save configuration to (without extension)
-----------------------------	---

Note: VARILINK™ 1.4 will save data from all channels of the recorder to the default operating directory.

Screen will flash WORKING . When Save Configuration is complete, program will return to MAIN MENU. The recorder display will define "MANUAL" mode.

Edit Configuration

From Main Menu

KEY STROKE	EXPLANATION
-------------------	--------------------

< F2 >	Edit Configuration.
--------	---------------------

Edit Menu

Select Instrument to Edit

< F1 >	HR2400
< F2 >	HR2500
< F3 >	μR1000/1800
< F10 >	Prior Menu

VARILINK™
μR1000 Dot Model Recorders

Temperature Units

KEY STROKE	EXPLANATION
------------	-------------

Select °F or °C.

< F1 >

°F.

< F2 >

°C.

Note: This selection does not change recorder setup for temperature. The change can only be made in the Setup Mode of the recorder. If you do not have temperature inputs, select < F1 > °F.

Edit μR1000 Dot Model Configuration

Enter the file to be edited.

KEY STROKE	EXPLANATION
------------	-------------

Test < Enter >

Checking Input File for errors will appear. If file is not corrupted, Edit Menu will appear.

Note: If you have a file error, resave your file from recorder. (Refer to save configuration from recorder.)

Edit Menu

Select item to be edited.

< F1 >

Ranges, Tags, Units, Printout, Alarms, Zones and Partial

< F2 >

Chart Speeds, Print, Messages and Daylight Savings Setting^(optional)

< F3 >

Math Channels, Tags, Units, Printout and Alarms

< F4 >

Math Constants

< F10 >

End Edit

For an explanation of items < F1 > and < F2 >, refer to IM 4D5B1-01E. < F3 > and < F4 >, refer to IM 4D5B1-20E.

VARILINK™

μR1000 Dot Model Recorders

Ranges, Tags, Units, Printout, Alarms, Zones and Partial

KEY STROKE	EXPLANATION
< F1 >	Ranges, Tags, Units, Printout, Alarms, Zones and Partial. Channel will be highlighted.
< ⑦ > < ⑨ >	Select channel to be edited. Select from channels 1-6. (For example: Stop on Channel 1.)
< Tab >	Mode will be highlighted.
< ⑦ >	Change input type. (For example: Stop on Volt.)

The following items may be selected:

Volt	Voltage ranges from 20mV to 50 volts DC
TC (Thermocouples)	Select from R, S, B, K, E, J, T, L, U, N or W
RTD	(Resistance thermal detectors) Select from Pt or JPt
Delta	For measurement channels greater than #1
Scale Volt	Voltage ranges from 20mV to 50 volts DC
Scale TC	Select from R, S, B, K, E, J, T, L, U, N or W
Scale RTD	(Resistance thermal detectors) Select from Pt or JPt
Square Root	Voltage ranges from 20mV to 50 volts DC
DI	(Digital Input) Level or Contact
Math	(Math)
Skip	(Channel off)

KEY STROKE	EXPLANATION
< Tab >	Range will be highlighted.
< ⑦ > < ⑨ >	Change input type for TC, RTD, DI or Range Value for volts.
< Tab >	Left Span will be highlighted. This is left span (0% value).
1 < Enter >	Low end input value.
< Tab >	Right Span (100% value).
5 < Enter >	High end input value.
< Tab >	Tag will be highlighted.
	Type in Tag Name. (maximum of 7 characters) (For more information, refer to IM 4D5B1-01E, Table 8.1 Characters)
FT-101 < Enter >	After all characters have been entered

Note: If you choose to turn the scaling on, you will need to perform the next section. If scaling is off, TAB will go to Alarm.

< Tab >	Left Scale will be highlighted.
0.0 < Enter >	Left scale value.
< Tab >	Right scale will be highlighted:
100.0 < Enter >	Right scale value.
< Tab >	Units will be highlighted. (maximum of 6 characters) (For more information, refer to IM 4D5B1-01E, Table 7.3 Characters)

VARILINK™

μR1000 Dot Model Recorders

Tons < Enter >
 < Tab > Alarm 1 will be highlighted
 < ⑦ > < ⑨ > To turn Alarm Off or select H=High, L=Low, RH=Rate of change high, RL=Rate of change low. If off, setting is complete.
 < Tab > Setpoint 1 will be highlighted
 50 < Enter > Select Set Point value.
 < Tab > Relay 1 ID will be highlighted.

Note: Although choices range from I01-I24, the relay selection for the μR1000 Dot Model is limited to I01-I06. The recorder must be equipped with /A1 (2 relays), /A2 (4 relays) or /A3 (6 relays) for the setting to be valid.

< ⑦ > < ⑨ > Turn relay Off or select from relays I01-I06. If “Off” is selected, setting is complete.
 < Tab > Alarm 2 will be highlighted
 (Repeat as above for Alarms 2 through 4).
 < Tab > Left Zone will be highlighted. Set Value. (minimum)
 0 < Enter >
 < Tab > Right Zone will be highlighted. Set value. (maximum)
 100 < Enter >

Note: The minimum width of a zone is 5mm. The maximum setting is 100mm. For more information on Zones, refer to μR1000 Dot Model IM 4D5B1-OIE.

< Tab > Partial will be highlighted.
 < ⑦ > < ⑨ > Turn Partial On or Off.
 If On is selected proceed as below. If Off, setting is complete.
 < Tab > Percent will be highlighted.
 Set percentage.
 25 < Enter >
 < Tab > Boundry will be highlighted.
 Set value.
 10 < Enter >
 < Tab > To edit other channels or,
 < F10 > To return to μR1000 Dot Model Edit Configuration Menu.

For more information on Partial, see μR1000 Dot Model IM 4D5B1-OIE.

Charts, Print, Messages and Daylight Savings Setting

KEY STROKE

EXPLANATION

< F2 > Chart Speed 1 will be highlighted.
 < ⑦ > < ⑨ > Scroll to select chart speed.
 25 < Enter > Set Chart Speed.

VARILINK™

μR1000 Dot Model Recorders

< Tab >	Chart Speed 2 will be highlighted. (See Note) Set Chart Speed.
< Enter >	
< Tab >	Print will be highlighted
< ⑦ > < ⑨ >	Select auto or fix.
< Enter >	
< Tab >	Message 1 will be highlighted.
< Enter >	Input message to be displayed. (For more information, refer to IM 4D5B1-01E, Table 8.2 Characters)
< Tab >	Message 2 will be highlighted. Repeat as above for messages 2-5.

Note: The daylight savings settings are only available if the recorder is equipped with the Daylight Savings option. For more information on this option refer to IM 4D5B1-50E.

< Tab >	Daylight Mode will be highlighted.
< ⑦ > < ⑨ >	Select Winter or Summer.
< Tab >	Daylight Date will be highlighted. Type in YY/MM/DD HH. Hours range from 00 to 23.
< Enter >	
< F10 >	Prior Menu.

Math Channels, Tags, Units, Printout and Alarms

KEY STROKE	EXPLANATION
< F3 >	Math Channels, Tags, Units, Printout and Alarms. Channel will be highlighted.
< ⑦ > < ⑨ >	Set Math Channel desired (0A-0F) or type in channel.
0A < Enter >	
< Tab >	Mode will be highlighted.
< ⑦ > < ⑨ >	Turn channel On or Off . If Off is selected, programming is complete.
< Tab >	Formula will be highlighted. To enter a math formula type the expression. (maximum of 36 characters)
01.GT.02 < Enter >	
< ⑧ >	To edit formula, Until cursor is under item to be changed, type desired change.
Change < Enter >	To insert items into a math statement,
< ⑧ >	Cursor is under the point you wish to insert,
< Insert > Item	Type item to be inserted,
< Enter >	You may also delete items from a math statement.
< ⑧ >	To move the cursor to the desired item to be deleted.
< Delete > Item	
< Enter >	When complete.
< Tab >	Decimal is highlighted.
< ⑦ > < ⑨ >	Select from values 0-4.

VARILINK™

μR1000 Dot Model Recorders

< Tab > Units will be highlighted. Set units. (maximum of 6 characters) (For more information, refer to IM 4D5B1-01E, Table 7.3 Characters)

Tons < Enter >

Note: For further information on Math, see IM 4D5B1-01E.

< Tab > Tag will be highlighted.

< Enter > User programmable value up to 7 characters.(For more information, refer to IM 4D5B1-01E, Table 8.1 Characters)

< Tab > Printout will be highlighted.

< ⑦ > < ⑨ > Select On or Off.

< Tab > Alarm 1 will be highlighted

< ⑦ > < ⑨ > To turn Alarm Off or select from High or Low. If Off, setting is complete.

< Tab > Setpoint 1 will be highlighted

50 < Enter > Select Set Point value.

< Tab > Relay 1 ID will be highlighted.

Note: Relay ID selections are dependent on the number of alarm output relays installed in the recorder.

< ⑦ > < ⑨ > Turn relay Off or select from relays I01-I06. If Off, setting is complete.

< Tab > Alarm 2 will be highlighted

(Repeat as above for Alarms 2 through 4).

< F10 > Return to Edit Menu.

Math Constants

< F4 > Math Constants. Constant 1 will be highlighted. There are ten constants (01-10).

Enter value to be set.

1.234 < Enter >

< Tab > Constant 2 will be highlighted.

Repeat as above for constants 2-10.

When all Constants have been set:

< F10 > Return to Edit Menu.

Note: The Constant 1E+29 cannot be set in this software. You must enter this Constant at the recorder. For more information on setting Constants, refer to IM 4D5B1-01E.

VARILINK™
μR1000 Dot Model Recorders

End Edit

KEY STROKE	EXPLANATION
< F10 >	End Edit. DO YOU WISH TO SAVE YOUR CHANGES?
< F1 >	YES.
< F2 >	NO.

Return to Main Menu.

Load Configuration to Recorder

From Main Menu

KEY STROKE	EXPLANATION
< F6 >	Load configuration to recorder.
< Enter >	Instrument number. Enter the file name you wish to load.
<i>Test</i> < Enter >	

Note: When load starts, an error list will appear on the screen. Data loaded into the recorder will be displayed in the lower left hand corner of the screen. This will take a few minutes. Upon completion of "LOAD" the recorder display will be in **MANUAL** mode.

Caution: In order to load the configuration to the μR1000 Dot Model, the TLOG must be stopped. If the TLOG isn't stopped the configuration will not be downloaded from the PC to the recorder and an error will occur. You must stop the TLOG and repeat the Load Configuration steps. Refer to "Start/Stop the TLOG computation" in IM 4D5B1-20E for more information on the operation mode.

	When complete,
< F10 >	Prior Menu.
< F10 >	Prior Menu.
< F10 >	End Program.

μR1800 Dot Model

Software Limitations

VARILINK™ 1.4 performs data acquisition for the μR1800 Dot Model strip chart recorder. Items in the Setup Mode of the recorder cannot be set from VARILINK™ 1.4. Refer to Instruction Manuals IM 4H3B1-01E and IM 4H3B1-10E for a detailed explanation of items in the Setup Mode.

The clock in the recorder cannot be accessed or set through VARILINK™ 1.4.

The following items can be configured from VARILINK™ 1.4: Ranges, Alarms, Zones, Partial, Print Format, Tags, Messages, Chart Speeds, Math Channels, Constants and Engineering Units.

- Exceptions:**
- 1) The constant 1E + 29 may not be entered through this software.
 - 2) 10Ω copper RTD inputs cannot be configured via VARILINK™.

Requirements

1. IBM or compatible computer;
2. DOS 2.1 or higher;
3. Johnson Yokogawa Corporation VARILINK™ 1.4 software;
4. Recorder with RS422A port:
 - a. Refer to IM 4H3B1-01E
 - b. If computer is equipped with a RS232C port, a RS422A to RS232C converter is required.

Recorder Setup

KEY STROKE	EXPLANATION
< Enter >	Power-up recorder while pressing < Enter > on the recorder panel. Refer to Parameter Display and Contents for setting information. SETUP is displayed, ALARM is flashing
< ⑦ >	Until OPT= (option) is displayed and flashing
< Enter >	OPT= is displayed, COMM is flashing
< Enter >	ADDRESS= is displayed, 01 is flashing

VARILINK™

μR1800 Dot Model Recorders

<p>< ⑦ > < Enter ></p> <p>< ⑦ >< ⑨ > < Enter ></p> <p>< ⑦ >< ⑨ > < Enter ></p> <p>< ⑦ >< ⑨ > < Enter ></p> <p>< ⑦ >< ⑨ > < Enter ></p> <p>< ⑦ >< ⑨ > < Enter ></p> <p>< Enter > < ESC > < ⑦ >< ⑨ > < Enter ></p> <p>< Enter ></p>	<p>Select a number (01-16). See note below.</p> <p>BAUD RATE= is displayed Select 9600</p> <p>D. LEN= (data length) is displayed Select 8 DATA BITS</p> <p>PARITY= is displayed Select NONE</p> <p>STOP BIT is displayed Select 1</p> <p>*COMM SET* is displayed</p> <p>To return to setup display Until END is displayed</p> <p>END = STORE is displayed Settings are complete</p>
--	---

Caution: Do not turn off power to the recorder while information is being stored. The recorder will reboot automatically.

Note: Device #1 = Address 1, Device #2 = Address 2, etc.

Computer Setup

Boot up computer on DOS and install Johnson Yokogawa Corporation VARILINK™ 1.4 software in your disk drive.

KEY STROKE	EXPLANATION
------------	-------------

<p>VARILINK™ < Enter ></p>	<p>After a moment, the MAIN MENU will appear as follows:</p> <p>< F1 > Display & Data Acquisition Menu.</p> <p>< F2 > Edit Configuration.</p> <p>< F3 > Setup Computer.</p> <p>< F4 > Save All Setup Parameters.</p> <p>< F5 > Save Configuration From Recorder.</p> <p>< F6 > Load Configuration to Recorder.</p> <p>< F7 > HR2400 IC Card.</p> <p>< F8 > HR2400 reports.</p> <p>< F10 > End Program.</p>
----------------------------------	--

VARILINK™
μR1800 Dot Model Recorders

KEY STROKE	EXPLANATION
< F3 >	Setup Computer
< Enter >	
< F1 >	Setup Com Ports
< F2 >	Select Devices
< F3 >	Prior Menu

KEY STROKE	EXPLANATION
< F1 >	Setup Com Ports
< Enter >	
< F1 >	change Com Port 1
< F2 >	change Com Port 2
< F3 >	change Com Port 3
< F4 >	change Com Port 4

Repeatedly pressing the appropriate function key will scroll the various Baud Rate choices. (Minimum = 300, maximum = 9600). Select the appropriate rate.

Then press:

< F10 >	Prior Menu.
---------	-------------

From Setup ComputerMenu

KEY STROKE	EXPLANATION
< F2 >	Select Devices. Enter number of device to be edited:
< Enter >	Select DevicesMenuappears.
< F2 >	Device Number:
< F3 >	Device Type:
< F4 >	Start Channel:
< F5 >	End Channel:
< F6 >	Interface:
< F7 >	Address:
< F10 >	Prior Menu

Note: For Data Display and Acquisition, device types are limited to only those devices which are connected to the computer. Failure to do so will create a program error. A maximum of 144 devices may be selected. A maximum of 1200 input channels may be selected.

VARILINK™

μR1800 Dot Model Recorders

KEY STROKE	EXPLANATION
< F3 >	Device type: press repeatedly until μR1800 appears.
< F4 >	Start Channel: Enter new starting channel:(sequential order, lowest original channel)
< Enter >	
< F5 >	Set End Channel: Enter new ending Channel:(sequential order, highest original channel)
< Enter >	
Note:	< F4 > and < F5 > functions only pertain to data acquisition and data display of information.
< F6 >	Interface: press < F6 > repeatedly to select Com Port (this is the Com Port on your computer to which you have connected the μR1800 dot model recorder, Com 1 through Com 4).
< F7 >	Address: Press < F7 > repeatedly until you reach the address set during the recorder setup procedure. (see note)
Note:	The address setting must match the setting in the recorder. For more information, refer to the recorder setup for the μR1800 Dot Model.
< F10 > 3 times	Return to Main Menu. The computer is now Setup for communications with the μR1800 dot model recorder.
< F4 >	Save All Setup Parameters.

Display and Data Acquisition Menu

From Main Menu

KEY STROKE	EXPLANATION
< F1 >	Display & Data Acquisition. Setup Data Acquisition Menu will appear.

VARILINK™
μR1800 Dot Model Recorders

Setup Data Acquisition

< F1 >	Help
< F2 >	Sampling rate:(seconds)
< F3 >	Filename to store data to:(yourfilename)
< F4 >	File type:
< F5 >	Number of rows in data file:(Samplesper channel)
< F6 >	Number of columns in data file:(numberof channels)
< F8 >	Save All Setup Parameters
< F9 >	Start Main Program(start Display or Data Acquisition)
< F10 >	Prior Menu

Note: Spreadsheet software places a limitation on the number of columns that are available for use in data acquisition. The limit is 250 columns or, as used in VARILINK™ 1.4, a total of 250 Channels. When the number of channels to be acquired exceeds 250, VARILINK™ 1.4 will automatically write multiple files to disk to accommodate the excess over the 250 limit. See Example #1 below.

