

Guide to Dynaview IIIc

Porcine Associates LLC
244 O'Connor St.
Menlo Park, CA 94025
(650) 326-2669

Revision 2.09 December 12th, 2025

Table of Contents

1 General description.....	1
1.1 How Dynaview III can help your operation.....	1
1.2 What Dynaview III does.....	2
1.3 What a Dynaview III looks like.....	2
1.4 Can an ordinary operator use Dynaview III?.....	2
1.5 What you have to do for installation.....	3
1.6 A note about GPL and GPL'ed software.....	3
2 Installation.....	5
2.1 Overview.....	5
2.2 Power, sensors, and enunciator.....	5
2.2.1 Power.....	5
2.2.2 Web sensors.....	6
2.2.2.1 Mark Sensor.....	6
2.2.2.2 Encoder and Wheel.....	6
2.2.3 Alarms.....	6
2.2.3.1 Outputs.....	6
2.2.3.2 Inputs.....	6
2.2.3.3 Acknowledge input.....	6
2.2.3.4 New roll signal.....	6
2.3 Internal µSD card.....	7
2.3.1 Accessing the report files.....	7
2.3.2 File Maintenance.....	7
2.4 Dynaview configuration.....	7
2.4.1 Setup Reports & Printer.....	8
2.4.1.1 Report line end:.....	8
2.4.1.2 Printer Type:.....	8
2.4.1.3 Printer Lang:.....	8
2.4.1.4 Printer Name:.....	8
2.4.1.5 Lines per page:.....	9
2.4.2 Network address.....	9
2.4.3 Specify Wheel, Encoder.....	9
2.4.3.1 Encoder:.....	10
2.4.3.2 Wheel Type:.....	10
2.4.3.3 Output code:.....	10
2.4.4 Blink Alarms.....	11
2.4.5 Manage recipe store.....	11
2.4.5.1 Choose folder or action.....	12

2.4.6 Set Time, Date.....	12
2.4.7 Output Span.....	12
2.4.8 Quick recipe edit.....	12
2.4.9 Manage Passwords.....	14
2.4.10 Modbus R/W.....	14
3 Using Dynaview.....	15
3.1 Choose a recipe.....	15
3.1.1 Auto Recipe.....	15
3.1.2 Choose Recipe.....	16
3.2 Review Recipe.....	16
3.3 Set up a Job Name for reports.....	16
3.4 Monitor the screen.....	17
3.5 Respond to alarms.....	17
3.6 Start and stop reports.....	17
3.6.1 Start data acquisition.....	17
3.6.2 Trigger a report.....	18
3.6.3 External USB storage.....	18
3.6.4 Printer.....	18
3.6.5 Network.....	19
3.7 'Scope Display.....	19
3.8 Setup.....	19
4 Setup (Recipe and Dynaview Management).....	19
4.1 Job setup (Edit or Create Recipe).....	19
4.1.1 Target length.....	20
4.1.1.1 Target length and units.....	20
4.1.1.2 Range.....	21
4.1.1.3 Smoothing.....	21
4.1.1.4 Min. Resolution and Averaging.....	21
4.1.1.4.1 Force a minimum resolution.....	22
4.1.1.4.2 Average over a fixed number of images.....	22
4.1.1.5 Wheel factor.....	23
4.1.2 Alarms.....	23
4.1.3 Reports.....	24
4.1.3.1 Sampling.....	24
4.1.3.2 Print Text.....	24
4.1.3.3 Print Graphic.....	24
4.1.3.4 Save Data to File.....	24
4.1.4 Mark Sensor (Eye) Settings.....	25
4.1.4.1 Dk. on Lt. (Light or dark background).....	25
4.1.4.2 Gating.....	25
4.1.4.3 'Scope.....	26

4.1.4.4 Teach Eye.....	26
4.1.5 Ext. Span (Span of analog output).....	26
4.1.6 Speed Units:.....	27
4.1.7 Update Rate.....	27
4.1.8 Storing Recipes.....	27
4.1.8.1 Store.....	27
4.1.8.2 Choose a recipe storage location.....	27
4.1.8.3 Recipe name and description.....	28
4.1.8.3.1 Rename recipe.....	28
4.1.8.3.2 Change recipe desc.....	28
4.1.8.3.3 Store Recipe.....	28
4.2 The rest of the setup menu.....	28
4.2.1 Choose Default Recipe.....	29
4.2.2 Backup Recipes.....	29
4.2.2.1 Back up all.....	29
4.2.2.2 Restore all:.....	29
4.2.2.3 Export one to XML:.....	30
4.2.2.4 Import XML from internal: Import XML from USB:.....	30
5 Advanced Installation.....	30
5.1 Binary Outputs.....	31
5.2 Binary Inputs.....	31
5.3 Analog output.....	32
5.4 USD card.....	32
5.5 Mark Sensor Connection.....	32
5.6 Encoder Connection.....	32
5.7 Data and directories.....	33
5.7.1 Recipes.....	33
5.7.2 Other setup data.....	33
5.7.3 Run Length Data.....	33
5.7.4 USB storage Drive.....	33
5.8 Web server.....	34
6 Maintenance.....	35
7 Linux operating system.....	37

Guide to Dynaview III

1 General description

1.1 How Dynaview III can help your operation

Dynaview III keeps track of the length of the images on a web on the fly. It displays and optionally records these lengths for the operator as the roll of material is processed. No longer do you have to stop the web, cut out a sample, and wait for the measurement before you know the exact length of the images that are rolled up ready for the next process.

In some applications it is possible to save the cost of a Dynaview with the first roll of material that is saved from the scrap bin.

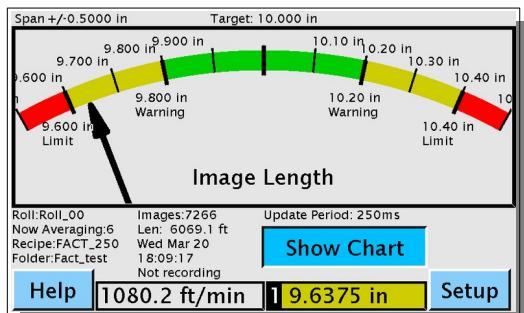


Figure 1 – Main Dynaview Screen, meter view

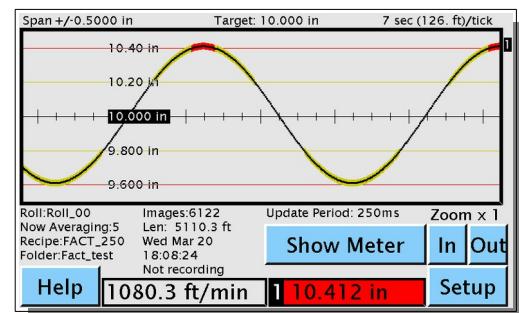


Figure 2 – Main Dynaview Screen, chart view

The operator has a screen that shows simple meter or a scrolling graph of the last few minutes of image length. It displays the exact length as well as any trend toward longer or shorter. In the chart view the operator can zoom in and out to show less or more data. The operator can also switch to an historical chart view where it is possible to review about the last 1½ hours of data.

You can set limit and warning alarms on the image length. Target length and alarms are part of a job setup and can be retained in a named recipe. The Dynaview stores recipes in a two level directory structure.

Data is organized by job and by roll. Dynaview can optionally print a one-page graph of deviation from target length vs. footage for each roll processed. It can optionally print or save the raw data for each roll as well. Data can be stored locally on a USB storage device and can be made available over a network. Storage options are part of a recipe and so are stored along with target length, alarm levels, etc.

Dynaview includes a simple web server, so the current image length, web speed, job description, and roll number information is available to any web browser with appropriate permissions.

Dynaview has an analog output, where the output value is proportional to deviation from target length.

Recipe files are in XML format so they can be remotely maintained.

Dynaview can act as a peripheral to your factory information system. As an option, Dynaview can be a Modbus TCP or an OPC-UA server. Dynaview exposes all of its sensor data via either server. The Modbus TCP can in addition act as a recipe manager.

1.2 What Dynaview III does

Dynaview keeps track of image length using a mark sensor and a rotary encoder with a wheel. Dynaview constantly processes these signals to generate the display for the operator and the required reports. It updates the display at regular intervals, the default is every ½ second.

1.3 What a Dynaview III looks like



Illustration 1: Dynaview w/optional alarm tower

A Dynaview is enclosed in a steel housing 300mm wide x150mm tall x120mm deep (approx. 12" x 6" x 4.75"). There is a color touch sensitive screen on the face of the enclosure. The screen is approximately 94mm x 155mm (3.62"x6") and is backlit. All operator interaction is via the touch screen. A mouse or trackball can be used as well. All the connections are made on the bottom of the enclosure.