The ability to write multiple files simultaneously could also be used to segregate data as desired. See example #2 below.

Example 1: Selected Devices 1 through 11 are μR1800 Dot models with 24 channels each and 264 total points. All other devices are set NA.

Set number of columns in data file to 250 (max allowed), File name = TEST.

VARILINK™ 1.4 will save the data to 2 separate files.

File Name #1 will be TESTA00.WK1 (Inputs 1-250).

File Name #2 will be TESTB00.WK1 (Inputs 251-264).

Example 2: Selected devices 1, 2, 3, 4 and 5 are μR1800 Dot Models with 12 points each and 60 total points. All other devices are set to NA.

Set Number of columns to 12, File name = DATUM.

VARILINK™ 1.4 will save the information to 5 separate files.

File Name #1 will be DATUMA00.WK1 (Recorder #1)

File Name #2 will be DATUMB00.WK1 (Recorder #2)

File Name #3 will be DATUMC00.WK1 (Recorder #3)

File Name #4 will be DATUMD00.WK1 (Recorder #4)

File Name #5 will be DATUME00.WK1 (Recorder #5)

Note: The maximum number of files that can be created is 14.

VARILINK™

μR1800 Dot Model Recorders

Example 3: Selected Device #1 is a μR1800 Dot Model, 24 Channels. Channels 1 to 9 to be saved in one file, Channels 10 to 18 to be saved in a different file. Data samples every 30 seconds. Number of samples per point is 1000. File name is TEST. All other Selected Devices are set to NA.

See the following data entries.

KEY STROKE	EXPLANATION
< F1 >	Help screen for Data Acquisition.
< F10 >	To return to Main Menu.
< F2 >	Sampling rate. This setting is in seconds: minimum setting is 2 seconds, maximum setting is 21,600 seconds or 6 hours. This setting determines how often to save data from the recorder to the file.
30 < Enter >	
< F3 >	Filename to store data to: Enter complete path and your own file name with a maximum of 5 characters.
Test < Enter >	
< F4 >	File type: you have 2 choices: .WK1 (Lotus spreadsheet format) or .DIF (Data interchange format). This is accomplished by pressing < F4 > (each time you press < F4 > .WK1 and .DIF will toggle on the screen).
< F5 >	Number of rows in data file: minimum 500, maximum 8,180. This is the number of samples of each acquired channel to be stored in each file.
1800 < Enter >	1800 samples of each acquired channel will be taken before a new file is created.
< F6 >	Number of columns in data file: minimum 1 column, maximum 250 columns. (Number of columns equals number of channels.)
2 < Enter >	File #1 name = TESTA00. WK1 (Channels 1 to 9) File #2 name = TEST B00. WK1 (Channels 10 to 18)
< F8 >	Save All Setup Parameters: this will save the settings < F2 > through < F6 > to the default file for Data Acquisition.
< F9 >	Start Main program. The computer screen will display Testing Communications. Also, at the bottom left of the screen you will observe data being read from the μR1800 dot model. After approximately one minute, Main Data Menu will appear.

Main Data Menu

< F1 >	Display Data
< F2 >	Data Acquisition
< F3 >	HR2400 IC Card
< F10 >	Main Menu

VARILINK™
μR1800 Dot Model Recorders

Display Data

KEY STROKE	EXPLANATION
< F1 >	Display data.
< ⑦ > < ⑨ >	To scroll through channels, use these keys.
< Page Up >	
< Page Down >	Scrolls pages of channels.

Note: You may move directly to a given channel by typing that channel's defined tag name.

< F10 >	Return to Main Data Menu.
---------	---------------------------

Data Acquisition

KEYSTROKE	EXPLANATION
< F2 >	Data Acquisition. Start/Stop Data Acquisition Menu will appear. At this point in the program, you may change any of the parameters < F2 > through < F6 > described in the Data Acquisition Menu section discussed earlier.
< F1 > or < F10 >	To start Data Acquisition. Return to Main Data Menu. If < F1 > was selected
< F1 >	Stop Data Acquisition when Data Acquisition is complete.

Note: The number of samples taken is displayed in the lower left portion of the screen. Also, the current file is displayed to the right of samples taken. Once a file is full, the program will create another file automatically. A maximum of 224 files will be created. However, if disk space is depleted, program will stop.

File creation Example:	File name = Test
Current File:	Test?00 will appear; once this file is full, the current file: Test?01 will appear.

Note: After Data Acquisition is complete, the Menu will return to Start/Stop Data Acquisition. If < F1 > is pressed and the file name has not been changed, a box will appear under < F10 > Prior Menu: Do you want to overwrite the existing files (Y/N). If Y is selected, the current file will be overwritten.

KEY STROKE	EXPLANATION
< F10 >	Return to Main Menu.

VARILINK™
μR1800 Dot Model Recorders

Edit Configuration

From Main Menu

Save Configuration from Recorder

Note: A configuration file must be in the default directory before "Edit Configuration" can begin.

KEY STROKE	EXPLANATION
------------	-------------

If you have a new disk or a disk that does not have an existing file:

Note: Configuration files are .PNL extension files.

< F5 >	Save configuration from recorder.
< Enter >	Select recorder to save data from.
Test< Enter >	Enter file name to save configuration to(without extension)

Note: VARILINK™ 1.4 will save data from all channels of the recorder to the default operating directory.

Screen will flash WORKING . When Save Configuration is complete, program will return to MAIN MENU. The recorder display will be left in "MANUAL" mode.

Edit Configuration

From Main Menu

KEY STROKE	EXPLANATION
------------	-------------

< F2 >	Edit Configuration
--------	--------------------

Edit Menu
Select Instrument to Edit

< F1 >	HR2400
< F2 >	HR2500
< F3 >	μR1000/1800
< F10 >	Prior Menu

VARILINK™
μR1800 Dot Model Recorders

Temperature Units

KEY STROKE	EXPLANATION
------------	-------------

Select °F or °C.

< F1 >	°F.
< F2 >	°C.

Note: This selection does not change recorder setup for temperature. The change can only be made in the Setup Mode of the recorder. If you do not have temperature inputs, select < F1 > °F.

Edit μR1800 Dot Model Configuration

Enter the file to be edited.

KEY STROKE	EXPLANATION
------------	-------------

<i>Test</i> < Enter >	Checking Input File for errors will appear. If file is not corrupted, Edit Menu will appear.
-----------------------	--

Note: If you have a file error, resave your file from recorder. (Refer to save configuration from recorder.)

Edit Menu

Select item to be edited.

< F1 >	Ranges, Tags, Units, Printout, Alarms, Zones and Partial
< F2 >	Chart Speeds, Print, Messages and Daylight Savings Settings ^(optional)
< F3 >	Math Channels, Tags, Units, Printout and Alarms
< F4 >	Math Constants
< F10 >	End Edit

For an explanation of items < F1 > and < F2 >, refer to IM 4H3B1-01E. < F3 > and < F4 >, refer to IM 4H3B1-20E.

VARILINK™

μR1800 Dot Model Recorders

Ranges, Tags, Units, Printout, Alarms, Zones and Partial

KEY STROKE	EXPLANATION
< F1 >	Ranges, Tags, Units, Printout, Alarms, Zones and Partial. Channel will be highlighted.
< ⑦ > < ⑨ >	Select channel to be edited. Select from channels 1-24. (For example: Stop on Channel 1.)
Note:	The number of channels is dependent upon the model configuration you have selected. The recorder could contain 6, 12, 18 or 24 channels.
< Tab >	Mode will be highlighted.
< ⑦ >	Change input type. (For example: Stop on Volt.)

The following items may be selected:

Volt	Voltage ranges from 20mV to 50 volts DC
TC (Thermocouples)	Select from R, S, B, K, E, J, T, L, U, N or W
RTD	(Resistance thermal detectors) Select from Pt or JPt
Delta	For measurement channels greater than #1
Scale Volt	Voltage ranges from 20mV to 50 volts DC
Scale TC	Select from R, S, B, K, E, J, T, L, U, N or W
Scale RTD	(Resistance thermal detectors) Select from Pt or JPt
Square Root	Voltage ranges from 20mV to 50 volts DC
DI	(Digital Input)
Math	(Math)
Skip	(Channel off)

KEY STROKE	EXPLANATION
< Tab >	Range will be highlighted.
< ⑦ > < ⑨ >	Change input type.
< Tab >	Left Span will be highlighted. This is left span (0% value).
1 < Enter >	Low end input value.
< Tab >	Right Span (100% value).
5 < Enter >	High end input value.
< Tab >	Tag will be highlighted.
	Type in Tag Name. (maximum of 7 characters) (For more information, refer to IM 4H3B4-01E, Table 8.1 Characters)
FT-101 < Enter >	After all characters have been entered

Note: If you choose to turn the scaling on, you will need to perform the next section. If scaling is off, TAB will go to Alarm.

< Tab >	Left Scale will be highlighted.
---------	---------------------------------

VARILINK™

μR1800 Dot Model Recorders

0.0 < Enter > Left scale value.
< Tab > Right scale will be highlighted:
100.0 < Enter > Right scale value.
< Tab > Units will be highlighted. (maximum of 6 characters) (For more information, refer to IM 4H3B4-01E, Table 7.3 Characters)

Tons < Enter >
< Tab > Alarm 1 will be highlighted
< ⑦ > < ⑨ > To turn Alarm Off or select H=High, L=Low, RH=Rate of change high, RL=Rate of change low. If Off, setting is complete.
< Tab > Setpoint 1 will be highlighted
50 < Enter > Select Set Point value.
< Tab > Relay 1 ID will be highlighted.

Note: Relay choices range from I01-I24. The recorder must be equipped with /A1 (2 relays), /A2, /A3 (4 relays), /A4 (6 relays) or /A5 (12 relays) for settings to be valid.

< ⑦ > < ⑨ > Turn relay Off or select from relays I01-I06. If Off is selected, setting is completed.
< Tab > Alarm 2 will be highlighted
(Repeat as above for Alarms 2 through 4).
< Tab > Left Zone will be highlighted. Set Value. (minimum)
0 < Enter >
< Tab > Right Zone will be highlighted. Set value. (maximum)
100 < Enter >

Note: The minimum width of a zone is 5mm. The maximum setting is 100mm. For more information on Zones, refer to μR1800 Dot Model IM 4H3B4-01E.

< Tab > Partial will be highlighted.
< ⑦ > < ⑨ > Turn Partial On or Off.
If On is selected proceed as below. If off, setting is complete.
< Tab > Percent will be highlighted.
Set percentage.
25 < Enter >
< Tab > Boundry will be highlighted.
Set value.
10 < Enter >
< Tab > To edit other channels or,
< F10 > To return to μR1800 Dot Model Edit Configuration Menu.

For more information on Partial, see μR1800 Dot Model IM 4H3B4-01E.

VARILINK™
μR1800 Dot Model Recorders

Charts, Print, Messages and Daylight Savings Settings

KEY STROKE	EXPLANATION
< F2 >	Chart Speed 1 will be highlighted.
< ⑦ > < ⑨ >	Scroll to select chart speed.
25 < Enter >	Set Chart Speed.
< Tab >	Chart Speed 2 will be highlighted.
< Enter >	Set Chart Speed.
Note: This is the Chart Speed and Interval used when change on Alarm or Remote Control is in effect. For further information, see IM 4H3B1-01E.	
< Tab >	Print will be highlighted
< ⑦ > < ⑨ >	Select auto or fix.
< Enter >	
< Tab >	Message 1 will be highlighted.
< Enter >	Input message to be displayed. (For more information, refer to IM 4H3B4-01E, Table 8.2 Characters)
< Tab >	Message 2 will be highlighted.
	Repeat as above for messages 2-5.
Note: The daylight savings settings are only available if the recorder is equipped with the daylight savings option. For more information on this selection, refer to IM 4H3B4-50E.	
< Tab >	Daylight Mode will be highlighted.
< ⑦ > < ⑨ >	Select Winter or Summer Mode.
< Tab >	Enter YY/MM/DD HH. Hours range from 00 to 23.
< Enter >	
< F10 >	Prior Menu.

Math Channels, Tags, Units, Printout and Alarms

KEY STROKE	EXPLANATION
< F3 >	Math Channels, Tags, Units, Printout and Alarms. Channel will be highlighted.
< ⑦ > < ⑨ >	Set Math Channel desired (0A-0P) or type in channel. Letters H, I, L and O are not valid selections.
< Tab >	Mode will be highlighted.
< ⑦ > < ⑨ >	Turn channel On or Off. Keep channel On if Off selected, programming complete.

VARILINK™

μR1800 Dot Model Recorders

< Tab > Formula will be highlighted. To enter a math formula type the expression. (maximum of 36 characters)

Ol.GT.02 < Enter > To edit formula,

< ⑧ > Until cursor is under item to be changed, type desired change.

Change < Enter > To insert items into a math statement,

< ⑧ > Cursor is under the point you wish to insert,

< Insert > *Item* Type item to be inserted,

< Enter > You may also delete items from a math statement.

< ⑧ > To move the cursor to the desired item to be deleted.

< Delete > *Item*

< Enter > When complete.

< Tab > Decimal is highlighted.

< ⑦ > < ⑨ > Select from values 0-4.

< Tab > Units will be highlighted. Set units. (maximum of 6 characters)

Tons < Enter >

Note: For further information on Math, see IM 4H3B1-01E.

< Tab > Tag will be highlighted.

< Enter > User programmable value up to 7 characters.

< Tab > Printout will be highlighted.

< ⑦ > < ⑨ > Select On or Off.

< Tab > Alarm 1 will be highlighted

< ⑦ > < ⑨ > To turn Alarm Off or select from High or Low. Make selection.

If Off, setting is complete.

< Tab > Setpoint 1 will be highlighted

50 < Enter > Select Set Point value.

< Tab > Relay 1 ID will be highlighted.

Note: Relay ID selections are dependent on the number of alarm output relays installed in the recorder.

< ⑦ > < ⑨ > Turn relay Off or select from relays I01-I24. Recorder must be equipped with /A1, /A2, /A3, /A4 or /A5 for settings to be valid. If Off, setting is complete.

< Tab > Alarm 2 will be highlighted
(Repeat as above for Alarms 2 through 4).

< F10 > Return to Edit Menu.

Math Constants

< F4 > Math Constants. Constant 1 will be highlighted. There are ten constants (01-10).

1.234 < Enter > Enter value to be set.

VARILINK™

μR1800 Dot Model Recorders

< Tab > Constant 2 will be highlighted.
Repeat as above for constants 2-10.
When all Constants have been set:
< F10 > Return to Edit Menu.

Note: The Constant 1E+29 cannot be set in this software. You must enter this Constant at the recorder. For more information on setting Constants, refer to IM 4H3B4-20E.

End Edit

KEY STROKE	EXPLANATION
< F10 >	End Edit
	DO YOU WISH TO SAVE YOUR CHANGES?
< F1 >	YES
< F2 >	NO

Return to Main Menu

Load Configuration to Recorder

From Main Menu

KEY STROKE	EXPLANATION
< F6 >	Load configuration to recorder.
< Enter >	Instrument number.
	Enter the file name you wish to load.
Test < Enter >	

Note: When load starts, an error list will appear on the screen. Data loaded into the recorder will be displayed in the lower left hand corner of the screen. This will take a few minutes. Upon completion of "LOAD", the recorder display will be left in "MANUAL" mode.

Caution: In order to load the configuration to the μR1800 Dot Model, the TLOG must be stopped. If the TLOG isn't stopped the configuration will not be downloaded from the PC to the Recorder and an error will occur. You must stop the TLOG and repeat the Load Configuration steps. Refer to "Start/Stop the TLOG Computation" in IM 4H3B1-20E for more information on the operation mode.

	When complete,
< F10 >	Prior Menu.
< F10 >	Prior Menu.
< F10 >	End Program.

μR1000/μR1800 Pen Model

Software Limitations

VARILINK™ 1.4 performs data acquisition for the μR1000/μR1800 Pen Model strip chart recorders. Items in the Setup Mode of the recorder cannot be set from VARILINK™ 1.4. Refer to Instruction Manuals IM 4D5B1-01E and IM 4D5B1-10E for a detailed explanation of items in the Setup Mode.

The clock in the recorder cannot be accessed or set through VARILINK™ 1.4.

The following items can be configured from VARILINK™ 1.4: Ranges, Alarms, Zones, Partial, Print Format, Tags, Messages, Chart Speeds, Match Channels, Constants and Engineering Units.

Exception: The constant 1E + 29 may not be entered through this software.

Requirements

1. IBM or compatible computer;
2. DOS 2.1 or higher;
3. Johnson Yokogawa Corporation VARILINK™ 1.4 software;
4. Recorder with RS422A:
 - a. Refer to IM 4D5B1-01E for the μR1000 or IM 4H3B1-01E for the μR1800.
 - b. If computer is equipped with a RS232C port, a RS422A to RS232C converter is required.

Recorder Setup

KEY STROKE	EXPLANATION
< Enter >	Power-up recorder while pressing < Enter > on the recorder panel. Refer to Parameter Display and Contents for setting information.
< ⑦ >	SETUP is displayed, ALARM is flashing
< Enter >	Until OPT= (option) is displayed and flashing
< Enter >	OPT= is displayed, COMM is flashing
< Enter >	ADDRESS= is displayed, 01 is flashing
< ⑦ >	Select a number (01-16). See note below .

VARILINK™

μR1000/μR1800 Pen Model Recorders

<p>< Enter ></p> <p>< ⑦ > < ⑨ ></p> <p>< Enter ></p> <p>< ⑦ > < ⑨ ></p> <p>< Enter ></p> <p>< ⑦ > < ⑨ ></p> <p>< Enter ></p> <p>< ⑦ > < ⑨ ></p> <p>< Enter ></p> <p>< Enter ></p> <p>< ESC ></p> <p>< ⑦ > < ⑨ ></p> <p>< Enter ></p> <p>< Enter ></p>	<p>BAUD RATE= is displayed Select 9600</p> <p>D. LEN= (data length) is displayed Select 8 DATA BITS</p> <p>PARITY= is displayed Select NONE</p> <p>STOP BIT= is displayed Select 1</p> <p>*COMM SET* is displayed</p> <p>To return to setup display Until END is displayed</p> <p>END = STORE is displayed Settings are complete</p>
---	--

Caution: Do not turn off power to the recorder while information is being stored. The recorder will reboot automatically.

Note: Device#1 = Address 1, Device#2 = Address 2, etc.

Computer Setup

Boot up computer on DOS and install Johnson Yokogawa Corporation VARILINK™ 1.4 software in your disk drive.

KEY STROKE	EXPLANATION
------------	-------------

<p>VARILINK™ < Enter ></p> <p>< F1 ></p> <p>< F2 ></p> <p>< F3 ></p> <p>< F4 ></p> <p>< F5 ></p> <p>< F6 ></p> <p>< F7 ></p> <p>< F8 ></p> <p>< F10 ></p>	<p>After a moment, the MAIN MENU will appear as follows:</p> <p>Display & Data Acquisition Menu.</p> <p>Edit Configuration.</p> <p>Stop Computer.</p> <p>Save All Setup Parameters.</p> <p>Save Configuration to Recorder.</p> <p>Load Configuration from Recorder.</p> <p>HR2400 Card.</p> <p>HR2400 Reports.</p> <p>Exit Program.</p>
---	---

VARILINK™

μR1000/μR1800 Pen Model Recorders

KEY STROKE	EXPLANATION
From Main Menu	
< F3 >	Setup Computer
< F1 >	Setup Com Ports
< F2 >	Select Devices
< F10 >	Exit Menu

KEY STROKE	EXPLANATION
< F1 >	Setup Com Ports
< F1 >	change Port 1
< F2 >	change Port 2
< F3 >	change Port 3
< F4 >	change Port 4

Repeatedly pressing the appropriate function key will scroll the various Baud Rate choices. (Minimum = 300, maximum = 9600). Select the appropriate rate.

Then press:

< F10 >	Exit Menu
---------	-----------

From Setup Computer Menu

KEY STROKE	EXPLANATION
< F2 >	Select Devices. Enter number of devices to be added:
< Enter >	Select Devices Menu appears.
< F2 >	Device Name:
< F3 >	Device Type:
< F4 >	Start Channel:
< F5 >	End Channel:
< F6 >	Interface:
< F7 >	Address:
< F10 >	Exit Menu

Note: For Data Display and Acquisition, device types are limited to only those devices which are connected to the computer. Failure to do so will create a program error. A maximum of 144 devices may be selected. A maximum of 1200 input channels may be selected.

VARILINK™

μR1000/μR1800 Pen Model Recorders

KEY STROKE	EXPLANATION
< F3 >	Devicetype : press repeatedly until μR1000/ μR1800 appears.
< F4 >	StartChannel: Enter new starting channel: (sequential order , lowest contiguous channel)
< Enter >	
< F5 >	Set EndChannel Enter new ending channel: (sequential order , highest contiguous channel)
< Enter >	
Note:	<F4> and <F5> functions only pertain to data acquisition and data display of information.
< F6 >	Interface : press <F6> repeatedly to select Com Port (this is the Com Port on your computer to which you have connected the μR1000/ μR1800 pen model recorder, Com 1 through Com 4).
< F7 >	Address: Press <F7> repeatedly until you reach the address set during the recorder setup procedure. (see note)
Note:	The address setting must match the setting in the recorder. For more information, refer to the recorder setup for the μR1000/ μR1800 Pen Model.
< F10 > 3 times	Return to Main Menu . The computer is now Setup for communications with the μR1000/μR1800 pen model recorder.
< F4 >	Save All Setup Parameters.

Display and Data Acquisition Menu

From Main Menu

KEY STROKE	EXPLANATION
< F1 >	Display & Data Acquisition. Setup Data Acquisition Menu will appear .

VARILINK™

μR1000/μR1800 Pen Model Recorders

Setup Data Acquisition

< F1 >	Help	
< F2 >	Sampling rate:	(seconds)
< F3 >	File name to store data to:	(your file name)
< F4 >	File type:	
< F5 >	Number of rows in data file:	(Samples per channel)
< F6 >	Number of columns in data file:	(number of channels)
< F8 >	Save All Setup Parameters	
< F9 >	Start Main Program	(start Display or Data Acquisition)
< F10 >	Exit Menu	

Note: Spreadsheet software places a limitation on the number of columns that are available for use in data acquisition. The limit is 250 columns or, as used in VARILINK™ 1.4, a total of 250 Channels. When the number of channels to be acquired exceeds 250, VARILINK™ 1.4 will automatically write multiple files to disk to accommodate the excess over the 250 limit. See Example #1 below.

The ability to write multiple files simultaneously could also be used to segregate data as desired. See example #2 below.

Example 1: Selected Devices 1 through 64 are μR1000/μR1800 Pen models with 4 channels each and 256 Total points. All other Devices are set NA.

Set number of columns in data file to 250 (max allowed), File name = TEST.
VARILINK™ 1.4 will save the data to 2 separate files.
File Name #1 will be TESTA00.WK1 (Inputs 1-250).
File Name #2 will be TESTB00.WK1 (Inputs 251-254).

Example 2: Selected devices 1, 2, 3, 4 and 5 are μR1000/μR1800 Pen Models with 4 points each and 20 points total. All other devices are set to NA.

Set Number of columns to 4, File name = DATUM.
VARILINK™ 1.4 will save the information to 5 separate files.
File Name #1 will be DATUMA00.WK1 (Recorder #1)
File Name #2 will be DATUMB00.WK1 (Recorder #2)
File Name #3 will be DATUMC00.WK1 (Recorder #3)
File Name #4 will be DATUMD00.WK1 (Recorder #4)
File Name #5 will be DATUME00.WK1 (Recorder #5)

Note: The maximum number of files that can be created is 14.

VARILINK™

μR1000/μR1800 Pen Model Recorders

Example 3: Selected Device #1 is a μR1000/μR1800 Pen Model with 4 Channels. Channels 1 & 2 to be saved in one file, Channels 3 & 4 to be saved in a different file. Data samples every 30 seconds. Number of samples per point is 1000. File name is TEST. All other Selected Devices are set to NA.

See the following data entries.

KEY STROKE	EXPLANATION
< F1 >	Help screen for Data Acquisition.
< F10 >	To return to Main Menu.
< F2 >	Sampling rate. This setting is in seconds: minimum setting is 2 seconds, maximum setting is 21,600 seconds or 6 hours. This setting determines how often to save data from the recorder to the file.
30 < Enter >	
< F3 >	Filename to store data to: Enter complete path and your own file name with a maximum of 5 characters.
Test < Enter >	
< F4 >	File type: you have 2 choices: .WK1 (Lotus spreadsheet format) or .DIF (Data interchange format). This is accomplished by pressing < F4 > (each time you press < F4 > .WK1 and .DIF will toggle on the screen).
< F5 >	Number of rows in data file: minimum 500, maximum 8,180. This is the number of samples of each acquired channel to be stored in each file.
1800 < Enter >	1800 samples of each acquired channel will be taken before a new file is created.
< F6 >	Number of columns in data file: minimum 1 column, maximum 250 columns. Number of columns equals number of channels. (see note)
2 < Enter >	File #1 name = TESTA00.WK1 (Channels 1-2) File #2 name = TEST B00.WK1 (Channels 3-4)
< F8 >	Save All Setup Parameters: this will save the settings < F2 > through < F6 > to the default file for Data Acquisition.
< F9 >	Start Main program. The computer screen will display Testing Communications. Also, at the bottom left of the screen you will observe data being read from the μR1000/μR1800 pen model. After approximately one minute, Main Data Menu will appear.

Main Data Menu

< F1 >	Display Data
< F2 >	Data Acquisition
< F3 >	H2400 IC Card
< F10 >	Main Menu

VARILINK™
μR1000/μR1800 Pen Model Recorders

Display Data

KEY STROKE	EXPLANATION
< F1 >	Display data.
< ⑦ > < ⑨ >	To scroll through channels, use these keys.
< Page Up >	
< Page Down >	Scrolls pages of channels.

Note: You may move directly to a given channel by typing that channel's defined tag name.

< F10 >	Return to Main Data Menu .
---------	----------------------------

Data Acquisition

KEYSTROKE	EXPLANATION
< F2 >	Data Acquisition. Start/Stop Data Acquisition Menu will appear. At this point in the program, you may change any of the parameters < F2 > through < F6 > described in the Data Acquisition Menu section discussed earlier.
< F1 > or < F10 >	To start Data Acquisition. Return to Main Data Menu .
< F1 >	If < F1 > was selected Stop Data Acquisition when Data Acquisition is complete.

Note: The number of samples taken is displayed in the lower left portion of the screen. Also, the current file is displayed to the right of samples taken. Once a file is full, the program will create another file automatically. A maximum of 224 files will be created. However, if disk space is depleted, program will stop.

File creation Example:	File name = Test
Current File:	Test?00 will appear; once this file is full, the current file:
	Test?01 will appear.

Note: After Data Acquisition is complete, the Menu will return to Start/Stop Data Acquisition. If < F1 > is pressed and the file name has not been changed, a box will appear under < F10 > Prior Menu: Do you want to overwrite the existing files (Y/N). If Y is selected, the current file will be overwritten.

KEY STROKE	EXPLANATION
< F10 >	Return to Main Menu .

VARILINK™
μR1000/μR1800 Pen Model Recorders

Edit Configuration

From Main Menu

Save Configuration from Recorder

Note: A configuration file must be in the default directory before "Edit Configuration" can begin.

KEY STROKE	EXPLANATION
------------	-------------

If you have a new disk or a disk that does not have an existing file:

Note: Configuration files are .PNL extension files.

< F5 >	Save configuration from recorder.
< Enter >	Enter instrument number:
Test < Enter >	Enter file name to save configuration to: (without extension)

Note: VARILINK™ 1.4 will save data from all channels of the recorder to the default operating directory.

Screen will flash WORKING. When Save Configuration is complete, program will return to MAIN MENU. The recorder display will be left in "MANUAL" mode.

Edit Configuration

From Main Menu

KEY STROKE	EXPLANATION
< F2 >	Edit Configuration Edit Menu Select Instrument to Edit
< Enter >	
< F1 >	HR240
< F2 >	HR2500
< F3 >	μR
< F10 >	Print Menu

VARILINK™

μR1000/μR1800 Pen Model Recorders

Temperature Units

KEY STROKE

EXPLANATION

Select °F or °C.

< F1 >

°F.

< F2 >

°C.

Note: This selection does not change recorder setup for temperature. The change can only be made in the Setup Mode of the recorder. If you do not have temperature inputs, select < F1 > °F.

Edit μR1000/μR1800 Pen Model Configuration

~~Enter the file to be edited.~~

KEY STROKE

EXPLANATION

Test < Enter >

Checking Input File for errors
corrupted, Edit Menu will appear.

will appear. If file is not

Note: If you have a file error, resave your file from recorder. (Refer to save configuration from recorder.)

Edit Menu

~~Select item to be edited.~~

< F1 >

Ranges, Tags, Units, Printout, Alarms, Zones
and Partials

< F2 >

Chart Setup, Print, Messages and Light
Savings Settings (optional)

< F3 >

Math Channels, Tags, Units, Printout and Alarms

< F4 >

Math Constants

< F10 >

End Edit

For an explanation of items < F1 > and < F2 >, refer to IM 4D5B1-01E for μR1000 information and IM 4H3B1-01E for the μR1800. < F3 > and < F4 >, refer to IM 4D5B1-20E for μR1000 and IM 4H3B1-20E for the μR1800.

VARILINK™

μR1000/μR1800 Pen Model Recorders

Ranges, Tags, Units, Printout, Alarms, Zones and Partial

KEY STROKE	EXPLANATION
< F1 >	Ranges, Tags, Units, Printout, Alarms, Zones and Partial.
< ⑦ > < ⑨ >	Channel will be highlighted. Select channel to be edited. Select from channels 1, 2, 3 or 4. (For example: Stop on Channel 1.)
< Tab >	Mode will be highlighted.
< ⑦ >	Change input type. (For example: Stop on Volt .)

The following items may be selected:

Volt	Voltage ranges from 20mV to 50 volts DC
TC(Thermocouples)	Select from R, S, B, K, E, J, T, L, U, N or W
RTD	(Resistance thermal detectors) Select from Pt or JPt
Delta	For measurement channels greater than #1
Scale Volt	Voltage ranges from 20mV to 50 volts DC
Scale TC	Select from R, S, B, K, E, J, T, L, U, N or W
Scale RTD	(Resistance thermal detectors) Select from Pt or JPt
Scale Pot	Voltage ranges from 20mV to 50 volts DC
DI	(Digital Input) Level or Contact
Math	(Math)
Off	(Channel off)

KEY STROKE	EXPLANATION
< Tab >	Range will be highlighted.
< ⑦ > < ⑨ >	Change input type for TC, RTD, DI or range value for volts.
< Tab >	Left Span will be highlighted. This is left span (0% value).
1 < Enter >	Low end input value.
< Tab >	Right Span (100% value).
5 < Enter >	High end input value.
< Tab >	Tag will be highlighted.
	Type in Tag Name. (maximum of 7 characters) (For more information, refer to IM 4D5B1-01E or IM 4H3B1-01E, Table 8.1 Characters)
FT-101 < Enter >	After all characters have been entered

Note: If you choose to turn the scaling on, you will need to perform the next section. If scaling is off, TAB will go to Alarm.

< Tab >	Left Scale	will be highlighted.
0.0 < Enter >	Left scale value.	
< Tab >	Right scale	will be highlighted.
100.0 < Enter >	Right scale value.	

VARILINK™

μR1000/μR1800 Pen Model Recorders

< Tab > Units will be highlighted. (maximum of 6 characters) (For more information, refer to IM 4D5B1-01E or IM 4H3B1-01E, Table 7.3 Characters)

Tons < Enter >

< Tab > Alarm1 will be highlighted

< ⑦ > < ⑨ > To turn Alarm Off or select H=High, L=Low, RH=Rate of change high, RL=Rate of change low. If Off, setting is complete.

< Tab > Setpoint 1 will be highlighted

50 < Enter > Select Set Point value.

< Tab > Relay1 ID will be highlighted.

Note: Although choices range from I01-I12, the relay selection for the μR1000/ μR1800 Pen Model is limited to I01-I06. The recorder must be equipped with /A1, /A2 or /A3 for settings to be valid.

< ⑦ > < ⑨ > Turn relay Off or select from relays I01-I06. If Off is selected, setting is completed.

< Tab > Alarm 2 will be highlighted

(Repeat as above for Alarms 2 through 4).

< Tab > Left Zone will be highlighted. Set Value. (minimum)

0 < Enter >

< Tab > Right Zone will be highlighted. Set value. (maximum)

100 < Enter >

Note: The minimum width of a zone is 5mm. The maximum setting is 100mm. For more information on Zones, refer to IM 4H3B4-01E for the μR1000/ μR1800 Pen Model.

< Tab > Partial will be highlighted.

< ⑦ > < ⑨ > Turn Partial On or Off.

If On is selected proceed as below. If Off, setting is complete.

< Tab > Percent will be highlighted.

Set percentage.

25 < Enter >

< Tab > Boundry will be highlighted.

Set value.

10 < Enter >

< Tab > To edit other channels or,

< F10 > To return to μR1000/ μR1800 Pen Model

Configuration.

For more information on Partial, see μR1000/μR1800 Pen Model IM 4H3B4-01E.