1.4 Can an ordinary operator use Dynaview III?

Dynaview includes several features that make it easy to use. Some of these are:

- Intuitive touch screen input.
All controls are via the touch screen. Large buttons make the screens easy to navigate.
- Logical arrangement of screens.
Dynaview III is the descendant of Dynaview II and incorporates the experience that Porcine Associates LLC has accumulated with the previous model.
- Context-sensitive help screens.
Every screen has a help button that displays information on that specific screen.

- Special mark sensor setup screen.
The operator can view the signal from the mark sensor on a special oscilloscope-like display. In this way the sensitivity and the orientation of the mark sensor can be easily adjusted.
- Memorized setups (recipes).
Once a setup is made for a particular job it can be memorized. Later when the job is run again the setup can be recalled with just a few touches on the screen.
Recipes are kept in a two-level hierarchy. At the first level there is a named folder, then within that folder there are named recipes.

1.5 What you have to do for installation

The Dynaview enclosure must be mounted where the operator can view and use the touch screen.

Signals and power for the mark sensor and wheel are attached using industry-standard connectors that are supplied. The Dynaview requires 24VDC power, and a suitable 24V external power supply is also supplied. If 24VDC is available, the external power supply is not required.

All connections are located on the bottom panel of the enclosure. The mark sensor and encoder are attached via M12-style connectors. Porcine Associates LLC offers an optional alarm light and sound tower that can mount on the top of the enclosure.

Several features of the Dynaview are only available if the Dynaview is connected to a local area network. There is an RJ45 100baseT connector for this purpose. If printing is desired, a suitable printer must be available. Either a local USB printer or a network printer will work. The Dynaview can support a wireless 802.11b or 802.11g network connection via an external bridge.

1.6 A note about GPL and GPL'ed software

Dynaview III uses several software packages that are licensed under the GNU-GPL. Under the terms of that license a copy of the license plus the sources to all GPL'ed packages used are available from Porcine Associates LLC on request. Please note that the main Dynaview application is *not* licensed under the GPL, only several helper applications including the Linux operating system.

2 Installation

2.1 Overview

At the top level, Dynaview III is designed to be a stand-alone repeat-length measurement instrument. No knowledge of Linux or networking is required for the core features of the Dynaview III. These features include:

- Display of the current image length and recent history
- Maintenance of recipes
- Announcement and acknowledgment of alarms
- Saved data on a USB memory device
- Printed and graphed data
- Use of the analog output
- Connection to a local area network

Other more advance features require some knowledge of networking and Unix (Linux). Support for other than the core features listed above is available from Porcine Associates LLC on a time and materials basis.

2.2 Power, sensors, and enunciator



Illustration 2: Dynaview I/O panel

2.2.1 Power

Dynaview comes with an external 24VDC power supply that runs from 100–240VAC, 50–60Hz. If 24V is available you can dispense with the external supply and use the 24V directly.

2.2.2 Web sensors

Dynaview uses a mark sensor (eye) to sense images, and a rotary encoder with a wheel to sense length and speed. Normally both are installed close together in a low-tension zone just before the web is wound up. A suitable mark sensor, wheel and encoder are included with the Dynaview package. These two sensors plug into M12-style connectors on the lower side panel of the Dynaview. They are keyed differently so cannot be inserted incorrectly.

2.2.2.1 Mark Sensor

Ideally the mark sensor should monitor a clear path where there is only one feature per image length. Often there is an eye mark expressly for this purpose. The Dynaview can gate the mark sensor if this is not the case.

The mark sensor must be mounted in the correct orientation relative to the movement of the web and at the correct distance from the web. Consult the installation instructions that come with the mark sensor.

2.2.2.2 Encoder and Wheel

The wheel must track the web speed. Normally it runs on the web near the location of the mark sensor. Watch closely that the wheel is aligned with the movement of the web. Sometimes you can run the wheel on an idler roll, but often these rolls do not move at web speed as there can be a layer of air separating the web and the idler.

2.2.3 Alarms

2.2.3.1 Outputs

Alarms are always indicated on the screen with a red or yellow blinking background. Dynaview optionally includes a light and audible alarm tower already wired. If you want to use an external alarm, two open-drain, switch-to-ground outputs are available. See “5.1 Binary Outputs” in the *Advanced Installation* on page 31 below.

2.2.3.2 Inputs

2.2.3.3 Acknowledge input

The operator can always acknowledge and silence an alarm by touching the Dynaview screen. If you wish to use an additional alarm acknowledgment button, an input is available. See “5.2 Binary Inputs” in the *Advanced Installation* on page 31 below.

2.2.3.4 New roll signal

Dynaview needs to know when a roll has been completed in order to generate a roll report. The operator can signal this to the Dynaview by using the touch screen, or you can wire in a binary signal from the process. See “5.2 Binary Inputs” in the *Advanced Installation* section on page 31 below.

Porcine Associates offers an optional pre-wired button pendant for the above two signals.

2.3 Internal µSD card

A µSD card is installed inside the Dynaview case that will store all reports indefinitely. The last ten reports are retained in a RAM disk as well. These ten are available until the Dynaview is turned off. For the location of this card, see “µSD card” in the Advanced Installation section on page 32 below.

2.3.1 Accessing the report files

The RAM drive and the internal SD card drive's contents are exposed via the Dynaview's ftp server. You can see, copy and delete the files using a browser or an FTP client. It will show up as a sub-directory from the standard ftp directory (“<ftp://<network address>/pub/>”), where “network address” is the address of the Dynaview. This could be an address in dotted notation (192.168.0.134 as an example) or the name of the Dynaview (Dynaview-910060) depending on if you have a name server on the subnet. Ask your IT person about this. The current Dynaview address in dotted notation is shown on the About Dynaview screen (Touch “Setup” on the main screen, then touch “About”).

The URL of the root directory of the SD internal drive is “<ftp://<network address>/pub/data>”. Reports are organized by folder and recipe. If you have a folder called “Acme” and a recipe called “Pack04”, the reports created by this recipe will be found at: “<ftp://<network address>/pub/usb/Acme/Pack04>”. File and folder names are case sensitive.

2.3.2 File Maintenance

Eventually (or a regular intervals) the internal drive will have to be cleaned up to delete stale report files. You can do this with the FTP server or by removing the SD card and doing the maintenance on a PC running Microsoft Windows or Mac running iOS.

2.4 Dynaview configuration

Once the Dynaview is installed physically, some setup of the Dynaview application must be done.

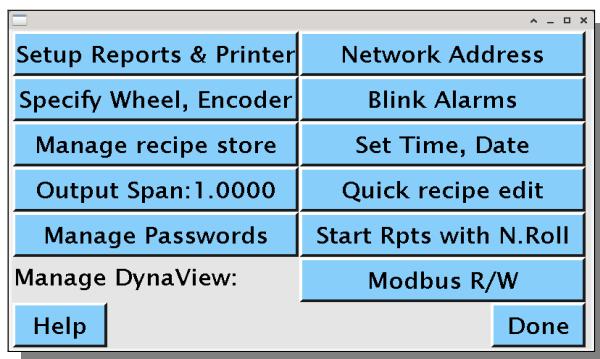


Figure 3: Manage Dynaview screen

From the top-level screen (see Figure 14 – Main Dynaview Screen, meter view on page 15) touch “Setup|Setup|Setup Dynaview”. If operator passwords are enabled there will be an intermediate screen asking for the password. Read more about passwords in section 2.4.9, Manage Passwords.

The *Manage Dynaview* screen will appear as shown at left. Each button on this screen is discussed in a paragraph below.

2.4.1 Setup Reports & Printer

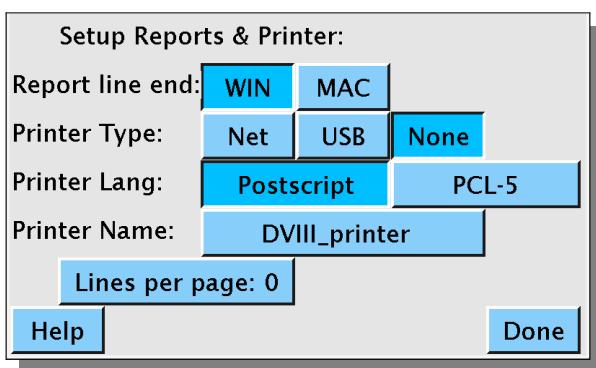


Figure 4: Setup Printer Screen

From the “Manage Dynaview” (Fig 3) screen, touch the "Setup Reports & Printer" button to display the screen at left.

Note that Dynaview requires a printer to understand either Postscript or PCL-5 printer languages. A dumb printer (so-called WinPrinter) will not work.

2.4.1.1 Report line end:

The Dynaview produces ASCII text reports. There are two common standards for indicating the end of a line of text. DOS and Windows have traditionally used a carriage return and line feed pair (CRLF) of characters. Macintosh and Unix (Linux) have traditionally use a single line feed (newline) character.