VARILINK™

μR1000/μR1800 Pen Model Recorders

Charts, Print, Messages and Daylight Savings Settings

KEY STROKE	EXPLANATION
< F2 >	Chart Speed 1 will be highlighted.
< ⑦ > < ⑨ >	Scroll to select chart speed.
25 < Enter >	Set Chart Speed.
< Tab >	Chart Speed 2 will be highlighted. (see note)
< Enter >	Set Chart Speed.
Note: This is the Chart Speed and Interval used when change on Alarm or Remote Control is in effect. For further information, see IM 4D5B1-01E for μR1000 or IM 4H3B1-01E for μR1800.	
< Tab >	Print will be highlighted
< ⑦ > < ⑨ >	Select auto or fix.
< Enter >	
< Tab >	Message 1 will be highlighted.
< Enter >	Input message to be displayed. (For more information, refer to IM 4D5B1-01E or IM 4H3B1-01E, Table 8.2 Characters)
< Tab >	Message 2 will be highlighted.
	Repeat as above for messages 2-5.
Note: The daylight savings settings are only available if the recorder is equipped with the daylight savings option. For more information on this selection, refer to IM 4H3B4-50E.	
< Tab >	Day Light Mode will be highlighted.
< ⑦ > < ⑨ >	Select Winter or Summer Mode.
< Tab >	Enter YY/MM/DD HH . Hours range from 00 to 23.
< Enter >	
< F10 >	Print

Math Channels, Tags, Units, Printout and Alarms

KEY STROKE	EXPLANATION
< F3 >	Math Channels, Tags, Units, Printout and Alarms. Channel will be highlighted.
< ⑦ > < ⑨ >	Set Math Channel desired (0A-0P) or type in channel. Letters H, I, L and O are not valid selections.
0A < Enter >	
< Tab >	Mode will be highlighted.

VARILINK™

μR1000/μR1800 Pen Model Recorders

< ⑦>< ⑨> Turn channel On or Off. If Off is selected, programming is complete.

< Tab > Formula will be highlighted. To enter a math formula type the expression. (maximum of 36 characters)

Ol.GT.02 < Enter > To edit formula,

< ⑧> Until cursor is under item to be changed, type desired change.

Change < Enter > To insert items into a math statement,

< ⑧> Cursor is under the point you wish to insert,

< Insert > *Item* Type item to be inserted,

< Enter > You may also delete items from a math statement.

< ⑧> To move the cursor to the desired item to be deleted.

< Delete > *Item*

< Enter > When complete

< Tab > Decimal is highlighted

< ⑦>< ⑨> Select from values 0-4

< Tab > Units will be highlighted. Set units (maximum of 6 characters) (For more information, refer to IM 4D5B1-01E or IM 4H3B1-01E, Table 7.3 Characters)

Tons < Enter >

Note: For further information on Math, see IM4D5B1-20E for μR1000 or IM4H3B1-20E for μR1800.

< Tab > Tag will be highlighted

< Enter > User programmable value up to 7 characters (For more information, refer to IM 4D5B1-01E or IM 4H3B1-01E, Table 8.1 Characters)

< Tab > Printout will be highlighted

< ⑦>< ⑨> Select On or Off

< Tab > Alarm1 will be highlighted

< ⑦>< ⑨> To turn Alarm Off or select from High or Low. Make selection.
If Off, setting is complete

< Tab > Setpoint 1 will be highlighted

50 < Enter > Select Set Point value

< Tab > Relay1 ID will be highlighted

Note: Relay ID selections are dependent on the number of alarm output relays installed in the recorder.

< ⑦>< ⑨> Turn relay Off or select from relays I01-I06. If Off is selected, setting is complete.

< Tab > Alarm 2 will be highlighted
(Repeat as above for Alarms 2 through 4).

< F10 > Return to Edit Menu.

VARILINK™

μR1000/μR1800 Pen Model Recorders

Math Constants

<p>< F4 ></p> <p>1.234 < Enter ></p> <p>< Tab ></p> <p>< F10 ></p>	<p>Math Constants. Constant 1 will be highlighted. There are ten constants (01-10). Enter value to be set.</p> <p>Constant 2 will be highlighted. Repeat as above for constants 2-10. When all Constants have been set: Return to Edit Menu.</p>	
--	--	--

Note: The Constant 1E+29 cannot be set in this software. You must enter this Constant at the recorder. For more information on setting Constants, refer to IM4D5B1-20E for the μR1000 or IM4H3B4-20E for the μR1800..

End Edit

KEY STROKE	EXPLANATION
< F10 >	Edit.
	DO YOU WISH TO SAVE YOUR CHANGES?
< FL >	YES .
< F2 >	NO .

Return to Main Menu.

Load Configuration to Recorder

From Main Menu

KEY STROKE	EXPLANATION
< F6 >	Load configuration to recorder.
< Enter >	Test mode.
	Enter the file name you wish to load.
Test < Enter >	

Note: When load starts, an error list will appear on the screen. Data loaded into the recorder will be displayed in the lower left hand corner of the screen. This will take a few minutes. Upon completion of " LOAD", the recorder will be left in " MANUAL" mode.

VARILINK™

μR1000/μR1800 Pen Model Recorders

Caution: In order to load the configuration to the μR1000/ μR1800 Pen Model, the TLOG must be stopped. If the TLOG isn't stopped the configuration will not be downloaded from the PC to the Recorder and an error will occur. You must stop the TLOG and repeat the Load Configuration steps. Refer to "Start/Stop the TLOG Computation" in IM4D5B1-20E for more information on the operation mode of the μR1000 or IM4H3B1-20E for the μR1800.

When complete,

< F10 >

~~Print~~

< F10 >

~~Print~~

< F10 >

~~Print~~

VARILINK™
μR1000/μR1800 Pen Model Recorders

HR2400

Software Limitations

Items in the Setup Mode of the recorder cannot be set from VARILINK™ 1.4. Refer to Instruction Manuals IM 3760-01E, IM 3760-70E, IM 3760-50E or IM 4082-S34E for a detailed explanation of items in the Setup Mode.

The clock in the recorder cannot be accessed or set through VARILINK™ 1.4.

The following items can be configured from VARILINK™ 1.4: Ranges, Alarms, Interpolations, Zones, Partial, Print Format, Tags, Messages, Headers, Title, Chart Speeds, Intervals, System (Logging or Trend Format, Alarm Print, Recording mode), Moving Average, User Linearization, RRJC, Math Channels and Constants.

Exception: The constant 1E+29 may not be entered through this software.

Requirements

1. IBM or compatible computer;
2. DOS 2.1 or higher;
3. Johnson Yokogawa Corporation VARILINK™ 1.4 Software;
4. For recorder with RS232C;
 - a. Null Modem cable.
 - b. RS232C port on computer.
5. For recorder with RS422A;
 - a. Refer to IM 4082S-34E.
 - b. If computer is equipped a RS232C port, a RS422A to RS232C converter is required.

Recorder Setup

The HR2400 recorder must be set to the following parameters in the Setup Mode. The Setup Mode can be accessed by setting dip switch #1 to the On position (dip switch is located behind chart cassette). Next, cycle the power to the recorder and press the upper display key. After 10 seconds, SETUP MODE = RECORD should appear in upper display.

VARILINK™
HR2400 Recorders

RS232C

KEY STROKE	EXPLANATION	UPPER DISPLAY
<Next>	Located at bottom left side of recorder display	SETUP MODE = RECORD
<F3>	COMM	SETUP MODE = COMM-SET
<Entry>	3 times	232C MODE =
<F1>	S & O (set and out)	232C MODE = SET & OUT
<Entry>	Baud Rate	BAUD RATE=
<Next>		
<F4>	9600.	BAUD RATE = 9600
<Entry>	DATA	DATA =
<F2>	8 bit	DATA = 8 BIT
<Entry>	PARITY	PARITY =
<F3>	None	PARITY = NONE
<Entry>	STOP BIT	STOP BIT =
<F1>	1	STOP BIT = 1
<Entry>	HANDSHAKE	HANDSHAKE =
<F3>	X:R (XON:RS)	HANDSHAKE = XON:RS
<Entry>	Setup confirmed	***COMM-SET***
<Entry>	Setup complete	SETUP MODE = COMM SET
<F4>	End	SETUP MODE = END
<Entry>	Exit Setup Mode	"CHANNEL DISPLAY"

The HR2400 is now setup to communicate with the computer.

Connect null modem cable between recorder and computer.

RS422A

KEY STROKE	EXPLANATION	UPPER DISPLAY
<Next>	Located at bottom left side of recorder display.	SETUP MODE = RECORD
<F3>	COMM	SETUP MODE = COMM-SET
<Entry>	2 times, display will read address =	ADDRESS =
<1>	Set address 1 to 15	ADDRESS = "SELECTION"
<Entry>	Display will read 232C mode	232C MODE =
<F1>	S & O (set and out)	232C MODE = SET & OUT
<Entry>	Baud Rate	BAUD RATE =
<Next>		
<F4>	9600.	BAUD RATE = 9600
<Entry>	DATA	DATA =
<F2>	8 bit	DATA = 8 BIT
<Entry>	PARITY	PARITY =

VARILINK™

HR2400 Recorders

KEY STROKE	EXPLANATION	UPPER DISPLAY
< F3 >	None	PARITY = NONE
< Entry >	STOP BIT	STOP BIT =
< F1 >	1	STOP BIT = 1
< Entry >	HANDSHAKE	HANDSHAKE =
< F1 >	Off	HANDSHAKE = OFF;OFF
< Entry >	2 times; SETUP MODE	***COMM-SET***
< Entry >	Setup confirmed	SETUP MODE = COMM-SET
< F4 >	Setup complete	SETUP MODE = END
< Entry >	End	"CHANNEL DISPLAY"
< Entry >	Exit to setup mode	

The HR2400 is now setup to communicate with the computer.

Connect the appropriate cables between recorder and computer.

Computer Setup

Boot up computer on DOS and install Johnson Yokogawa Corporation VARILINK™ software in your disk drive.

KEY STROKE	EXPLANATION
------------	-------------

VARILINK™ < Enter > After a moment, the Main Menu will appear as follows:

- | | |
|---------|-----------------------------------|
| < F1 > | Display & Data Acquisition Menu. |
| < F2 > | Edit Configuration. |
| < F3 > | Setup Computer. |
| < F4 > | Save All Setup Parameters. |
| < F5 > | Save Configuration From Recorder. |
| < F6 > | Load Configuration to Recorder. |
| < F7 > | HR2400 IC Card. |
| < F8 > | HR2400 Reports. |
| < F10 > | End Program. |

KEY STROKE	EXPLANATION
------------	-------------

From Main Menu

- | | |
|---------|-------------------------------------|
| < F3 > | Setup Computer.
Set Up Computers |
| < F1 > | Setup Com Ports. |
| < F2 > | Select Devices. |
| < F10 > | Prior Menu. |

VARILINK™

HR2400 Recorders

KEY STROKE	EXPLANATION
< F1 >	change Com Port 1 baud rate.
< F2 >	change Com Port 2 baud rate.
< F3 >	change Com Port 3 baud rate.
< F4 >	change Com Port 4 baud rate.

Repeatedly pressing the appropriate function key will scroll the various Baud Rate choices. (Minimum = 300, maximum = 9600). Select the appropriate rate.

Then, press:

< F10 > Prior Menu.

KEY STROKE	EXPLANATION
------------	-------------

From Setup Computer Menu

< F2 >	Select Devices. Configured Devices
1< Enter >	Enter number of device to be edited: Device Number: Enter number of devices to be edited.
< F3 >	Device Type:
< F4 >	Start Channel:
< F5 >	End Channel:
< F6 >	Interface:
< F7 >	Address: (for RS422C & GPIB only)
< F10 >	Prior Menu

Note: For Data Display and Acquisition, device types are limited to only those devices which are connected to the computer. Failure to do so will stop the program! A maximum of 144 devices may be set. A maximum of 1,200 channels may be selected.

< F3 >	Device type: Press repeatedly until HR2400 appears
< F4 >	Start Channel:
01< Enter >	Enter new starting channel: (sequential order , lowest contiguous channel)
< F5 >	End Channel:
40< Enter >	Enter new ending channel: (sequential order , highest contiguous channel)
< F6 >	Interface; press repeatedly to select your Com Port for RS232C or RS422A (this is the Com Port on your computer to which you have connected the HR2400, Com 1 through Com 4). If your recorder has RS422A communications,
< F7 >	Address: repeatedly press F7 until you reach the address set during the recorder setup procedure.

VARILINK™

HR2400 Recorders

Note: If you do not want to save all channels for Data Acquisition/Display, you will have to setup more than one device. Example: You have an HR2400 to work with 30 input channels and the math option (channels 31-60). You only want to acquire data from channels 01-12 and 31-40 (channels 13-30 are skipped and math channels 41-60 are off). You must setup the following:

< F2 >	Device Number
	Select Devices
1< Enter >	
< F3 >	Device type: Repeat until HR2400 appears.
< F4 >	Start Channel: First channel to be saved.
01< Enter >	
< F5 >	End Channel: Last channel to be saved.
12< Enter >	
< F2 >	Device number:
2< Enter >	
< F3 >	Device type: Repeat until HR2400 appears.
< F4 >	Start channel:
31< Enter >	
< F5 >	End channel:
40< Enter >	
< F10 >	3 times Return to Main Menu. The computer is now setup for communications with the HR2400.
< F4 >	Save All Setup Parameters.

Display and Data Acquisition Menu

From the Main Menu,

KEY STROKE	EXPLANATION
< F1 >	Display and Data Acquisition Menu. Setup Data Acquisition Menu will appear.

Setup Data Acquisition

The menu will appear as follows:

< F1 >	Help
< F2 >	Sampling rate: (seconds)
< F3 >	Filename to store data to: (your file name)
< F4 >	File type:
< F5 >	Number of rows in data file: (samples per channel)

VARILINK™

HR2400 Recorders

< F6 >	Number of columns in data file: (number of channels)
< F8 >	Save All Setup parameters
< F9 >	Start Main Program (start Display or Data Acquisition)
< F10 >	Prior Menu

Note: Spreadsheet software places a limitation on the number of columns that are available for use in data acquisition. The limit is 250 columns or, as used in VARILINK™ 1.4, a total of 250 channels. When the number to be acquired exceeds 250, VARILINK™ 1.4 will automatically write multiple files to disk to accommodate the excess over the 250 limit. See Example #1 Below.

The ability to write multiple files simultaneously could also be used to segregate data as desired. See example #2 below.

Example 1: Selected devices 1 through 5 are HR2400 recorders with 30 channels each, Math and 300 total points. All other devices are set to NA.

Set number of columns to 250 (max allowed), File Name = TEST
VARILINK™ 1.4 will save information to 2 files.
File Name #1 will be TESTA00.WK1 (Channels 1-250)
File Name #2 will be TESTB00.WK1 (Channels 251-300)

Example 2: (HR2400 with 30 channels saved to disk)

Set number of columns to 10, File Name = Test.
VARILINK™ 1.4 will save information to 3 files.
File Name #1 will be TESTA00.WK1 (Channels 01-10)
File Name #2 will be TESTB00.WK1 (Channels 11-20)
File Name #3 will be TESTC00.WK1 (Channels 21-30)

Example 3: Selected Device #1 is an HR2400 with 30 channels each and math. Channels 1 to 30 to be saved in one file, Channels 31 to 60 to be saved in a different file. Data samples every 2 seconds. Number of samples per point is 1000. File name is TEST. All other devices are set to NA.

See the following data entries.

Note: The maximum number of files that can be created is 14.

KEY STROKE	EXPLANATION
< F1 >	Help screen for Data Acquisition.
< F10 >	To return to Main Menu.
< F2 >	Sampling rate; this setting is in seconds: minimum setting is 2 seconds, maximum setting is 21,600 seconds (6 hours). This setting determines how often data is saved from the recorder to the file.
2 < Enter >	

VARILINK™

HR2400 Recorders

< F3 >	Filename to store data to: Enter complete path and create your own file name with a maximum of 5 characters.
<i>Test</i> < Enter >	
< F4 >	File type: you have 2 choices: .WK1 (Lotus spreadsheet format) or .DIF (Data interchange format). This is accomplished by pressing < F4 > (each time you press < F4 > .WK1 and .DIF will toggle on the screen).
< F5 >	Number of rows in data file: minimum 500, maximum 8,180. This is the number of samples of each acquired channel to be stored in each file.
<i>1000</i> < Enter >	1000 samples of each acquired channel will be taken before a new file is created.
< F6 >	Number of columns in data file: minimum 1 column, maximum 250 columns. This is the number of channels you wish to save to a file.
< F8 >	Save All Setup Parameters: this will save the settings from < F2 > through < F6 > to the default file for Data Acquisition.
< F9 >	Start Main Program: the computer screen will display Testing Communications and Reading HR2400. Also at the bottom left of the screen, you will observe data being read from the HR2400, after approximately one minute, Main Data Menu will appear.