If your reports appear double spaced, choose MAC. If your reports over print everything on a single line, choose WIN.

2.4.1.2 Printer Type:

Here you tell Dynaview if a printer is attached and what type of printer it is. The first line lets you specify a network printer, a USB printer, or no printer installed.

2.4.1.3 Printer Lang:

Dynaview can use either a Postscript printer or a PCL-5 or later printer. Specify which type is installed here.

2.4.1.4 Printer Name:

If a network printer is installed, Dynaview must be able to find the printer on the network. Specify either the network address in dotted notation or the network printer name. If your network does not have a name server installed you will have to specify the name in dotted notation, i.e. a name similar to 192.168.0.77. Touch the button with the printer name on it to change it.

2.4.1.5 Lines per page:

In order for pagination to work correctly for text reports, specify the number of text lines per page here. You may have to determine this empirically. If your reports include too much white space at the bottom of each page, increase the number of lines per page. If your reports print only one or two lines of text on every other page, decrease the number of lines per page. Specifying 0 results in Dynaview using its best guess based on the other settings. 66 lines per page is a good starting point if you need to specify this manually.

2.4.2 Network address

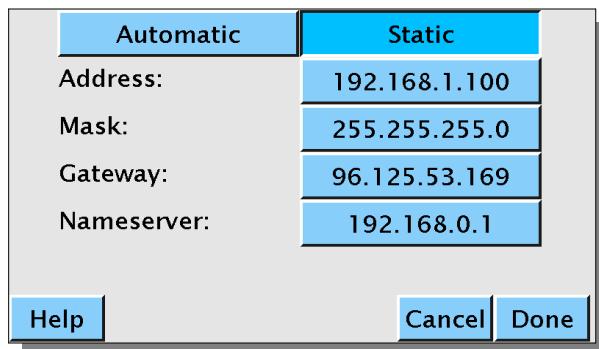


Figure 5: Specify network address screen

From the “Manage Dynaview” (Fig 3) screen, touch the "Network Address" button to display the screen at left.

A Dynaview is set up from the factory to get its network address automatically. The *Automatic* button is highlighted and none of the other fields are present. For this to work your network must have a server to supply addresses to clients (a DHCP server).

To give your Dynaview a static address, touch *Static*. The static address fields will appear as shown in Fig 5 above. Set the addresses as appropriate.

When finished touch *Done*, wait a couple of seconds, then turn the Dynaview off and on.

2.4.3 Specify Wheel, Encoder

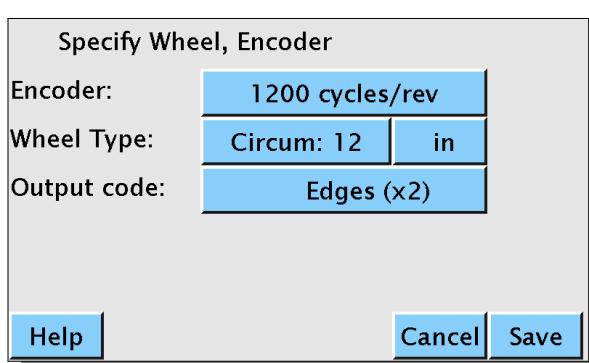


Figure 6: Specify Wheel, Encoder screen

From the “Manage Dynaview” (Fig 3) screen, touch "Specify Wheel, Encoder" button to display the Figure 16: Folder View Screen at left. Each button is explained in a paragraph below.

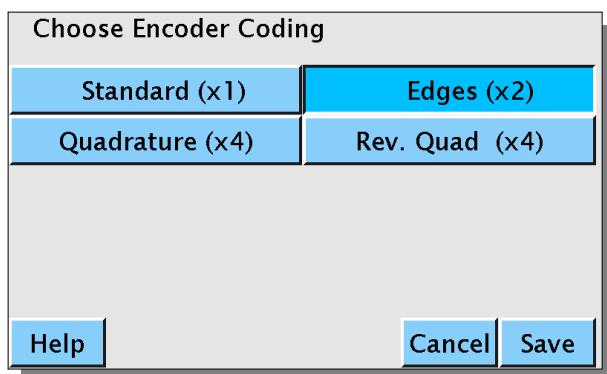
2.4.3.1 Encoder:

Refer to Fig. 6. Touch the button on the line with *Encoder*: label to specify the pulses per revolution of the attached encoder. Another screen will pop up to let you set the number. The encoder that comes with a Dynaview has 1200 pulses/revolution.

2.4.3.2 Wheel Type:

Refer to Fig. 6. Touch the buttons on the line with the *Wheel Type*: label to set the wheel circumference and the units used to measure that circumference. The wheel that comes with a Dynaview has a circumference of 12 inches.

2.4.3.3 Output code:



Refer to Fig. 6. Encoders can be single output or quadrature output. Touch *Output code*: to bring up the screen at left.

Figure 7: Choose Encoder Coding

The choices are as follows:

Standard (x1)	Use single output encoder and count pulses
Edges (x2)	Use single output encoder and count edges
Quadrature (x4)	Use quadrature encoder, normal direction
Rev. Quad (x4)	Use quadrature encoder, reverse direction

If you have a standard, single output encoder, the first option (Standard, count pulses) will yield the number of pulses per revolution as published by the encoder maker. For example, a 1200 count/revolution encoder will yield 1200 counts/revolution. Couple this with the standard 12" circumference wheel and the result is one count per 0.01 inch (0.254mm). This will be the native resolution.

The second option (Edges, count edges) will double the effective counts. For example, a 1200 pulse/revolution encoder will yield 2400 counts/revolution. Couple this with the standard wheel and the result is one count per 0.005" (0.127mm). This then becomes the native resolution.

The third option (Quadrature) assumes that you have a real quadrature encoder attached. It will yield 4x the published encoder resolution. For example, a 600 pulse/revolution quadrature encoder will yield 2400 counts/revolution. Couple this with the standard wheel and the result is one count per 0.005" (0.127mm). This then becomes the native resolution.

The fourth option (Rev. Quad) is the same as the third except that it reverses the direction coming from the quadrature encoder. A quadrature encoder encodes direction as well as length. However, a Dynaview doesn't understand negative direction, so if the two wires from the quadrature encoder are set for negative direction, this will fix it for the Dynaview.

2.4.4 Blink Alarms

Refer to Figure 3: Manage Dynaview screen on page 7. The Blink Alarms button is a toggle. When highlighted the warning and limit binary outputs will pulse at a one second rate. If not highlighted the outputs are steady on or off. If you have a light tower attached to the output the light will blink to attract more attention when this toggle is set.

2.4.5 Manage recipe store

Refer to Figure 3: Manage Dynaview screen on page 7. Selecting the "Manage recipe store" button will open a series of screens where you can rename or delete recipes and recipe folders. The first screen is Figure 8: Choose Folder to select, rename or delete below.

Each recipe and each folder has a short name (9 characters maximum) and a long description (40 characters maximum). You can change both short and long names for any recipe or folder. Deletion is permanent, once deleted any recipe or folder cannot be recovered. You must first delete all recipes in a folder before you can delete that folder. It is highly recommended that you back up your recipes before doing any deletions. See section 4.2.2 Backup Recipes on page 29.

2.4.5.1 Choose folder or action

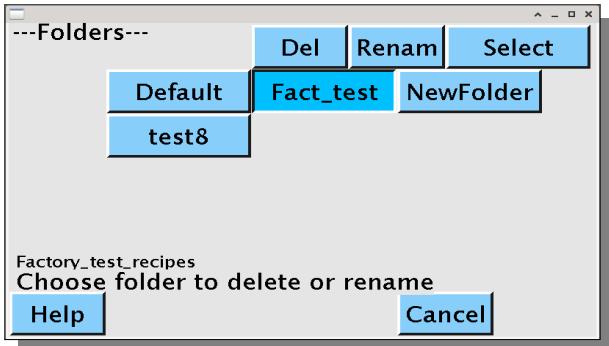


Figure 8: Choose Folder to select, rename or delete

Action buttons are “Del” and “Renam” only. Actions on recipes are the same as those on folders, where you can delete the recipe or change its long and/or short name. Recall that deletion is final.

2.4.6 Set Time, Date

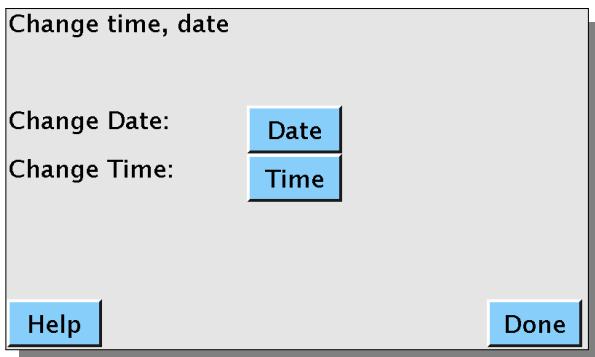


Figure 9: Change time, date screen

Refer to Figure 3: Manage Dynaview screen on page 7. Touch the "Set Time, Date" button to display the screen at left.

This screen allows you to change the time and date that is used on the screen and in reports. Once set, the time and date are retained by a battery whenever the Dynaview is turned off.

2.4.7 Output Span

Refer to Figure 3: Manage Dynaview screen on page 7. Output span is a gain calibration setting for the analog output. If you find that the center value of the output is not exactly 12ma when the repeat length is on target you can calibrate it here. The output value is simply multiplied by the number specified here. It must be in the range of 0.9 to 1.1. Touch the button to bring up a screen to change the value.

2.4.8 Quick recipe edit

This button is a toggle – if highlighted, the Quick Change Recipe screen button “QR” is made available on the Dynaview main screen. See Figure 10: Main screen with QR below. The same button will appear on the meter view screen. Touch the QR button to bring up the screen as described below.

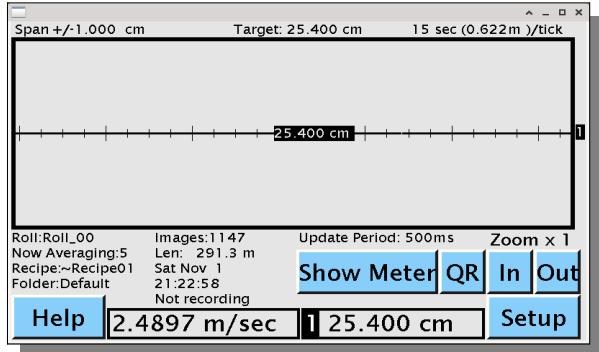


Figure 10: Main screen with QR

target image length.

All the buttons that control alarm levels behave exactly as the buttons on the Enable, Set Alarms Screen (lengths) screen as shown in section 4.1.2 Alarms on page 23. The three radio button that determine the format of the values are also the same.

The “Range” button allows the operator to set the chart height and meter width. Note that it follows the same formatting convention as the alarm level – absolute, percent or delta.

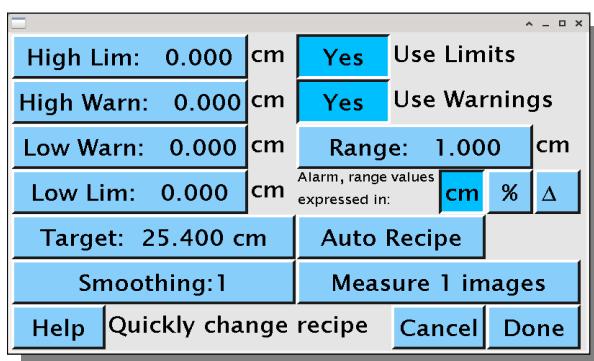


Figure 11: Quick change recipe screen

enable alarms and set them to what is required.

The “Cancel” button returns the Dynaview to the the main screen discarding any changes made. The “Done” button installs all changes into the current recipe and then returns to the main screen.

The Quick Change Recipe screen (See Figure 11 below) allows an operator to immediately change several recipe parameters without having to navigate though all the recipe edit screens. (For the normal recipe editing method, see section 4.1 Job setup (Edit or Create Recipe) on page 19 below). Quick Edit is a powerful feature if your jobs are short and/or you don’t need to maintain a memorized list of job setups.

The “Target” button allows the operator to directly set the target image length value. The units used are the same as the underlying recipe. Set this before you set alarm levels as they will not automatically track

Similarly, the “Smoothing” button allow the operator to set the current smoothing value. See section 4.1.1.3 on page 21 below for an explanation of smoothing.

The “Measure ‘n’ images” button allows the operator to set the Dynaview to measure and report over ‘n’ images. Set it to 1 to make sampling automatic. See section 4.1.1.4.2 on page 22 below for an explanation.

When touched, the “Auto Recipe” button sets the target image length to the image length that is currently sensed by the Dynaview. It disables both limit and warning alarms. The operator can then re-enable alarms and set them to what is required.

2.4.9 Manage Passwords

Refer to Figure 3: Manage Dynaview screen on page 7. Dynaview has an optional two-level password system. These passwords are separate from the username and password system employed by the underlying operating system. Within Dynaview, if you enable passwords, an operator without a password is prevented from reaching certain setup screens. By default, the operator can only set up Dynaview by choosing an existing recipe. Dynaview will prompt for the operator's password to get into the setup menus that allow manual setup or editing recipes. As an option the password barrier can be moved to protect only the Dynaview setup screens. This will let any operator edit and store recipes as well as backup and restore the recipe database.

Touch the "Manage Passwords" button to change passwords and enable/disable passwords. A supervisor password is required, enter the supervisor password and touch OK. The following screen will appear.

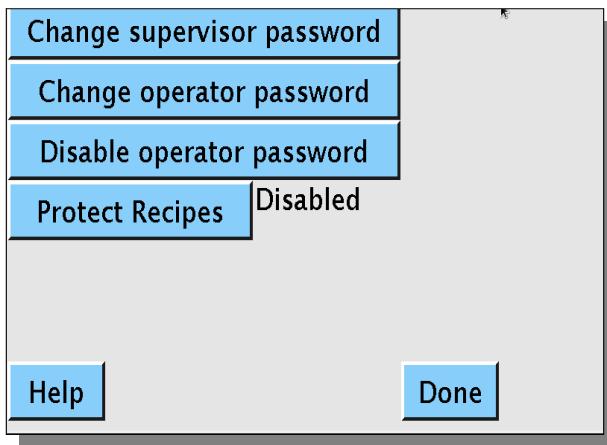


Figure 12: Change Passwords screen

If operator passwords are currently disabled, the third line will read "Enable operator password" and the second line will be missing. Touch the buttons as appropriate to what needs to be done. If you touch one of the *Change password* buttons, you will be prompted to enter the new password twice.

The forth line is a toggle. If *Protect Recipes* is enabled, Dynaview requires the operator to enter a password to reach the Setup screen as shown in Figure 15: Job control screen on page 15. This means that without a password an operator can only configure the Dynaview by choosing an existing recipe.

If *Protect Recipes* is disabled, the password barrier is moved to only protect the Manage Dynaview screen as shown in Figure 3: Manage Dynaview screen on page 7. Anyone can edit and store recipes plus save and restore the recipe database.

2.4.10 Modbus R/W

Refer to Figure 3: Manage Dynaview screen on page 7. The Modbus R/W button only appears if the Modbus TCP option is installed. If this button is not highlighted, the Dynaview Modbus server is read-only. Modbus clients can read data and recipes but cannot make changes to the Dynaview except to acknowledge alarms and signal a new roll.

If this button is highlighted, the Dynaview Modbus server is read/write. All recipe management is relegated to the Modbus client. A local operator cannot change the active recipe from the Dynaview screen. The Choose Recipe and Auto Recipe buttons do not appear on the Job Control Screen (see Figure 15: Job control screen below).

A Modbus client can change the state of this button remotely.

3 Using Dynaview

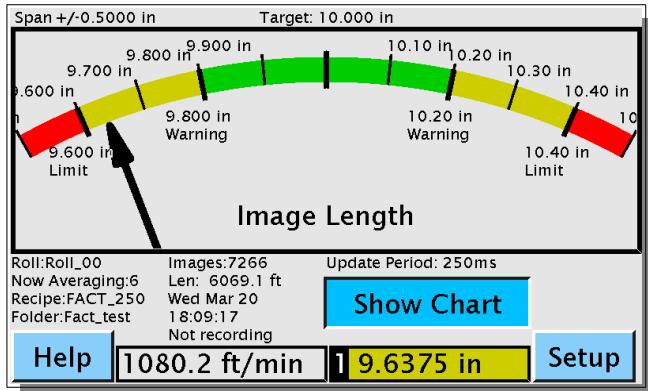


Figure 14 – Main Dynaview Screen, meter view

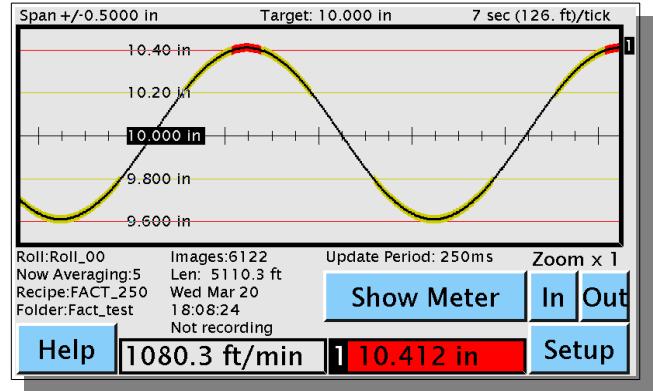


Figure 13 – Main Dynaview Screen, chart view

When you first turn on a Dynaview, it loads the default recipe.