Main Data Menu

< F1 > Display Data
< F2 > Data Acquisition
< F3 > HR2400 IC Card
< F10 > Main Menu

Display Data

KEY STROKE	EXPLANATION
< F1 >	Display data.
< ⑦ > < ⑨ >	To scroll through channels, use these keys.
< Page Up >	Scrolls pages of channels. (Or you may type Tag Name/Number of
< Page Down >	the channel you wish displayed.)

VARILINK™

HR2400 Recorders

Example: You would like to display channel 20:

KEY STROKE	EXPLANATION
<i>IHR24 20</i> < Enter >	Selected channel is moved to top of display.
< F10 >	Return to Main Data Menu.

Data Acquisition

KEY STROKE	EXPLANATION
< F2 >	Data Acquisition. Start/Stop Data Acquisition Menu will appear. At this point in the program you may change any of the parameters < F2 > through < F6 > described in the Data Acquisition Menu section discussed earlier.
< F1 > or < F10 >	To start Data Acquisition. Prior Menu.
< F1 >	was selected
< F1 >	Stop Data Acquisition when Data Acquisition is complete.

Note: The number of samples taken is displayed in the lower left portion of the screen. Also, the current file is displayed to the right of samples taken. Once a file is full, the program will create another file automatically. A maximum of 224 files will be created. However, if disk space is depleted, program will stop.

File creation Example: File name = Test
Current File: Test?00 will appear, once this file is full, the current file: Test?01 will appear.

Note: After Data Acquisition is complete, the Menu will return to Start/Stop Data Acquisition. If <F1> is pressed and the file name has not been changed, a box will appear under <F10> Prior Menu: Do you want to overwrite the existing files (Y/N). If Y is selected, the current file will be overwritten.

KEY STROKE	EXPLANATION
< F10 >	2 times to return to Main Menu.

HR2400 IC Card Measurement Data Retrieval

Setup the computer as described in the “Computer Setup” section of this chapter. Install HR2400 IC Memory Card in the recorder.

From the Main Menu

KEY STROKE	EXPLANATION
< F7 > / < Enter >	HR2400 IC Card. Enter Instrument number: HR2400 IC Card Menu will appear: < F1 > IC CARD DIRECTORY. < F2 > SAVE DATA FROM IC CARD. < F10 > PRIOR MENU.

KEY STROKE	EXPLANATION
< F1 >	IC Card Directory; this directory will show all measurement data file names on the HR2400 memory card.
< F10 >	Prior Menu.
< F2 >	Save data from IC Card. Type file name to be saved from IC Card.
Test < Enter >	The screen will flash WORKING, and an integer count begins. These numbers represent the samples being saved from the IC memory card to the disk. When complete, the program will return to the HR2400 IC Card Menu. If you have finished saving data files from the IC memory card:
< F10 > 2 times	The program will return to the Main Menu.

Note: When using RS422 communications on older “XT” type computers, you must set baud rate at 4800 or below in order to retrieve data.

HR2400 Report Retrieval

The HR2400 recorder must have the report option. Setup the computer as described in the “Computer Setup” section of this chapter.

From the Main Menu,

KEY STROKE	EXPLANATION
< F8 > / < Enter >	HR2400 reports. Enter instrument number.

VARILINK™

HR2400 Recorders

The screen will display the following Menu:

<F1> Hourly Report
<F2> Daily Report
<F3> Monthly Report
<F10> Prior Menu

Select the report from the above list that you wish to save. Type the file name to which you wish to save the report.

KEY STROKE	EXPLANATION
< F1 >	Hourly report, enter file name for report.
<i>Hour</i> < Enter >	Screen will display Saving report to disk. When report has been saved to the file, the screen will return to the above Menu.
< F10 >	Prior Menu

Note: For daily reports, you may only retrieve data within 1 hour of report printout. For monthly reports, you may only retrieve data within 1 day of report printout.

Report must be "On" in the Setup Mode of the recorder in order to retrieve the reports from the HR2400. For more information, refer to IM 3760-70E.

Edit Configuration

From Main Menu

Save Configuration from Recorder

Note: A configuration file must be in the default directory before "Edit Configuration" can begin.

If you have a new disk or a disk that does not have an existing file:

KEY STROKE	EXPLANATION
< F5 >	Save Configuration From Recorder.
<i>1</i> < Enter >	Enter instrument number:
<i>Test</i> < Enter >	Enter File name to save configuration to (without extension)

Note: VARILINK™ 1.4 will save all channels from the recorder.

Screen will flash WORKING when Save configuration is complete. Program will return to Main Menu.

Edit Configuration

From Main Menu

KEY STROKE	EXPLANATION
< F2 >	Edit Configuration Edit Menu
< F1 >	Select instrument to edit HR2400
< F2 >	HR2500
< F3 >	μR1000/1800
< F10 >	Prior Menu

Temperature Units

KEY STROKE	EXPLANATION
Select °F or °C.	
< F1 >	°F.
< F2 >	°C.

Note: This selection does not change recorder setup for temperature. The change can only be made in the Setup Mode of the recorder. If you do not have temperature inputs, select < F1 > °F.

Edit HR2400 Configuration

Enter the file to be edited

KEY STROKE	EXPLANATION
<i>Test</i> < Enter >	Checking Input File for errors will appear. If file is not corrupted, Edit Menu will appear.

Note: If you have a file error, resave your file from recorder. (Refer to save configuration from recorder.)

VARILINK™

HR2400 Recorders

Edit Menu

To edit one of the following, use the instructions on the following pages:

< F1 >	RANGES
< F2 >	ALARMS
< F3 >	INTERPOLATION
< F4 >	ZONES/PARTIAL/PRINT FORMAT
< F5 >	TAGS/MESSAGES/HEADERS/TITLE
< F6 >	CHART SPEEDS/INTERVALS/SYSTEM
< F7 >	MOVING AVERAGE
< F8 >	USER LINEARIZATION
< F9 >	MATH CHANNELS
< F10 >	END EDIT

For an explanation of items < F1 > to < F7 >, refer to IM 3760-OIE. < F8 >, refer to IM 3760-70E. < F9 >, refer to IM 3760-70E.

Ranges

From Edit Menu

KEY STROKE	EXPLANATION
< F1 >	Ranges .
< ⑦ > < ⑨ >	Channel will be highlighted.
< Tab >	Select channel to be edited. (For example: Stop on Channel 1.)
< ⑦ >	Mode will be highlighted.
< ⑦ >	Change input type. (For example: Stop on Volt.)

The following items may be selected:

VOLT	(Voltage ranges from 20mV to 50 volts DC)
TC (Thermocouples)	R, S, B, K, E, J, T, L, U, N, W, KPAUFE
RTD (Resistance Temp Detector)	Pt1, Pt2, Pt3, Pt4, Pt5, Pt6, Pt7, Pt8, Pt9, J263, Nil, Ni2, Ni3, Cu1, Cu2, Cu3, Cu4
UL	(USER LINEARIZATION) See note below.
ACV	(AC volts) See note below.
ACA	(AC Amps) See note below.
RRJC	(Remote reference junction compensation) This item must be Setup in the Edit Menu before selection can be made. See note below.
DELTA	(Difference computations) Not available for channel #1 or scaled channels.
Scale	Linear scaling applied to VOLT, TC, RTD inputs.

VARILINK™

HR2400 Recorders

Skip (Channel off)
DI (Digital input)

Note: Special options (UL, RRJC) and MATH must be specified when recorder is ordered. Please check the model number to verify option. Refer to IM 3760-70E. or IM 3760-70E. for more information.

KEY STROKE	EXPLANATION
< Tab >	Alarm channel will be highlighted.
< ⑦ > < ⑨ >	Select appropriate range. (6V)
< Tab >	Left Span will be highlighted. This is left span (0% value).
1 < Enter >	Low end input value.
< Tab >	Right Span (100% value).
5 < Enter >	High end input value.
< Tab >	Scaling will be highlighted.
< ⑦ > < ⑨ >	Turn scaling On or Off. If Off, setting is complete. If On, proceed below.
< Tab >	Left scale will be highlighted:
0.0 < Enter >	Left scale value.
< Tab >	Right scale will be highlighted:
100.0 < Enter >	Right scale value.
< Tab >	Units will be highlighted. Maximum 6 characters.
GPM < Enter >	
< Tab >	This will return you to Channel number . (Setting is complete.)
< F10 >	When all range settings are complete.

Note: Left span value and right span value must not be equal.

Alarms

From Edit Menu

KEY STROKE	EXPLANATION
< F2 >	For alarm editing.
< ⑦ > < ⑨ >	Select channel number or enter
01 < Enter >	Channel number to be edited.
< Tab >	Level will be highlighted.
< ⑦ > < ⑨ >	Set level number 1-6.
< Tab >	Status will be highlighted.
< ⑦ > < ⑨ >	To turn Alarm On or Off. (If “Off” is selected, setting is complete.)
	Turn alarm On.”
< Tab >	Alarm will be highlighted.
< ⑦ > < ⑨ >	To change H = High, L = Low, RH = Rate of change High, RL = Rate of change Low, dH = Delta High, dL = Delta Low.

VARILINK™

HR2400 Recorders

Note: dH and dL to be used on "DELTA" channels only.

< Tab >	Set Point will be highlighted.
50 < Enter >	Select Set Point value.
< Tab >	Relay will be highlighted.
< 7 > < 9 >	Turn relay On or Off. If Off, setting is complete. Turn relay "On"
< Tab >	Relay number will be highlighted.
< 7 > < 9 >	Select Internal, External, or Switch (refer to HR2400 IM 3760-01E for further explanation of this function).

After all Alarms and Relay have been set,

KEY STROKE	EXPLANATION
-------------------	--------------------

< F10 >	Prior Menu.
---------	-------------

Note: If your recorder is equipped with AK-02 or AK-10, you have 2 or 10 internal alarms, respectively. If you have an external alarm unit, then you have 30 or 60 external alarm contacts.

Interpolation

KEY STROKE	EXPLANATION
-------------------	--------------------

< F3 >	INTERPOLATION Channel will be highlighted.
< 7 > < 9 >	Select channel number for channel you wish to turn Interpolation On or Off.
< Tab >	Status will be highlighted.
< 7 >	Turn On Interpolation.
< 9 >	Turn Off Interpolation.
< F10 >	Prior Menu.

Note: The maximum number of channels that Interpolation can be turned on is 10. Also, Interpolation can only be used in the trend mode of the recorder.

For more information on Interpolation, refer to HR2400 IM 3760-01E. Initially, all channels are set for Interpolation to be Off.

Zones/Partial/Print Format

From Edit Menu

KEY STROKE	EXPLANATION
< F4 >	Zones/Partial/Print Format. Select item to be edited
< F1 >	Zones
< F2 >	Partial
< F3 >	Print Format
< F10 >	Prior Menu

Zones

From Zones/Partials/Print Format

KEY STROKE	EXPLANATION
< F1 >	Zones.
< ⑦ > < ⑨ >	Channel number will be highlighted. Select Channel number (zones can be set for each channel, default value 0-250 mm).
< Tab > 0 < Enter >	Left Zone will be highlighted. Set Value. (minimum)
< Tab > 250 < Enter >	Right Zone will be highlighted. Set value. (maximum)
< F10 >	Prior Menu.

Note: The minimum width for a zone is 5mm. The maximum setting is 250mm. For more information on Zones, refer to HR2400 IM 3760-OIE.

Partial

From Zones, Partial and Print Format

KEY STROKE	EXPLANATION
< F2 >	Partial.
< ⑦ > < ⑨ >	Channel number will be highlighted. Set channel number (Partials must be set On or Off for each channel).
< Tab >	Status will be highlighted.
< ⑦ > < ⑨ >	Turn On Partial.
< Tab >	Percent will be highlighted. Set percentage.

VARILINK™

HR2400 Recorders

25 < Enter >	
< Tab >	Limit will be highlighted. Set value.
10 < Enter >	
< F10 >	After all Partial are set: Prior Menu.

For more information on Partial, see HR2400 IM 3760-OIE.

Print Format

From Zones, Partial and Print Format

KEY STROKE	EXPLANATION
< F3 >	Print Format
< ⑦ > < ⑨ >	Channel will be highlighted. Set channel number.
< Tab >	Trend Printing will be highlighted.
< ⑦ > < ⑨ >	Turn Trending On or Off .
< Tab >	Digital Printing will be highlighted.
< ⑦ > < ⑨ >	Turn Digital printing On or Off.
< F10 > 2 times	After print format has been set for all channels, Edit Menu.

Tags/Messages/Headers/Title

From Edit Menu

KEY STROKE	EXPLANATION
< F5 >	Tags/Messages/Headers/Title Select item to be edited:
< F1 >	Title
< F2 >	Messages
< F3 >	Headers
< F4 >	Tags
< F10 >	Prior Menu

VARILINK™

HR2400 Recorders

Title

From Tags, Messages and Headers

KEY STROKE	EXPLANATION
< F1 >	Title.
<i>HR2400</i> < Enter >	Enter the Title you want to install in recorder up to 32 characters.
< F10 >	Prior Menu.

Messages

From Tags, Messages and Headers

KEY STROKE	EXPLANATION
< F2 >	Messages.
< ⑦ > < ⑨ >	Select one of the following:
< Panel >	
< Cont 1 >	Remote Control Message 1
< Cont 2 >	Remote Control Message 2
< Cont 3 >	Remote Control Message 3
< Cont 4 >	Remote Control Message 4
< Cont 5 >	Remote Control Message 5
< ALM 1 >	Alarm condition 1 dependent message 1
< ALM 2 >	Alarm condition 2 dependent message 2
< ALM 3 >	Alarm condition 3 dependent message 3
< ALM 4 >	Alarm condition 4 dependent message 4
< ALM 5 >	Alarm condition 5 dependent message 5
<i>Message</i> < Enter >	(maximum of 16 characters).
< F10 >	Prior Menu.

For further information, see IM 3760-OIE.

Headers

From Tags, Messages and Headers

KEY STROKE	EXPLANATION
< F3 >	Headers.
< ⑦ > < ⑨ >	Select Header number. (Maximum of 5 Headers.) (Maximum of 80 characters.)
<i>Boiler 1</i> < Enter >	
< ⑦ > < ⑨ >	Change Header number.
<i>Boiler 2</i> < Enter >	Type information.
	When complete,
< F10 >	Prior Menu.

Tags

From Tags, Messages and Headers

KEY STROKE	EXPLANATION
< F4 >	Tags.
< ⑦ > < ⑨ >	Tag number will be highlighted. Change Tag number.
< Tab >	Tag Name will be highlighted.
	Type in Tag Name. (maximum of 7 characters)
<i>FT-101</i> < Enter >	When all Tags have been entered,
< F10 > 2 times	Edit Menu.

Chart Speeds/Intervals/System

From Edit Menu

KEY STROKE	EXPLANATION
< F6 >	Chart Speeds/Intervals/System Select item to be edited
< F1 >	ChartSpeed
< F2 >	ChartSpeed2
< F3 >	Interval
< F4 >	System
< F10 >	Prior Menu

Chart Speed

From Chart Speed and Intervals

KEY STROKE	EXPLANATION
< F1 >	Chart Speed.
500 < Enter >	Chart Speed will be highlighted. Set Chart Speed in MM/H (1-1500 MM/H).
< F10 >	Prior Menu

Chart Speed 2

From Chart Speed and Intervals

KEY STROKE	EXPLANATION
< F2 >	Chart Speed 2 Chart Speed will be highlighted. Set new Chart Speed. (1-1500 MM/H).
500 < Enter > < Tab >	Interval will be highlighted (00:00 24:00) in the HH:MM format. Set interval.
< F10 >	Prior Menu.

Note: This is the Chart Speed and Interval used when change on Alarm or Remote Control is in effect. For further information, see IM 3760-OIE.

Interval

From Chart Speed and Intervals

KEY STROKE	EXPLANATION
< F3 >	Intervals Interval 1 will be highlighted. Set Interval 1 (00:00-24:00). See note below .
01 :00 < Enter > < Tab >	Interval 2 will be highlighted. Set Interval 2 (00:00 -24:00).
02:00 < Enter > < Tab >	Interval 3 will be highlighted. Set Interval 3 (00:00-24:00).
03:00 < Enter > < Tab >	Start Time will be highlighted. See note below.

VARILINK™

HR2400 Recorders

< ⑦ >< ⑨ >	Turn On or Off. If Start Time On was selected,
< Tab >	Start Date will be highlighted.
91/07/01 < Enter >	Type Start Date YY/MM/DD.
< Tab >	Start Time will be highlighted.
08:00 < Enter >	Type Start Time HH/MM.
< F10 >	Prior Menu when complete.

Note: You must have multiple (rather than single) setup in the “Setup Mode” of the recorder to have more than one interval.

If single was selected in Setup Mode, the start time and start date are not available. If you need more information, refer to IM 3760-OIE.

System

From Chart Speed and Intervals

KEY STROKE	EXPLANATION
< F4 >	System.
	Trend/Log will be highlighted.
< ⑦ >< ⑨ >	Select Trend Mode or Logging Mode.
< Tab >	Alarm print will be highlighted.
< ⑦ >< ⑨ >	Select Change or None
< Tab >	Recording Mode.
< ⑦ >< ⑨ >	Change from auto or fix
< F10 > 2 times	Return to Edit Menu.

Note: For more information, refer to IM 3760-OIE.

Moving Average

From Edit Menu

KEY STROKE	EXPLANATION
< F7 >	Moving Average Interpolation.
	Moving Average will be highlighted. Enter channel number .
01 < Enter >	
< Tab >	Status will be highlighted.
< ⑦ >< ⑨ >	Turn On or Off Moving Average for that channel.
< F10 >	Return to Edit Menu.

Note: For more information on Moving Average, refer to IM 3760-OIE.

User Linearization*

*This option will only appear when the user linearization option is fitted.

From Edit Menu

KEY STROKE	EXPLANATION
< F8 >	User Linearization. Curve will be highlighted.
< ⑦ >< ⑨ >	Select curve 1, 2, or 3. Once you have selected the curve,
< Tab >	Status will be highlighted.
< ⑦ >< ⑨ >	Turn Status On or Off. If off is selected, setting is complete.
< Tab >	Range will be highlighted,
< ⑦ >< ⑨ >	Select voltage range 20mV, 60mV, 200mV, 2V, 6V, 20V, or 50 volts;
< Tab >	Compensation will be highlighted.
< ⑦ >< ⑨ >	Select Ext. = External, Internal °F or Internal °C. External is used when fixed or no reference junction compensation is required. Internal °F is used when Reference Junction Compensation is required in °F. Internal °C is used when Reference Junction compensation is required in °C.
< Tab >	Decimal is highlighted,
< ⑦ >< ⑨ >	Select number of decimal points to be used (0-4).
< Tab >	Units is highlighted. Maximum 7 characters.
F < Enter >	
< Tab >	Point # is highlighted Type number of point to be edited (0-32).
I < Enter >	
< Tab >	Value is highlighted. Enter voltage input value.
0.000 < Enter >	
< Tab >	Scale is highlighted. Enter voltage output value.
0.0 < Enter >	
< Shift >< Tab >	Twice to return to point number. Repeat the above procedure until all desired points are set.
Note: For more information, refer to IM3760-70E.	
< F10 >	Return to Edit Menu.

Math Channels*

From Edit Menu

KEY STROKE	EXPLANATION
< F9 >	Math Menu
< F1 >	Select item to be edited
< F2 >	Math Channels
< F10 >	Constant
	Prior Menu
< F1 >	Math Channels*. Channel number will be highlighted.
< 7 > < 9 >	Set Math Channel desired (31-60) or type in channel number.
31 < Enter >	
< Tab >	Status will be highlighted.
< 7 > < 9 >	Turn channel On or Off channel. Keep channel On.
< Tab >	Expression will be highlighted. To enter a math expression type expression,
01.GT.02 < Enter >	
< 8 >	To edit expression,
Change < Enter >	Until cursor is under item to be changed, type desired change.
< 8 >	To insert items into a math statement,
< Insert > Item	Cursor is under the point you wish to insert,
< Enter >	Type item to be inserted,
< 8 >	You may also delete items from a math statement.
< Delete > Item	To move the cursor to the desired item to be deleted,
< Enter >	
< Tab >	When complete.
0 < Enter >	Left span value is highlighted. Set value.
< Tab >	
1 < Enter >	Right span value is highlighted. Set value.
< Tab >	
Tons < Enter >	Units is highlighted. Set units.
< F10 > 2 times	Return to Edit Menu, when all math channels are complete.

Note: For further information on math, see IM3760-60E.

Note: *This display will only appear when the MATH option is fitted.

Note: Left span value and right span value must not be equal.

Constants*

From Edit Menu

KEY STROKE	EXPLANATION
< F9 >	Math channels*.
< F2 >	Constants.
< ⑦ > < ⑨ >	Constants number is highlighted. There are 30 constants (01-30). Choose the Constant number to edit,
< Tab >	Set Constant value.
1.234 < Enter >	
	When all Constants have been set:
< F10 > 2 times	Return to Edit Menu.

Note: The Constant 1E+29 cannot be set in this software. You must enter this Constant at the recorder. For more information on setting Constants, refer to IM3760-60E.

Note: *This display will only appear when the math option is fitted.

End Edit

From Edit Menu

KEY STROKE	EXPLANATION
< F10 >	End Edit. Do you wish to save changes?
< F1 >	Yes.
< F2 >	No.

Load Configuration to Recorder

From Edit Menu

KEY STROKE	EXPLANATION
< F6 >	Load configuration to recorder . Enter instrument number .
1 < Enter >	Instrument number.
	Enter filename to load configuration data (without extension)
Test < Enter >	

VARILINK™

HR2400 Recorders

Note: When load starts, an error list will appear on the screen. Data loaded into the recorder will be displayed in the lower left hand corner of the screen. This will take a few minutes.

When complete,

< F10 >	Prior Menu.
< F10 >	Prior Menu.
< F10 >	End Program.

VARILINK™

HR/DA 2500 Recorders

HR/DA 2500

Software Limitations

Items in the Setup Mode of the HR2500 recorder or the DA2500 Data Acquisition System cannot be set from VARILINK™ 1.4, refer to IM3880-05E. Item 5 in the Random Mode can only be set at the recorder; refer to IM3880-05E.

The clock in the recorder cannot be accessed or set through VARILINK™ 1.4.

The following items can be configured from VARILINK™ 1.4: Ranges, Alarms, Groups, Print Format, Tag and Messages, Chart Speeds/ Intervals, List Format, Pulse Input, Math Channel and Constants.

Exception: The constant IE + 29 may not be entered through this software.

Requirements

1. IBM or compatible computer with a RS232C port;
2. DOS 2.1 or higher;
3. Johnson Yokogawa Corporation VARILINK™ 1.4 software;
4. For recorder with RS232C;
 - a) Null Modem cable.
 - b) RS232C port on computer.

Recorder/Data Acquisition Setup

The HR/DA2500 must be set to the following parameters in the Setup Mode. The Setup Mode can be accessed by setting the setup dip switch to the “On” position (the dip switch is located on the rear of the HR/DA2500 and is labeled setup). Cycle the power to the recorder while pressing the **Aux** key (the **Aux** key is on the engineering keyboard located at the bottom of the recorder door. For more information, refer to IM3880-05E (4th edition) pages 31-32. Press **Aux** Key and hold until **SETUP MODE** appears on the digital display (approximately 15 seconds).

KEYSTROKE	EXPLANATION	UPPER DISPLAY
< Next >	Located on the right side of the engineering keyboard	SETUP MODE SET 1
< F2 >	COMM	SETUP MODE = COMM
< Enter >	3 times, BAUD RATE	BAUD RATES =
< Next >		
< F4 >	9600	BAUD RATES = 9600
< Enter >	STOP BIT	STOP BITS =
< F1 >	1	STOP BITS = 1
< Enter >	PARITY	PARITY =

VARILINK™

HR/DA 2500 Recorders

< F3 >	PARITY= NONE	PARITY = NONE
< Enter >	DATA BITS	DATA BITS =
< F2 >	8	DATA BITS = 8
< Enter >	HANDSHAKE	HANDSHAKE =
< F3 >	XON:RS	HANDSHAKE = XON:RS
< Enter >	RS232C MODE	RS232C MODE =
< F1 >	SET AND OUT	RS232C MODE = SET & OUT
< Enter >	2 times	***SETUP COMM COMPLETE***
< Enter >		GPIB MODE = SET
< F4 >	ESCAPE	GPIB MODE = ESC
< Enter >	SETUP MODE	SETUP MODE = COMM
< F4 >	END	SETUP MODE = END
< Enter >		TO RUN MODE DISPLAY

The HR/DA2500 is now set up to communicate with the computer.

Connect null modem cable between recorder and computer.

Computer Setup

Boot-up computer on DOS and install Johnson Yokogawa Corporation VARILINK™ 1.4 software in your disk drive.

KEY STROKE	EXPLANATION
-------------------	--------------------

VARILINK™ < Enter > After a moment, the Main Menu will appear as follows:

< F1 >	Display & Data Acquisition menu
< F2 >	Edit configuration
< F3 >	Setup Computer
< F4 >	Save All Setup Parameter
< F5 >	Save Configuration From Recorder
< F6 >	Load Configuration to Recorder
< F7 >	HR2400 IC Card
< F8 >	HR2400 Reports
< F10 >	End program

KEY STROKE	EXPLANATION
-------------------	--------------------

From Main Menu

< F3 >	Setup Computer
< F1 >	Setup Com Ports
< F2 >	Select Devices
< F10 >	Prior Menu

VARILINK™

HR/DA 2500 Recorders

KEY STROKE	EXPLANATION
< F1 >	Change Com Port 1
< F2 >	Change Com Port 2
< F3 >	Change Com Port 3
< F4 >	Change Com Port 4
< F10 >	Return to Setup Computer Menu

Repeatedly pressing the appropriate function key will scroll the various Baud rate choices. ((minimum = 300, maximum = 9600) Select the appropriate rate:

KEY STROKE	EXPLANATION
------------	-------------

From Setup Computer Menu

< F2 >	Select Devices
	Configured Devices
< F2 >	Device Number:
< F3 >	Device Type:
< F4 >	Start Channel:
< F5 >	End Channel:
< F6 >	Interface:
< F10 >	Prior Menu
< F2 >	Select Devices. Enter number of device to be added.
1 < Enter >	
< F3 >	Device type. Repeat until HR2500 appears.
< F4 >	Start channel (sequential order, lowest contiguous channel)

Note: Channel numbers must be selected from the following sequences:
 Input Channels (001-060), (101-160), (201-260), or (301-360).
 Math Channels (A01-A60)
 All channel numbers must be 3 characters in length.

001 < Enter >	
< F5 >	End channel (sequential order, highest contiguous channel)
060 < Enter >	
< F6 >	Interface. Press repeatedly to select your Com Port. (This is the Com Port on your computer to which you have connected the HR/DA2500.)

If you do not want to save all channels for Data Acquisition/ Display, you will have to set up more than one device.

Example: You have an HR/DA2500 with 60 input channels and a 30 input remote scanner (channels 101-130). The HR/DA2500 mainframe has the math option (A01-A60). You only want to acquire data from channels 001-020, 101-120 and A05-A10. You must do the following:

VARILINK™

HR/DA 2500 Recorders

Device 1:

Device Type = HR2500
Start Channel = 001
End Channel = 020

Device 2:

Device Type = HR2500
Start Channel = 101
End Channel = 120

Device 3:

Device Type = HR2500
Start Channel = A01
End Channel = A10

KEY STROKE	EXPLANATION
------------	-------------

From Set-Up Computer Menu

< F2 >	Select devices. Configured Devices
1 < Enter >	Enter number of device to be edited.

Note: For Data Display and Acquisition, device types are limited to only those devices which are connected to the computer. Failure to do so will stop the program! A maximum of 144 devices may be set.

< F3 >	Device type. Repeat until HR2500 appears.
< F4 >	Start channel
001 < Enter >	
< F5 >	End channel

Note: A maximum of 1,200 channels may be selected.

020 < Enter >	
< F2 >	Device number
2 < Enter >	Enter number of device to be edited.
< F3 >	Device type. Repeat until HR2500 appears.
< F4 >	Start channel
101 < Enter >	Enter number of device to be edited.
< F5 >	End channel
120 < Enter >	
< F2 >	Device number
3 < Enter >	
< F3 >	Device type. Repeat until HR2500 appears.
< F4 >	Start channel.
A05 < Enter >	
< F5 >	End channel.

VARILINK™

HR/DA 2500 Recorders

A10< Enter >
< F10 > 3 times Return to Main Menu.
< F4 > Save all setup parameters

Note: The computer is now set up to communicate with the HR/DA2500.

Display and Data Acquisition Menu

From the Main Menu,

KEY STROKE	EXPLANATION
< F1 >	Display and Data Acquisition Menu. Setup Data Acquisition Menu will appear.

Setup Data Acquisition

< F1 >	Help
< F2 >	Sampling rate: (seconds)
< F3 >	File name to store data to: (your file name)
< F4 >	File type:
< F5 >	Number of rows in data file: (samples per channel)
< F6 >	Number of columns in data file: (number of channels)
< F8 >	Save All Setup Parameters
< F9 >	Start Main Program (start Display or Data Acquisition)
< F10 >	Prior Menu

Note: Spreadsheet software places a limitation on the number of columns that are available for use in data acquisition. The limit is 250 columns, or as used in VARILINK™ 1.4, a total of 250 Channels. When the number of channels to be acquired exceeds 250, VARILINK™ 1.4 will automatically write multiple files to disk to accommodate the excess over the 250 limit. See example #1 below.

The ability to write multiple files simultaneously could also be used to segregate data as desired. See example #2 below.

Example 1: (HR2500 with 300 channels saved to disk)

Set number of columns to 250, File Name = Test.
VARILINK™ 1.4 will save information to 2 files.
File Name #1 will be TESTA00.WK1 (Inputs 1-250).
File Name #2 will be TESTB00.WK1 (Inputs 251-300).

VARILINK™

HR/DA 2500 Recorders

Example 2: (HR2500 with 30 channels saved to disk)

Set number of columns to 10, File Name = Test.
VARILINK™ 1.4 will save information to 3 files.
File Name #1 will be TESTA00.WK1 (Channels 01-10)
File Name #2 will be TESTB00.WK1 (Channels 11-20)
File Name #3 will be TESTC00.WK1 (Channels 21-30)

Note: The maximum number of files that can be created is 14.

KEY STROKE	EXPLANATION
< F1 >	For a help screen for Data Acquisition.
< F10 >	To return to Setup Data Acquisition Menu.
< F2 >	Sampling rate; this setting is in seconds: minimum setting is 2 seconds, maximum setting is 21,600 seconds or 6 hours. This setting determines how often data is saved from the recorder to the file.
2 < Enter >	
< F3 >	File name to store data to: Enter complete path and your own file name with a maximum of 5 characters.
Test < Enter >	
< F4 >	File type: you have 2 choices: .WK1 (Lotus spreadsheet format) or .DIF (Data interchange format). Press < F4 > (each time you press < F4 > .WK1 and .DIF toggles on the screen).
< F5 >	Number of rows in data file; minimum 500, maximum 8,180. This is the number of samples of each acquired channel to be stored in each file.
1000 < Enter >	1000 samples of each acquired channel will be taken before a new file is created.
< F6 >	Number of columns in data file: minimum 1 column, maximum 250 columns. This is the number of channels to be saved to a file.

Example: HR/DA2500 with 60 input channels. Also, you have the math option 60 channels (A01-A60).

120 < Enter >
12 < Enter >
< F8 >
< F9 >

However, to save only channels 001-012,
Save all setup parameters: this will save the settings < F2 > through < F6 > to the default file for Data Acquisition.
Start data program. The computer screen will display TESTING COMMUNICATIONS, reading data from the HR/DA2500. At the bottom left of the screen you will observe data being read from the HR/DA2500, after approximately one minute Main Data Menu will appear.

VARILINK™

HR/DA 2500 Recorders

Main Data Menu

< F1 >	Display Data
< F2 >	Data Acquisition
< F3 >	HR2400 IC Card
< F10 >	Main Menu

Display Data

From Data Menu

KEY STROKE	EXPLANATION
< F1 >	Display data.
< ⑦ > < ⑨ >	To scroll through channels.
< Page Up >	Scrolls pages of channels. (Or you may type the defined Tag name
< Page Down >	of the channel you wish displayed.)

Example: You would like to display channel 20:

KEY STROKE	EXPLANATION
<i>1</i> HR25 020< Enter >	Tag name is displayed in selected channel. (Channel 20 at top of page).
< F10 >	Return to Main Data Menu.

Data Acquisition

From Data Menu

KEY STROKE	EXPLANATION
< F2 >	Data Acquisition. Start/Stop Data Acquisition Menu will appear. At this point in the program you may change any of the parameter < F2 > through < F6 > described in the Data Acquisition Menu section discussed earlier.
< F1 >	Start Data Acquisition.

Note: The number of samples taken is displayed in the lower left portion of the screen. Also, the current file is displayed to the right of samples taken. Once a file is full, the program will create another file automatically. A maximum of 224 files will be created. However, if disk space is depleted, program will stop.

VARILINK™

HR/DA 2500 Recorders

File creation Example: File name = Test
Current File: Test?00 will appear, once this file is full, the current file
 Test?01 will appear.

Note: After Data Acquisition is complete, the Menu will return to Start/Stop Data Acquisition. If <F1> is pressed and the file name has not been changed, a box will appear under <F10> Print Menu: Do you want to overwrite the existing files (Y/N). If Y is selected, the current file will be overwritten.

KEY STROKE	EXPLANATION
< F1 >	Stop Data Acquisition when Data Acquisition is complete.
< F10 >	Return to Main Data Menu.
< F10 >	Return to Main Menu.