This section assumes that an appropriate recipe already exists or that the operator selects “Auto Recipe” as shown below. See the following section (section 4.1, Job setup (Edit or Create Recipe)) on page 19 for instruction on how to specify recipes.

3.1 Choose a recipe

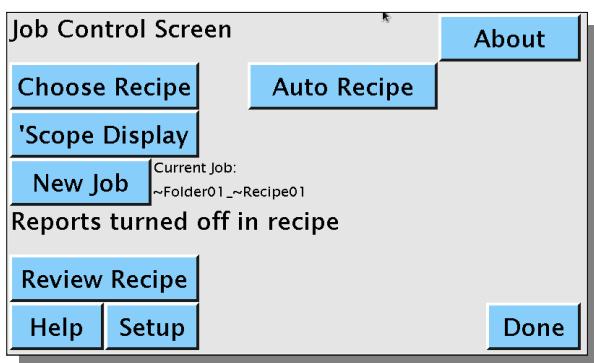


Figure 15: Job control screen

If the Modbus TCP option is installed and the Modbus R/W toggle is set, all recipe management is relegated to the Modbus client. This section does not apply as recipes are put in place via the Modbus interface. Skip to the next section.

Touch “Setup” at the bottom of the main screen (Fig. 13 or Fig. 14 above). The Job Control Screen (Fig. 15 at left) will appear. The top line has two buttons, “Choose Recipe” and “Auto Recipe”.

3.1.1 Auto Recipe

This button sizes the chart or meter on the main screen to show the current length at the center. It disables alarms and reports. Dynaview uses the current length as the recipe.

3.1.2 Choose Recipe

Touch this button to select an existing recipe. Dynaview will display a screen showing folders.

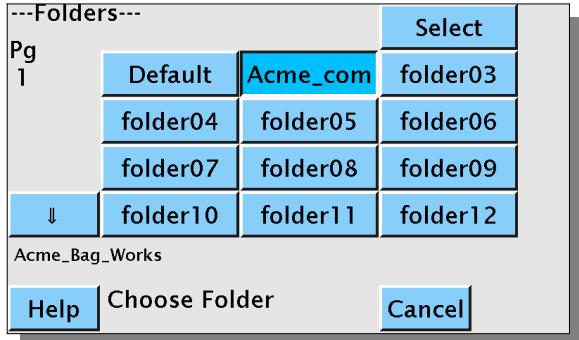


Figure 16: Folder View Screen

Recipes are organized into folders, each of which can hold many recipes. Use the arrow keys at the left of the screen to navigate to all folders. Touch a folder name to highlight it. Note that the long folder description for the highlighted folder is shown at the bottom of the screen. The default folder description is “No description yet”, so this is what you see.

When you have highlighted a folder, touch “Select” at the top of the screen. Dynaview will now show you the contents of the selected folder as shown at left in Figure 17: Recipe Select Screen.

This screen is similar to the folder-select screen except that it displays recipe names within the selected folder instead of folder names. The selected folder name is shown at the top of the screen. Use the arrow keys on the left to navigate to all recipe names. Touch a recipe name to highlight it. Note that the long recipe description for the highlighted recipe is shown on the bottom of the screen. The default recipe description is “Description here”, so that may be what you see.

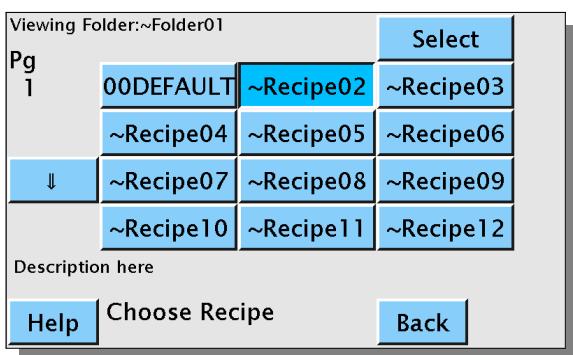


Figure 17: Recipe Select Screen

the top screen.

3.2 Review Recipe

Refer to Figure 15: Job control screen on page 15. Touch “Review Recipe” to display a set of screens that show the current recipe settings.

3.3 Set up a Job Name for reports

Refer to Figure 15: Job control screen on page 15. Job names are printed at the top of all reports. The default job name is the folder name followed by an underscore followed by the recipe name. (“~folderxx_~recipexx”). If you’d like to customize a job name, touch “New Job”. Dynaview will display a keyboard where you can enter the new name.

Text reports always include both the long and short names of both the recipe and the folder.

3.4 Monitor the screen

Refer to Figure 14 – Main Dynaview Screen, meter view or Figure 13 – Main Dynaview Screen, chart view on page 15 above to see examples of the normal Dynaview display. When the chart line or the meter is in the center, the measured image length matches the target image length. Both meter and chart indicate limits by color. Below the meter or chart is a text area where the name of the current recipe and other parameters are shown. At the bottom is a banner that shows the current web speed and current image length in large characters.

3.5 Respond to alarms

Acknowledge an alarm to silence it. Touch the screen anywhere to acknowledge and silence an alarm. An external push button can be installed to acknowledge alarms as well. Dynaview offers an optional button box on a tether to acknowledge an alarm.

3.6 Start and stop reports

Setting up a data report is a three step process:

1. Enable reports in the recipe that is in use.
2. Start the report data acquisition
3. Generate the report by either stopping data acquisition or signaling a new roll.

Figure 18: Job control reports off screen

As long as there is no data acquisition in progress, the “Data” field on the Main screen (see Fig. 13 or Fig 14 above) will say “Not recording”. If the current recipe does not have reports enabled, the Job control screen looks like Figure 18: Job control reports off screen at left. If reports are enabled but data acquisition has not yet been started, the Job control screen looks like Figure 19: Job control reports enabled screen below. Recall that you get to the Job Control Screen by touching “Setup” on

either of the main screens.

3.6.1 Start data acquisition

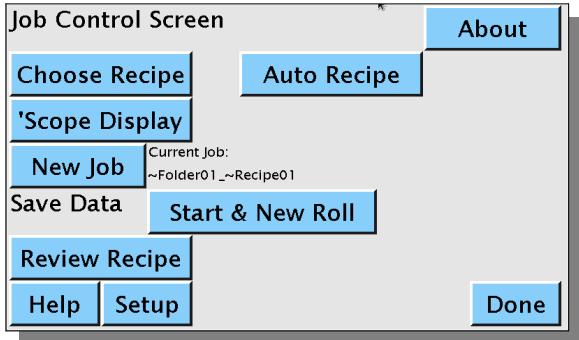


Figure 19: Job control reports enabled screen

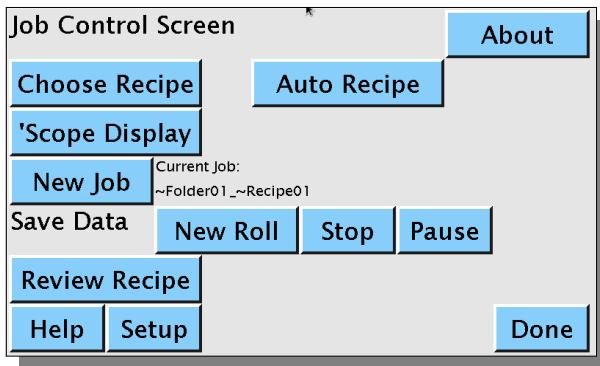


Figure 20: Job control reports running screen

3.6.2 Trigger a report

Trigger a report by touching either the “New Roll” or the “Stop” button. After the report is triggered, the Dynaview translates the compact data file to the text report and prints and/or saves the result. If the operator touched “New Roll” to trigger the report, the roll name is incremented and data acquisition restarts immediately.

Note that there is a roll counter on the main screen in the text area. It is reset to 1 any time a new recipe is selected. Dynaview offers an optional button box on a tether to increment the roll number and trigger a report.

3.6.3 External USB storage

If a USB storage device is plugged into a Dynaview and the current recipe calls for retaining files, reports are copied to the root directory of the USB storage.

3.6.4 Printer

If a printer is installed and the recipe calls for printed reports a report set is printed at the completion of each roll.

Touch “Start & New Roll” to start data acquisition. The Dynaview puts up a screen so you can change the roll name from the default “Roll_xx” where “xx” is a number. As long as the roll name ends with a number, this number will increment every time you start a new report. Either enter a new name, or simply touch OK to accept the default name and start data acquisition. The Job control screen will change to Figure 20: Job control reports running screen below.

Once data acquisition is started, a Dynaview acquires and memorizes the report data in a compact but invisible file. The “Data” field on the Main Screen changes to “Recording”.

When in this state, the operator can pause and restart data acquisition without triggering a report. When paused, the “Data” field on the Main Screen changes to “Paused”

3.6.5 Network

If the recipe calls for retaining data files, reports are copied internally to two places: 1) data for the last 10 rolls is retained on a RAM drive and 2) data is permanently stored on an internal SD card. The RAM drive is erased when the Dynaview is turned off.

The RAM drive is exposed via FTP with address "ftp://<network address>/pub/".

The contents of the SD card is also exposed via FTP, but with the root address of "ftp://<network address>/pub/data/". Reports are found with the path: "ftp://<network address>/pub/data/<foldername>/<recipename>/<reportname>". See section 2.3 Internal µSD card on page 7 above.

Recall that if a USB drive is plugged into the Dynaview, reports are copied there as well.

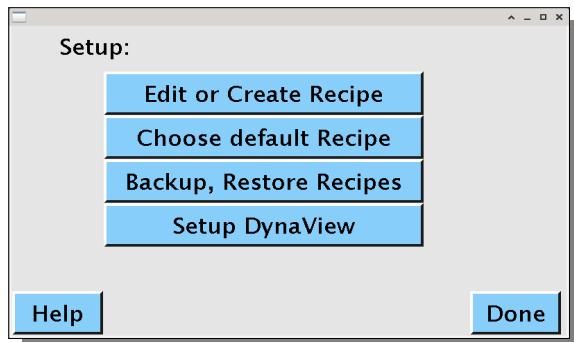
3.7 'Scope Display

This button on the Job Control Screen opens the mark sensor setup dialog. See section 4.1.4.3 'Scope on page 26. This dialog allows easy adjustments of the mark sensor and mark sensor gating using an oscilloscope-like display.

3.8 Setup

The last button is Setup. This button opens screens for recipe and Dynaview management, which are discussed in the next section. Depending on how password management has be set up, there may be a password screen that asks for the operator password in order to access the recipe and Dynaview management screens.

4 Setup (Recipe and Dynaview Management)



This screen leads to all the recipe management and further Dynaview management screens. Each button is discussed below.

Figure 21: Recipe and Dynaview management

4.1 Job setup (Edit or Create Recipe)

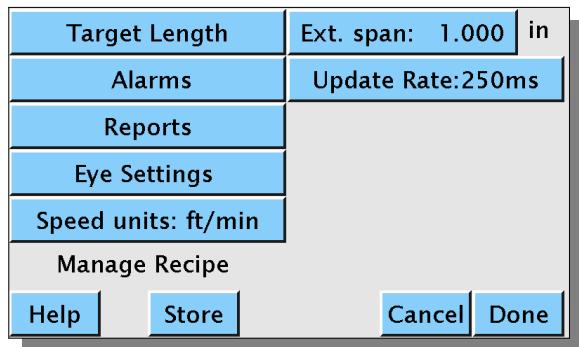


Figure 22: Edit or Create Recipe Screen

From the main screen, touch “Setup|Setup>Edit or Recipes”. If operator passwords are enabled (see section 2.4.9 Manage Passwords on page 14), an intermediate screen will pop up asking for the password.

Here is where you set the desired target length and several other parameters. Everything is preloaded with the current recipe. When finished, you can simply return to the main screen with the new setup in place, or you can store the setup as a named recipe and then return to the main screen. Each button on the screen is explained in an item below.

4.1.1 Target length

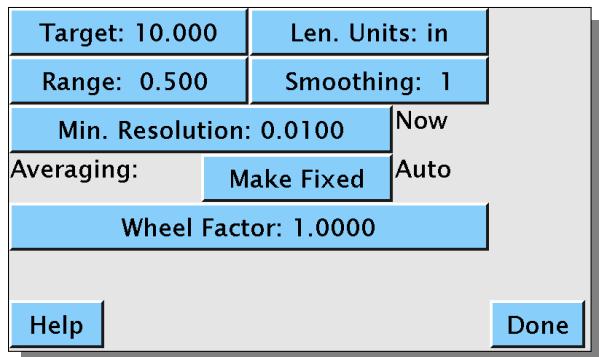


Figure 23: Target Length Screen

Refer to Figure 22: Edit or Create Recipe Screen above. The "Target Length" button opens a new screen with several selections on it pertaining to target length, smoothing and averaging.

4.1.1.1 Target length and units

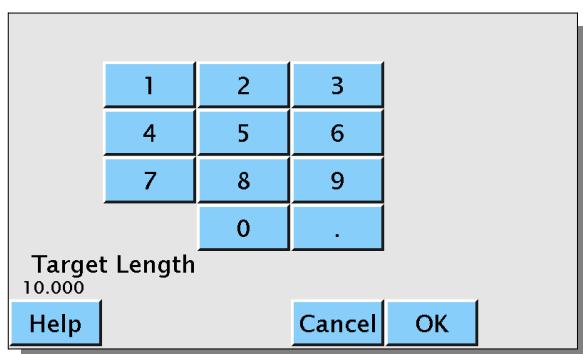


Figure 24: Enter Target Length Screen

Touch these buttons to specify the target length and the unit of measurement. Any time Dynaview needs a number from the operator it will display a numerical keypad similar to Figure 24: Enter Target Length Screen at left.

Whenever Dynaview needs the operator to choose an item from a list it will display a screen similar to Figure 25: Pick Units Screen below.

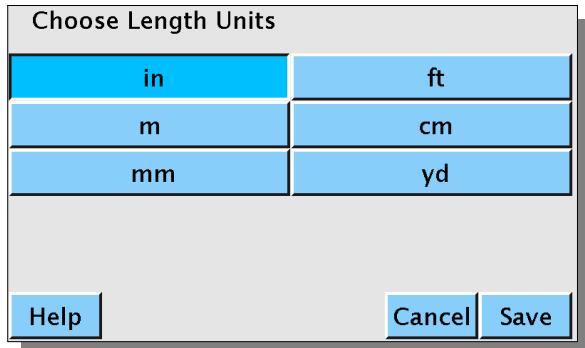


Figure 25: Pick Units Screen

4.1.1.2 Range

Refer to Figure 23: Target Length Screen. Range is the width of the chart or meter that is shown on the screen. As an example, if you have a 10" repeat you may want to show the range of 9.5" to 10.5" on the screen for the operator. In this case the range is ± 0.5 " or 0.5. Touch the *Range* button to specify the default range for this recipe. The operator can change the range from the default by swiping up or down on the screen.

4.1.1.3 Smoothing

Refer to Figure 23: Target Length Screen. Values from the hardware can be smoothed in software using a simple boxcar average. Touch the "Smoothing" button, then enter the number of values to smooth. As an example, if you enter 20, for each new sample the last twenty samples are added together and then the result divided by 20 and shown as a result.

4.1.1.4 Min. Resolution and Averaging

These settings affect the way the data is transferred between the real-time processor on the I/O board and the processor that manages the display and reports. Recall that data is moved between the I/O processor and the display processor at a periodic rate, usually 500ms. The actual rate is set in the recipe, see paragraph 4.1.7 Update Rate on page 27.

With the default setting (min. resolution 0.05" (0.127mm) and Averaging Auto), the I/O processor accumulates the total length of all images that run under the mark sensor in each update period, divides by the number of images, and reports this to the display processor. As the web speeds up the number of images that flow under the mark sensor during the update period will increase. This number is shown on the main screen as "Now Averaging: xx". Note that with this method, resolution is dynamic. If the web is moving slowly so that only one image passes the mark sensor in the update period, the resolution will be 0.005" (0.127mm). As the web speeds up and more than one image moves under the mark sensor in the update period, the resolution will be multiplied by this number of images. For example, if the update period is set to 500ms, and two images move by in that 500ms, the I/O processor

will measure over the two images with 0.005" accuracy. It then divides this number by two, yielding an accuracy of 0.0025" (0.063mm).

You can change this default method. There are at least two reasons that you might want to do this. One is that you want to force a minimum resolution no matter how slowly the web is moving. Another is that you always want to average over some number of images. This is common with a central impression press where you want to average over one revolution of the press.

4.1.1.4.1 Force a minimum resolution

If you want to always force a higher resolution than 0.005" (0.127mm) you can tell the I/O processor to always average over at least some number of images, no matter how slowly the web is moving. You do this by specifying a minimum resolution. Dynaview divides the native resolution (0.005") by the resolution you specify to find the minimum number of images that it needs to average. If images are short and/or web speed is high, the number of images that pass the mark sensor in an update period may be greater than the minimum, so the I/O processor reverts to the default of averaging over all images for that period.