Edit Configuration

Caution: The HR2500 recorder has 2 formats of operation
 1. Trend
 2. Logging

You must save the configuration from the recorder while the recorder is in the Trend or Logging format. Editing can only be accomplished for the Trend format if you save the configuration while the recorder is in the Trend mode. Likewise, editing can only be accomplished for the Logging format if you saved the configuration while the recorder or Data Acquisition system was in the Logging mode.

Note: The DA2500 has only the Logging format.

Save Configuration From Recorder

From Main Menu

KEY STROKE	EXPLANATION
------------	-------------

Note: A configuration file must be in the default directory before "Edit Configuration" can begin.

 If you have a new disk or a disk that does not have an existing file.

Note: Configuration files are .25 extension files.

VARILINK™

HR/DA 2500 Recorders

< F5 > Save configuration from recorder.
Enter instrument number: (1-144)

1 < Enter > Enter File name to save configuration(without
extension)

Trend < Enter >

Note: VARILINK™ 1.4 will save data from all channels from HR/DA2500 to the default operating directory. The screen will flash WORKING! When Save configuration is complete, the program will return to the Main Menu.

Edit Configuration

From Main Menu

KEY STROKE	EXPLANATION
< F2 >	Edit configuration.
	Select instrument to edit
< F1 >	HR2400
< F2 >	HR2500
< F3 >	μR1000/1800
< F10 >	Prior Menu
◁F2▷	HR2500

Temperature Units

Select °F or °C

KEY STROKE	EXPLANATION
< F1 >	°F
< F2 >	°C

Note: This selection does not change recorder setup for temperature. The change can only be made in the Setup Mode of the recorder. If you do not have temperature inputs, select < F1 > °F.

VARILINK™

HR/DA 2500 Recorders

Edit HR2500 Configuration

Enter file to be edited

KEY STROKE

EXPLANATION

Trend< Enter >

Checking input file for errors will appear.
When check is complete, Edit Menu will appear on screen.

Note: If you have a file error, resave your file from recorder (refer to Save configuration from the recorder section of this document).

Edit Menu

From Edit HR2500 Configuration

Select Item to be edited

To edit one of the following, use the instructions on the following pages:

< F1 >	RANGES
< F2 >	ALARMS
< F3 >	GROUPS
< F4 >	PRINT FORMAT
< F5 >	TAGS & MESSAGES
< F6 >	CHART SPEEDS/INTERVAL
< F7 >	LIST FORMAT
< F8 >	PULSE INPUT
< F9 >	MATH CHANNELS AND CONSTANTS
< F10 >	END EDIT

For an explanation of items < F1 > to < F7 >, refer to IM3880-05E. < F8 >, refer to IM3880-90E. < F9 >, refer to IM3880-60E.

Ranges (Trend or Logging Format)

From Edit HR2500 Configuration

KEY STROKE

EXPLANATION

< F1 >

Ranges.

< ⑦ > < ⑨ >

Channel will be highlighted. Select the channel to be edited.
(For example, Channel 1.)

< Tab >

Mode will be highlighted.

VARILINK™

HR/DA 2500 Recorders

< ⑦ >

To change mode. (For example: Stop on Normal.)

The following modes may be selected:

Normal	Set this mode when standard range is used.
Delta Channel (Delta ch)	Measure and display difference of current measured value from the measured value of reference channel.
Delta First	Measure difference of current measured value from the measured value of first measured value of channel.
Delta Last	Measure difference between current measured value and the value scale of first channel.
Remote RJC	Measured value of RJC channel and RJC value of the channel which is currently in measurement and display executed (Remote RJC) temperature input must be set in channel or hold this mode.
Skip	Use this mode when channel is not used.

Note: For more information on the mode setting, refer to IM3880-05E.

KEY STROKE EXPLANATION

< Tab >	Range will be highlighted.
< ⑦ > < ⑨ >	To change range. (For example: Stop on 6V range.)

The following items may be selected:

VOLTAGE	THERMOCOUPLES	RTDs	DIGITAL INPUTS
20 mV	Type R	Pt100:1	VOLTS DI1
60 mV	Type S	Pt100:2	CONTACT DI2
200 mV	Type B	Pt 50:2	
2 VOLTS	Type K	Ni100S	
6 VOLTS	Type E	Ni100D	
20 VOLTS	Type J	Ni100:1	
50 VOLTS	Type T	Ni120:1	
	Type L	Cu101	
	Type U	Cu102	

VARILINK™

HR/DA 2500 Recorders

Type N
Type W

CU103
CU104

Note: Certain items in the above section are dependent on the standard selected in the setup mode of the Recorder/Acquisition System. For more information refer to the IM3880-05E for the HR2500 or IM3890-05E for the DA2500.

KEY STROKE	EXPLANATION
	If in Logging Format, skip to Scaling Setup.
< Tab >	Left Span will be highlighted. This is the
1 < Enter >	Left Span (0% value).
< Tab >	Right Span will be highlighted. This is the Right Span. (100% value).
5 < Enter >	
< Tab >	To turn scaling On or off. If scaling is turned off, setting is complete. If scaling is turned on Left Scale, Right Scale and Unit will appear at bottom of the screen.
< ⑦ >	(For example: Turn scaling On.)
< Tab >	Left Scale will be highlighted:
0 < Enter >	Left Scale value. (For example: 0.)
< Tab >	Right Scale will be highlighted:
100 < Enter >	Right Scale value. (For example: 100.)
< Tab >	Units will be highlighted.
pph < Enter >	(For example: pph.)
< Tab >	This will return you to channel number (setting is complete).
< F10 >	When all range settings are complete.

Alarms

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F2 >	Alarms
< ⑦ > < ⑨ >	Channel will be highlighted. Select channel number or
001 < Enter >	Channel number to be edited.
< Tab >	Level will be highlighted.
< ⑦ > < ⑨ >	Set desired level number, 1-4

VARILINK™

HR/DA 2500 Recorders

< Tab >	Status will be highlighted.
< ⑦ >< ⑨ >	To turn alarm On or Off if status = Off setting is complete. If status = On proceed as follows:
< Tab >	Alarm will be highlighted.
< ⑦ >< ⑨ >	To change H=High, L=Low, RH=Rate of change high, RL=Rate of change low, dH=Delta High, dL=Delta Low.
< Tab >	Set Point will be highlighted.
10 < Enter >	Set Set Point value.
< Tab >	Hysteresis will be highlighted.
.1 < Enter >	Set Hysteresis value.
< Tab >	Print will be highlighted.
< ⑦ >< ⑨ >	To turn print On or Off
< Tab >	Relay will be highlighted.
< ⑦ >< ⑨ >	To turn relay On or Off. If relay = Off, setting is complete. If Relay = On, then:
< Tab >	Relay # will be highlighted.
< ⑦ >< ⑨ >	Select Internal I01 through I10 or E01 through E60.

Note: For more information refer to the HR2500 IM3880-05E or the DA2500 IM3890-05E.

Note: If your recorder is equipped with AK10, you have 10 internal alarms. If you have an External Alarm Unit, you have 30 or 60 external alarm contacts.

After all alarms and relays have been set,

KEY STROKE	EXPLANATION
< F10 >	Return to Edit HR2500 Configuration menu.

Groups

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F3 >	Groups
< ⑦ >< ⑨ >	Group number is highlighted. Select groups G01 through G30.
< Tab >	TYPE is highlighted.
< ⑦ >< ⑨ >	Choose All Ch = All Channels or Select. If All Ch is selected, setting is complete. If Select was chosen, proceed as follows:
< Tab >	GROUP is highlighted.
001-030 < Enter >	Type in the channels for this group.

Note: For more information on groups, refer to the HR2500 IM3880-05E or the DA2500 IM3890-05E.

VARILINK™

HR/DA 2500 Recorders

When all groups are set,

KEY STROKE	EXPLANATION
< F10 >	Return to Edit HR2500 Configuration menu.

Print Format (Trend Format)

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F4 >	Print Format Print Format CHANNEL will be highlighted.
< ⑦ > < ⑨ >	Select Channel Number or
020 < Enter >	Type channel number to be edited.
< Tab >	TREND will be highlighted.
< ⑦ > < ⑨ >	Trend On or Off
< Tab >	DIGITAL will be highlighted.
< ⑦ > < ⑨ >	Digital On or Off
< Tab >	SCALE will be highlighted.
< ⑦ > < ⑨ >	Scale On or Off
< Tab >	MAN PRINT will be highlighted
< ⑦ > < ⑨ >	Manual Print On or Off
< Tab >	LOG INTERVAL will be highlighted
< ⑦ > < ⑨ >	Select 1 through 6 or RMT. (RMT = Remote)
< Tab >	LEFT ZONE will be highlighted.
0 < Enter >	Set minimum (0% value)
< Tab >	RIGHT ZONE will be highlighted
250 < Enter >	Set maximum (100% value)
< Tab >	PARTIAL will be highlighted
< ⑦ > < ⑨ >	Partial On or Off
< Tab >	CHANNEL will be highlighted Repeat above procedure for all channels
< F10 >	Prior Menu when complete

VARILINK™

HR/DA 2500 Recorders

Print Format (Logging Format)

KEYSTROKE	EXPLANATION
< F4 >	Print Format Print Format CHANNEL will be highlighted.
< ⑦ > < ⑨ > 020 < Enter >	Select channel number or Type CHANNEL number to be edited
< Tab >	DIGITAL will be highlighted
< ⑦ > < ⑨ >	To turn Digital On or Off
< Tab >	MAN PRINT = Manual Print will be highlighted
< ⑦ > < ⑨ >	To turn Manual Print On or Off
< Tab >	LOG INTERVAL = Logging Interval will be highlighted.
< ⑦ > < ⑨ >	Select Logging Interval 1 through 6 or RMT = Remote

Note: For more information, refer to the HR2500 IM3880-05E.

When all print format set items are complete,

KEYSTROKE	EXPLANATION
< F10 >	Return to Edit HR2500 Configuration Menu

Tags, Messages and Title

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F5 >	Tag and messages Tags and Messages
< F1 >	Tags
< F2 >	Messages
< F3 >	Title
< F10 >	Prior Menu

VARILINK™

HR/DA 2500 Recorders

Tags

KEY STROKE	EXPLANATION
< F1 >	Tags
< ⑦ > < ⑨ >	TAG NUMBER will be highlighted.
020 < Enter >	Select Channel Number or Channel Number to be edited
< Tab >	TAG NAME will be highlighted.
FT-101 < Enter >	Type in Tag (maximum 7 characters)

When all Tags have been entered

< F10 >	Return to Tags And Messages Menu
---------	----------------------------------

Messages

From Tags and Messages

KEY STROKE	EXPLANATION
< F2 >	MESSAGES
< ⑦ > < ⑨ >	MESSAGE NUMBER will be highlighted.
< Tab >	Select message number (maximum 4 messages)
HR2500 < Enter >	Message will be highlighted.
< Tab >	When all messages are complete
< F10 >	Return to Tags And Messages Menu

Title

From Tags and Messages

KEY STROKE	EXPLANATION
< F3 >	Title Type (maximum 32 characters)
BOILER < Enter >	Title (maximum 32 characters)

When complete,

< F10 >	Return to Edit HR2500 Configuration Menu.
---------	---

VARILINK™

HR/DA 2500 Recorders

Chart Speeds/Intervals (Trend Format)

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F6 >	Chart Speeds/Intervals SCAN SPEED will be highlighted.
02 < Enter >	(02-60 seconds)
< Tab >	START TIME will be highlighted.
< ⑦ > < ⑨ >	Select On or Off
< Tab >	START DATE will be highlighted.
91/07/01 < Enter >	Set Start Date
< Tab >	START TIME will be highlighted.
08:00:00 < Enter >	Set Start Time.
< Tab >	CHART SPEED will be highlighted.
25 < Enter >	Set Chart Speed (MM/HR)
< Tab >	MODE will be highlighted. Select AUTO, FIX If AUTO was selected pressing tab will highlight interval 1. If FIX was selected TREND INTERVAL will be highlighted.
< Tab >	
02 < Enter >	Set Trend Interval
< Tab >	INTERVAL 1 will be highlighted.
08:00 < Enter >	Set Interval 1 (00:01 to 24:00)
< Tab >	INTERVAL 2 will be highlighted.
01:00 < Enter >	Set Interval 2
< Tab >	INTERVAL 3 will be highlighted.
00:45 < Enter >	Set Interval 3
< Tab >	INTERVAL 4 will be highlighted.
00:30 < Enter >	Set Interval 4
< Tab >	INTERVAL 5 will be highlighted.
00:15 < Enter >	Set Interval 5
< Tab >	INTERVAL 6 will be highlighted.
00:01 < Enter >	Set Interval 6
< Tab >	CHART SPEED will be highlighted.
100 < Enter >	Set remote chart speed
< Tab >	MODE will be highlighted.
< ⑦ > < ⑨ >	Select remote mode (Auto or fix) If AUTO is selected pressing tab will highlight Interval 1. If FIX is selected press tab
< Tab >	TREND INTERVAL will be highlighted
06 < Enter >	Set Interval (01 to 60 seconds)
< Tab >	INTERVAL 1 will be highlighted.
00:02 < Enter >	Set Interval 1
< F10 >	Return to Edit HR2500 Configuration Menu.

VARILINK™

HR/DA 2500 Recorders

Chart Speeds/Intervals (Logging Format)

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F6 >	Chart Speeds / Intervals SCAN INTERVAL will be highlighted.
02 < Enter >	Set Scan Interval (02-60 seconds)
< Tab >	START TIME will be highlighted.
< ⑦ > < ⑨ >	Turn On or Off
< Tab >	START DATE will be highlighted.
91/07/01 < Enter >	Set Start Date
< Tab >	START TIME will be highlighted.
00:08:00 < Enter >	Set Start Time
< Tab >	INTERVAL 1 will be highlighted.
24:00 < Enter >	Set Interval 1
< Tab >	INTERVAL 2 will be highlighted.
16:00 < Enter >	Set Interval 2
< Tab >	INTERVAL 3 will be highlighted.
08:00 < Enter >	Set Interval 3
< Tab >	INTERVAL 4 will be highlighted.
01:00 < Enter >	Set Interval 4
< Tab >	INTERVAL 5 will be highlighted.
00:03 < Enter >	Set Interval 5
< Tab >	INTERVAL 6 will be highlighted.
00:01 < Enter >	Set Interval 6
< Tab >	INTERVAL will be highlighted (remote interval).
00:02 < Enter >	Set Interval
< F10 >	Return to Edit HR2500 Configuration Menu.

List Format

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F7 >	GROUP NUMBER will be highlighted.
01 < Enter >	Set group number
< Tab >	RANGE LIST will be highlighted.
< ⑦ > < ⑨ >	Turn On or Off
< Tab >	ALARM LIST will be highlighted.
< ⑦ > < ⑨ >	Turn On or Off
< Tab >	GROUP LIST will be highlighted.

VARILINK™

HR/DA 2500 Recorders

< ⑦ >< ⑨ >	Turn On or Off
< Tab >	PRINT FORMAT will be highlighted.
< ⑦ >< ⑨ >	Turn On or Off
< Tab >	BO/RJC LIST will be highlighted.
< ⑦ >< ⑨ >	Turn On or Off
< Tab >	OPTION LIST will be highlighted.
< ⑦ >< ⑨ >	Turn On or Off
	When complete
< F10 >	Return to Edit HR2500 Configuration Menu.

Note: For more information, refer to IM3880-05E

Pulse Input

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
< F8 >	Pulse Input* Pulse Input Channel will be highlighted.

Note: *This display will only appear when the pulse train option is fitted.

< ⑦ >< ⑨ >	Select channel or
001 < Enter >	Type Channel number
< Tab >	Mode will be highlighted.
< ⑦ >< ⑨ >	Select one of the following
	Skip Channel off, setting is complete
	Operate Measures time contact is closed
	Rate Counts pulses per second
	Total Counts pulses (Total)
	If Operate is selected
< Tab >	Filter will be highlighted.
< ⑦ >< ⑨ >	Turn On or Off
	If Rate is selected
< Tab >	Left Span will be highlighted.
0 < Enter >	Set Left Span (0% value)
< Tab >	Right Span will be highlighted.
100 < Enter >	Set Right Span (100% value)
< Tab >	Left Scale will be highlighted.
0:00 < Enter >	Set Left Scale value
< Tab >	Right Scale will be highlighted.
100.00 < Enter >	Set Right Scale
< Tab >	Filter will be highlighted.
< ⑦ >< ⑨ >	Turn filter On or Off

VARILINK™

HR/DA 2500 Recorders

< Tab >	Units will be highlighted.
GPM < Enter >	Set units
	If Total is selected
< Tab >	Left Span will be highlighted.
0 < Enter >	Set Left Span (0% value)
< Tab >	Right Span will be highlighted.
10000 < Enter >	Set Right Span (100% value)
< Tab >	PLS SCLR will be highlighted.

Note: This is the maximum integration value exponent. For more information, refer to IM3880-90E.