This is OK for short images or high web speeds, but if the web is moving slowly and/or the images are long the sampling rate can increase dramatically over the number set in the recipe. As an example consider that a web is moving at one foot per minute, the image is one foot long, and you ask for 0.0005" resolution. Here the I/O board will average over ten images which will take ten minutes. The image processor will get a new sample only every ten minutes. Admittedly this is an extreme example, but you get the idea - it will look like the Dynaview is broken.

To change the minimum resolution touch the "Min. Resolution" button to enter a manual value.

4.1.1.4.2 Average over a fixed number of images

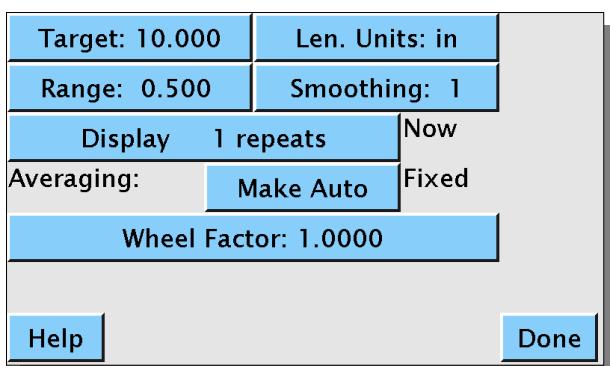


Figure 26: Image Length, Fixed Avg. Screen

There is another scenario where you might want to change the default setting. If you have a central impression press and you want to always sample over one complete revolution of the press. This is a way that you can avoid any plate-to-plate distance irregularities. As an example, if you have a five plate press, you can tell the I/O processor to always average over a multiple of five images. As the web speeds up it will average over 5, then 10, then 15, etc.

To do this choose "Make Fixed" for averaging. Dynaview changes the display slightly as shown at left in Figure 26: Image Length, Fixed Avg.

Screen.

Now touch the *Display xx repeats* button and enter the actual number of images over which to sum. When you have this option in effect, the bottom banner of the top-level window alternates between showing the length and the number of images that are summed.

Note that the Min. Resolution option and the Averaging option are mutually exclusive.

4.1.1.5 Wheel factor

Refer to Figure 23: Target Length Screen above. Here you can supply a fudge factor for the length. This is typically used to compensate for wheel tire wear (changing the circumference) or slip between the wheel and the web. All lengths are multiplied by the wheel factor. It is always very close to 1.00. Touch the "Wheel Factor" button to change the value.

4.1.2 Alarms

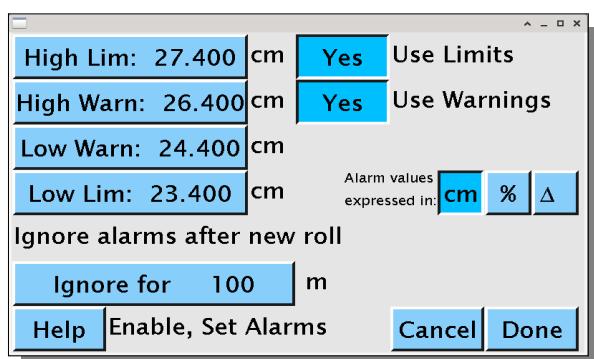


Figure 27: Enable, Set Alarms Screen (lengths)

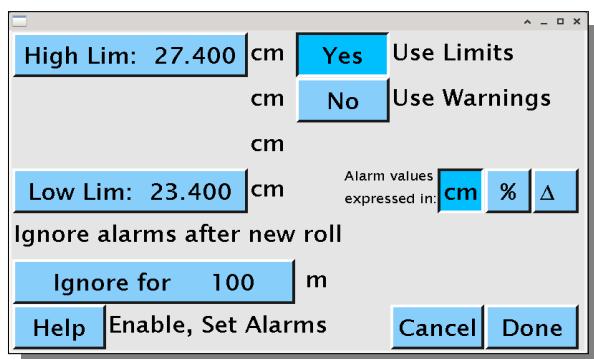


Figure 28: Enable, Set Alarms Screen (percent)

track the target image length.

Near the bottom of the screen is a button labeled "Ignore alarms after a new roll". Often when a web is accelerating after a roll change, image length is not in specification. You can disable alarms during a length you specify here. Use roll length units, displayed to the right of the button.

Refer to Figure 22: Edit or Create Recipe Screen on page 20 above. Touch "Alarms" to bring up the screen shown in Fig. 27 at left. Here you can set the levels for the warning and limit alarms, and set the length after a roll change where alarms are ignored.

You can also enable/disable warning and limit alarms the the two buttons to the right of the value entry buttons labeled "Use Limits" and "Use Warnings". As an example, warnings are disabled in Fig. 28 below.

There are three small buttons that change how you enter the alarm level. These are radio buttons, one of the three will be active. The first (labeled "cm" at left) lets you specify levels in the current length units (here cm). The label will change depending the the current units. The second button ("%) lets you enter alarm levels as a percent of the current target value. The third button ("Δ") lets you enter levels as differences from the current target length. Please note that if you change the target image length after using percent or delta to specify alarm levels, the levels will not automatically change to

4.1.3 Reports

Refer to Figure 22: Edit or Create Recipe Screen on page 20 above. The "Reports" button opens the screen in Figure 29: Manage Reports Screen below where you can specify to Dynaview which reports to generate and how much data to include in a report.

4.1.3.1 Sampling

You can choose to include every hardware acquisition in a report or to sample the data on a footage basis. Choose "All" to include all acquisition samples in your reports. In this case the report will contain a record for every sample for the entire roll and can be very large. Sampling rate can be every 100, 250 or 500ms. See section 4.1.7 Update Rate on page 27 below.

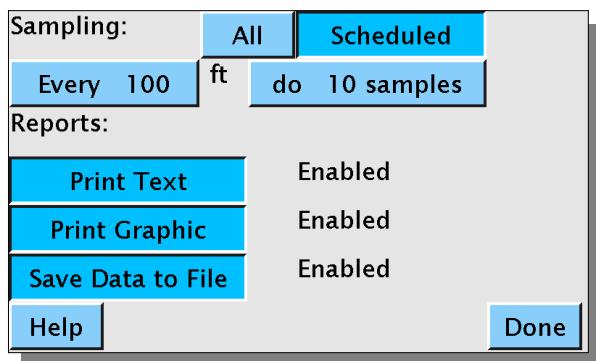


Figure 29: Manage Reports Screen

Choose "Scheduled" to sample the incoming data at regular intervals. If you choose "Scheduled", an additional selection bar appears where you instruct Dynaview to collect some number of samples every so many feet (or other length unit as specified in the target length screen).

4.1.3.2 Print Text

This is a toggle. If you have a printer installed and you enable "Print Text", the data report will print at the end of each roll. The report includes all the recipe parameters as a header followed by one line of data for each sample. Note that for high sampling rates the reports can be very long. If sampling at the normal rate of 2 samples per second (500ms), and you have chosen "All", a report will generate about 110 pages for each hour of run time. (7200 samples per hour, 66 lines per page.)

4.1.3.3 Print Graphic

This is also a toggle. If you have a printer installed and you enable "Print Graphic", a one-sheet graph of deviation from target length will print at the completion of every roll processed. The graph has footage for the horizontal axis and deviation from target value for the vertical. Both axes are scaled automatically.

4.1.3.4 Save Data to File

This is a toggle as well. If you enable "Save Data to File", the reports are saved in up to three places:

- Reports for the last 10 rolls processed are retained in a temporary directory that is available to external FTP clients. This directory is actually in a RAM disk, so the contents are erased if the power fails.
- Reports are copied to the internal SD card as well. These reports are retained indefinitely and are also available via FTP. See section 2.3.1 *Accessing the report files* on page 7 for details of accessing these reports.
- If you have a USB storage device plugged into the Dynaview, the data file is copied to this USB drive. The data file format is exactly the same as the printed report. Reports are copied to the root directory of the drive.

Note that it is possible to mount a remote share on a Dynaview so that all reports are stored remotely. Contact the factory for more details.

4.1.4 Mark Sensor (Eye) Settings

Refer to Figure 22: Edit or Create Recipe Screen on page 20 above. The *Eye Settings* button opens a screen with options for setting the mark sensor as shown in Figure 30: Eye Setup (Gated) Screen below.

4.1.4.1 Dk. on Lt. (Light or dark background)

This button control whether Dynaview triggers on the rising or trailing edge of a feature. Touch to select light on dark, touch again to select dark on light.