0 < Enter >	Set Exponent (03)
< Tab >	Left Scale will be highlighted.
0.0 < Enter >	Set Left Scale
< Tab >	Right Scale will be highlighted.
10000 < Enter >	Set Right Scale
< Tab >	Filter will be highlighted.
< ⑦ > < ⑨ >	Turn On or Off
< Tab >	Units will be highlighted.
GPM < Enter >	Set Units

Note: Repeat above procedure until all channels are set.

< F10 >	Prior Menu
---------	------------

Math Channels (Trend Format)

From Edit 2500 Configuration

KEY STROKE	EXPLANATION
< F9 >	Math Channels and Constants*
	Math Menu appears as follows:
< F1 >	Math Channels
< F2 >	Math Constants
< F10 >	Prior Menu

Note: *This option will only appear when the Math option is fitted.

< F1 >	Math Channels.
	Math Channels
< ⑦ > < ⑨ >	Channel will be highlighted. Select Channel Number
A05 < Enter >	Type Channel Number
< Tab >	Mode will be highlighted.

VARILINK™

HR/DA 2500 Recorders

< ⑦ >< ⑨ >	Turn On or Off If Off is selected, setting is complete. If On is selected,
< Tab >	Expression will be highlighted.
001.LT.002 < Enter >	Type Expression
< ♦ >	To edit Expression
Change < Enter >	Until cursor is under item to be changed Type desired change
< ♦ >	To insert item into Expression
< Ins >	until cursor is under item to be inserted
< Enter >	Type item
< ♦ >	To delete an item from Expression
< Del >	until cursor is under item to be deleted
< Enter >	Delete characters
< Tab >	When complete Left Span will be highlighted.
0 < Enter >	Set Left Span (0% value)
< Tab >	Right Span will be highlighted.
1 < Enter >	Set Right Span (100% value)
< Tab >	Units will be highlighted.
Tons < Enter >	Select Units
< Tab >	Channel will be highlighted.
< F10 >	Repeat above procedure for all Math Channels. Return to Math Menu

Note: For more information, refer to IM3880-60E.

Math Channels (Logging Format)

KEY STROKE	EXPLANATION
< F9 >	Math Channels and Constants* Math menu appears as follows
< F1 >	Math Channels
< F2 >	Math Constants
< F10 >	Prior Menu

Note: *This display will only appear when the Math option is fitted.

< F1 >	Math Channels. Channel will be highlighted.
< ⑦ >< ⑨ >	Select Channel Number or
A01 < Enter >	Type Channel Number
< Tab >	Mode will be highlighted.
< ⑦ >< ⑨ >	Turn On or Off

VARILINK™

HR/DA 2500 Recorders

	If Off is selected, setting complete
	If On is selected
< Tab >	Expression will be highlighted.
	To enter a Math Expression
001.LT.002 < Enter >	Type Expression
	To edit Expression
< ♦ >	Until cursor is under item to be changed
Change < Enter >	Type desired change
	To insert an item into Expression
< ♦ >	Until cursor is under item to be inserted
< Ins >	Type item
< Enter >	
	To delete an item from Expression
< ♦ >	until cursor is under item to be deleted
< Del >	Delete characters
< Enter >	When complete
< Tab >	Decimal will be highlighted.
< ⑦ > < ⑨ >	Select Decimal point (0-5)
< Tab >	Units will be highlighted.
PPH < Enter >	Select Units
< Tab >	Channel will be highlighted.
	Repeat above procedure for all math channels.
< F10 >	Return to Math Menu

Note: For more information, refer to IM3880-60E for HR2500, IM3890-60E for DA2500.

Constants

From Math Menu

KEY STROKE	EXPLANATION
< F2 >	Math Constants*
< ⑦ > < ⑨ >	Select Constant or
K05 < Enter >	Type Constant Number
< Tab >	Value will be highlighted.
1.234 < Enter >	Set Value
< Tab >	Constant will be highlighted.
	Repeat above procedure until all constants are set.
< F10 > 2 times	Return to Edit HR2500 Configuration Menu.

Note: *This display will only appear when the MATH option is fitted.

Note: For more information on constants, refer to IM3880-60E for the HR2500 or IM3890-60E for the DA2500.

Caution: The constant 1E+29 cannot be set in this software. This constant must be set from the recorder.

VARILINK™

HR/DA 2500 Recorders

End Edit

From Edit HR2500 Configuration

KEY STROKE	EXPLANATION
-------------------	--------------------

< F10 >	END EDIT
---------	----------

Do you wish to save your changes?

< F1 >	YES
< F2 >	NO

Load Configuration To Recorder

From Main Menu

KEY STROKE	EXPLANATION
-------------------	--------------------

< F6 >	Load Configuration to recorder
<i>I</i> < Enter >	Enter Instrument number:
<i>Trend</i> < Enter >	Enter file name to load configuration from.

Note: When LOAD starts, an error list will appear. Data loaded into the recorder will be displayed in the lower left hand corner of the screen.

When complete,

KEY STROKE	EXPLANATION
-------------------	--------------------

< F10 > 2 times	Return to Main Menu.
< F10 >	End Program

VARILINK™

μRT and μRF Recorders

μR100T ◇ μR180T ◇ μR100F

Software Limitations

VARILINK™ 1.4 performs data acquisition for the μR100T, μR180T and μR100F strip chart recorders.

The clock in the recorder cannot be accessed or set through VARILINK™ 1.4.

Requirements

1. IBM or compatible computer with an RS422;
2. DOS 2.1 or higher;
3. Johnson Yokogawa Corporation VARILINK™ 1.4 software;
4. Recorder with RS422A:
 - a. Refer to IM4D3B1-10E for the μRT and μRF recorders.
 - b. If computer is equipped with a RS232C port, a RS422A to RS232C converter is required.

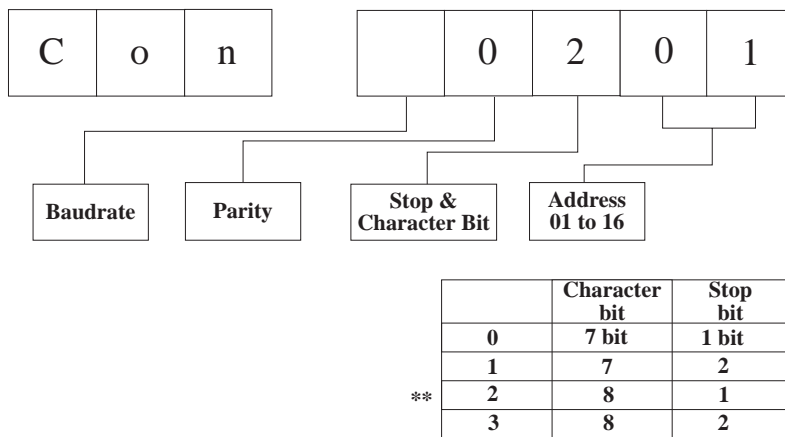
Recorder Setup

KEY STROKE	EXPLANATION
< ⑦ >	Turn on power to recorder while pressing < ⑦ > on the recorder door. Refer to Parameter Display and Contents for setting information.

VARILINK™

μRT and μRF Recorders

Parameter Display and Contents



0: 150 0: NONE **
 1: 300 1: EVEN
 2: 600 2: ODD
 3: 1200
 4: 2400
 5: 4800
 6 : 9600 *

* Recommended setting

** Required settings

KEY STROKE

EXPLANATION

< ⑦ > Baud rate character number is flashing
 6 is displayed (6 = 9600)
 < ⑧ > Parity character number is flashing
 0 is displayed (0 = none)
 < ⑦ > Stop and character bit number is displayed
 2 is displayed (2 = 8 character bits, 1 stop bit)
 < ⑧ > Address number is displayed (01-16)

Note: Device #1 = Address 1, Device #2 = Address 2, etc.

VARILINK™

μRT and μRF Recorders

l < Enter >

Settings are complete

Cycle power to recorder

Recorder is now set up for Data Display and Acquisition

Computer Setup

Boot up computer on DOS and install Johnson Yokogawa Corporation VARILINK™ software in your disk drive.

KEY STROKE	EXPLANATION
-------------------	--------------------

<i>VARILINK™</i> < Enter >	After a moment, the Main Menu will appear as follows:
----------------------------	---

< F1 >	Display & Data Acquisition Menu
< F2 >	Edit Configuration
< F3 >	Setup Computer
< F4 >	Save All Setup Parameters
< F5 >	Save Configuration From Recorder
< F6 >	Load Configuration to Recorder
< F7 >	HR2400 IC Card
< F8 >	HR2400 Reports
< F10 >	End Program

KEY STROKE	EXPLANATION
-------------------	--------------------

From Main Menu

< F3 >	Set up Computer
	Set up Computer
< F1 >	Set up Com Ports
< F2 >	Select Devices

KEY STROKE	EXPLANATION
-------------------	--------------------

< F1 >	Set up Comports
< F1 >	change Com Port 1
< F2 >	change Com Port 2
< F3 >	change Com Port 3
< F4 >	change Com Port 4

Repeatedly pressing the appropriate function key will scroll the various Baud Rate choices. (Minimum = 300, maximum = 9600). Select the appropriate baud rate.

VARILINK™

μRT and μRF Recorders

Then press:

< F10 > Prior Menu.

KEY STROKE	EXPLANATION
------------	-------------

From Setup Computer Menu

<F2>	Select Devices Select Devices
< F2 >	Device Number:
< F3 >	Device Type:
< F4 >	Start Channel:
< F5 >	End Channel:
< F6 >	Interface:
< F7 >	Address:
< F10 >	Prior Menu:

Note: For Data Display and Acquisition, device types are limited to only those devices which are connected to the computer. Failure to do so will create a program error. A maximum of 144 devices may be selected. A maximum of 1200 input channels may be selected.

KEY STROKE	EXPLANATION
------------	-------------

< F2 >	Select Devices.
/ < Enter >	Select devices menu appears. Enter number of device to be edited.
< F3 >	Device type; press < F3 > repeatedly until μRT 2 appears. Select recorder <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;"> μRT1 = μRT 1 pen μRT2 = μRT 2 pen μRT3 = μRT 3 pen μRT6 = μRT 6 point μRT12 = μRT 12 point </div> <div style="width: 45%;"> μRF1 = μRF 1 pen μRF2 = μRF 2 pen μRF3 = μRF 3 pen μRF4 = μRF 4 pen </div> </div>
< F6 >	Interface; press < F6 > repeatedly to select ComPort (this is the ComPort on your computer to which you have connected the μR recorder, Com 1 through Com 4).
< F7 >	Address; repeatedly press F7 until you reach the address set during the recorder setup procedure.
< F10 > 3 times	Return to Main Menu. The computer is now set up for communications with the μR recorders.
< F4 >	Save setup parameters.

VARILINK™

μRT and μRF Recorders

Display and Data Acquisition Menu

From Main Menu

KEY STROKE	EXPLANATION
< F1 >	Display & Data Acquisition Menu. Setup Data Acquisition Menu will appear.

Set up Data Acquisition

< F1 >	Help
< F2 >	Sampling rate:(seconds)
< F3 >	File name to store data to:(your filename)
< F4 >	File type:
< F5 >	Number of rows in data file: (samples per channel)
< F6 >	Number of columns in data file:(number of channels)
< F8 >	Save All Setup Parameters
< F9 >	Start Main Program(start Display or Data Acquisition)
< F10 >	Prior Menu

Note: Spreadsheet software places a limitation on the number of columns that are available for use in data acquisition. The limit is 250 columns or, as in VARILINK™ 1.4, a total of 250 Channels. When the number of channels to be acquired exceeds 250, VARILINK™ 1.4 will automatically write multiple files to disk to accommodate the excess over the 250 limit. See Example #1 below.

The ability to write multiple files simultaneously could also be used to segregate data as desired. See example #2 below.

Example 1: Selected Device #1 is a HR2500 Hybrid Recorder with 300 channels.
All points to be saved to disk. All other selected devices are set to NA.

Set number of columns to 250, File = TEST
VARILINK™ 1.4 will save information to 2 separate files.
File #1 will be named TESTA00.WK1 (Channels 1-250)
File #2 will be named TESTB00.WK1 (Channels 251-264)

Example 2: Selected Devices 1, 2 and 3 are μR180T Dot models with 12 points
each and 36 points total. All other selected devices are set to NA.

VARILINK™

μRT and μRF Recorders

Set number of columns to 4, File Name = DATUM.
VARILINK™ 1.4 will save information to 3 files.
File Name #1 will be DATUMA00.WK1 (Recorder #1)
File Name #2 will be DATUMB00.WK1 (Recorder #2)
File Name #3 will be DATUMC00.WK1 (Recorder #3)

Example 3: μR100F Pen model with 4 channels. Channels 1 & 2 in one file,
Channels 3 & 4 in a different file. Data sampled every 30 seconds.
Number of samples per point is 1000. File name = TEST.

Note: The maximum number of files that can be created is 14.

KEY STROKE	EXPLANATION
< F1 >	Help screen for Data Acquisition.
< F10 >	To return to Set Up Data Acquisition Menu.
< F2 >	Sampling rate. This setting is in seconds: minimum setting is 2 seconds, maximum setting is 21,600 seconds or 6 hours. This setting determines how often is data saved from the recorder to the file.
30 < Enter >	
< F3 >	File name to store data to: Enter complete path and your own file name with a maximum of 5 characters.
Test < Enter >	
< F4 >	File type - you have 2 choices: .WK1 (Lotus spreadsheet format) or .DIF (Data interchange format). This is accomplished by pressing < F4 > (each time you press < F4 > .WK1 and .DIF will toggle on the screen).
< F5 >	Number of rows in data file; minimum 500, maximum 8,180. This is the total number of samples of each acquired channel to be stored in each file.
1000 < Enter >	1000 samples of each acquired channel will be taken before a new file is created.
< F6 >	Number of columns in data file: minimum 1 column, maximum 250 columns. (Number of columns equals number of channels.)
2 < Enter >	File Name #1 = TESTA00.WK1 (Channels 1 & 2) File Name #2 = TESTB00.WK1 (Channels 3 & 4)
< F8 >	Save All Setup Parameters: this will save the settings < F2 > through < F6 > to the default file for Data Acquisition.
< F9 >	Start Main program. The computer screen will display Testing Communications. Also, at the bottom left of the screen you will observe data being read from the μRT. After approximately one minute, Main Data Menu will appear.

VARILINK™

μRT and μRF Recorders

Main Data Menu

< F1 >	Display Data
< F2 >	Data Acquisition
< F3 >	HR2400 IC Card
< F10 >	Main Menu

Display Data

KEY STROKE	EXPLANATION
-------------------	--------------------

< F1 >	Display data.
< ⑦ > < ⑨ >	To scroll through channels, use these keys.
< Page Up >	
< Page Down >	Scrolls pages of channels.

Note: You may move directly to a given channel by typing that channel's defined tag name.

< F10 >	Return to Main Data Menu.
< F2 >	Data Acquisition. Start/Stop Data Acquisition Menu will appear. At this point in the program, you may change any of the parameters < F2 > through < F6 > described in the Data Acquisition Menu section chapter .
< F1 > or	To start Data Acquisition.
< F10 >	Return to Main Data Menu. If < F1 > was selected
< F1 >	Stop Data Acquisition when Data Acquisition is complete.

Note: The number of samples taken is displayed in the lower left portion of the screen. Also, the name of the current file is displayed to the right of samples taken. Once a file is full, the program will create another file automatically. A maximum of 224 files will be created. However, if disk space is depleted, program will stop.

File creation Example:	File name = Test
Current File:	Test?00 will appear; once this file is full, the current file: Test?01 will appear.

Note: After Data Acquisition is complete, the Menu will return to Start/Stop Data Acquisition. If < F1 > is pressed and the file name has not been changed, a box will appear under < F10 > Prior Menu: Do you want to overwrite the existing files If **Y/N** selected, the current file will be overwritten.

KEY STROKE	EXPLANATION
-------------------	--------------------

< F10 > 2 times	Return to Main Menu.
-----------------	----------------------

VARILINK™
Glossary of Terms

Glossary of Terms

Alarm	An instrument, such as a bell, light, printer or buzzer, that indicates when the value of a variable is out of limits.
Baud Rate	Any of the standard transmission rates for sending or receiving binary coded data. Standard rates are generally between 50 and 19,200 baud.
Configuration	A particular selection of hardware devices or software routines and/or programs that function together.
Constant	A data item that takes as its value its name (hence, its value is fixed during program execution).
Data Acquisition System	A system used for acquiring data from sensors via amplifiers and multiplexers and any necessary analog to digital converters.
DOS	Acronym for disk operating system, commonly used in personal computers.
Handshake	The recognition between two computers that they are able to communicate.
Interpolation	When performing analog recording of data, this function enables data points to be linked by lateral line segments so as to show the continuity of the data.
Partial Recording	An important portion within the measuring range can be expanded and recorded as desired.
Range	The set of values over which measurements can be made without changing the instrument's sensitivity.
Stop Bit	The last bit in an asynchronous serial transmission. Like the start, the stop bit is used for timing control and carries none of the message information.
Zones	The range of input values between selected portions of a chart.