4.1.4.2 Gating

Dynaview supports gating the mark sensor. If gating is enabled, Dynaview will ignore the mark sensor for some length after a mark sensor transition. Enable gating by touching the “Not gated” button. The button label will change to “Gated” and an additional selection “Chg gate offset:” will appear. Touch

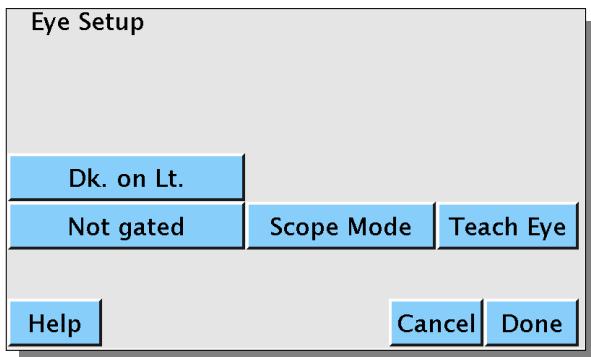


Figure 31: Eye Setup Screen

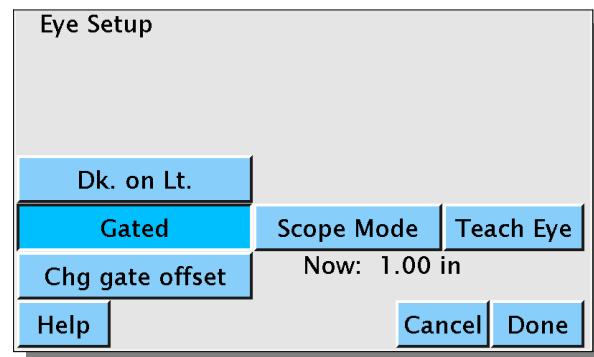


Figure 30: Eye Setup (Gated) Screen

“Chg gate offset” to specify the length of the gate.

4.1.4.3 'Scope

Touch the “Scope Mode” to enable the oscilloscope-like display at the top of the window. This enables a visual representation of what the mark sensor is seeing. See Figure 32: 'Scope Window (Gated) below.

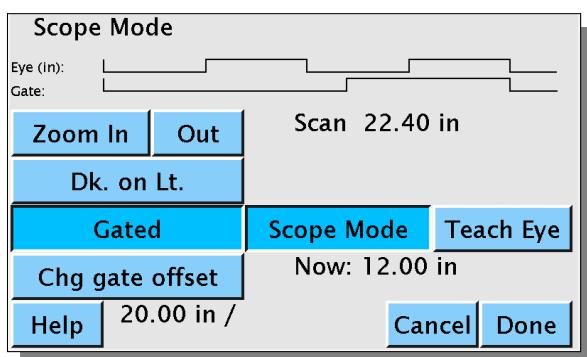


Figure 32: 'Scope Window (Gated)

The two lines labeled “Eye (in):” and “Gate:” contain data from the mark sensor and the gate signal. TRUE is represented by a high level and FALSE is represented by a low level. In the example the mark sensor toggles from light to dark about 3.5 times across the screen. Without the gate, the Dynaview would use every trailing edge to indicate the edge of an image. In the example, gating is turned on and the gate is set to 12". This means that Dynaview will ignore the mark sensor for 12" after a qualified edge. You can see this by examining the Gate: line. As long as the gate is FALSE, it suppresses the mark sensor,

Dynaview sees the first transition (the one at the extreme left of the chart). The gate immediately goes false for 12". The next high-to-low mark sensor transition takes place when the gate is FALSE, so it is ignored. Some time later the gate goes high, then some time after that we get another high-to-low transition from the mark sensor. This time Dynaview uses the transition to signal the edge of an image. Now the gate goes FALSE again for another 12".

You can use the Zoom buttons to see more and less length in the 'scope display. The actual width of the current display is shown on the same line as the Zoom buttons – in the example it is 22.4". At the bottom between the Help and Cancel buttons Dynaview displays the current image length. Note that in the example shown, without the gate the image length would be about $\frac{1}{2}$ of the 20.00" shown.

4.1.4.4 Teach Eye

When you touch this button a 5 second teach signal is sent to the mark sensor. The button acts as a retriggerable one-shot. This means that if you touch the button while the teach signal is active, it will extend the signal for another 5 seconds. By using this method you can make the teach signal any length.

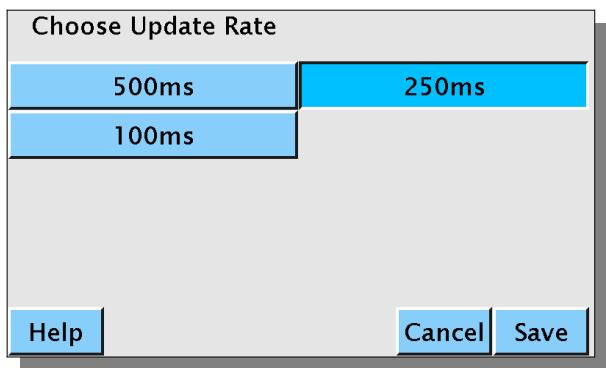
4.1.5 Ext. Span (Span of analog output)

Look at Figure 22: Edit or Create Recipe Screen on page 20 above. The value that you can specify here is similar to the “Range” selection in the Target Length window above. Instead of specifying the width of the display you are specifying the values represented by full scale of the analog output signal. As in the previous example, if you have a 10" repeat and you want the range to be 9.5" to 10.5" specify 0.5 as a value. In this case the analog output in 4–20ma mode will be 4ma = 9.5", 12ma = 10", 20ma = 10.5". If you touch the "Ext. Span" button Dynaview will display a window similar to the one show in Figure 24: Enter Target Length Screen.

4.1.6 Speed Units:

Look at Figure 22: Edit or Create Recipe Screen on page 20 above. Touch the button with *Speed Units:* displayed to select the desired units for speed: ft/min, m/sec, etc. If you touch the "Speed Units" button, Dynaview will display a pick-list similar to the one shown in Figure 25: Pick Units Screen.

4.1.7 Update Rate



A Dynaview receives data from its I/O card at regular intervals. Traditionally the period has been 500ms, or twice a second. This determines the rate that the main screen updates as well as the minimum time between report records. Touch "Update Rate:" to pick a new rate. The screen at left will appear where you can choose the new rate. Touch "Save" to use the new rate.

Figure 33: Choose Update Rate

4.1.8 Storing Recipes

Look at Figure 22: Edit or Create Recipe Screen on page 20 above. When you have completed all the setup changes needed from the Manage Recipes screen, you have the option of saving your changes as a named recipe before returning to the top-level screen. You can always just return to the main screen with the new recipe but not store it. An easy method of creating a new recipe is to choose an old one that is close to the new one needed, then make the changes and save with a new name.

4.1.8.1 Store

The *Store* button is found at the bottom of Figure 22: Edit or Create Recipe Screen. Touch it to start the dialog for saving a recipe.

4.1.8.2 Choose a recipe storage location

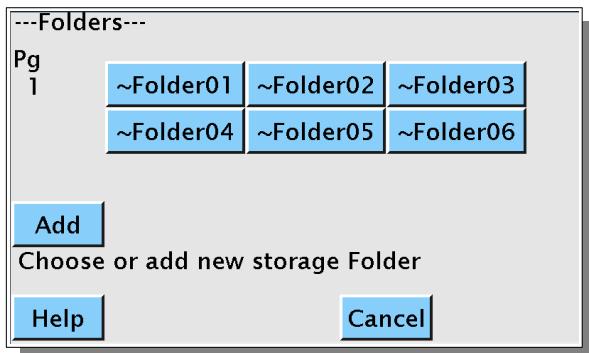


Figure 34: Select storage folder

Remember that existing folder names can be changed from the “Setup Dynaview” screen. See section 2.4.5 Manage recipe store on page 11 above.

If you touch “Add”, Dynaview will put up an intermediate screen to allow you to set the new folder name, then return to the Select storage folder. It will show the newly created folder so you can select it.

Touch a folder name to highlight it, and then touch “Select” at the top of the screen. Note that when you highlight a folder its long description is shown at the bottom of the screen.

4.1.8.3 Recipe name and description

4.1.8.3.1 Rename recipe

4.1.8.3.2 Change recipe desc

4.1.8.3.3 Store Recipe

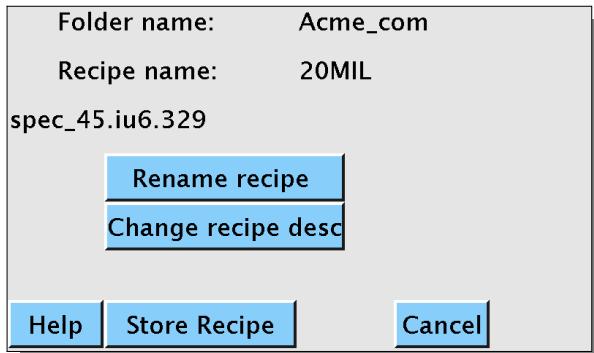


Figure 35: Store Recipe Screen

Immediately after touching “Store”, Dynaview shows a screen so that you can select a folder into which to store the new recipe. This screen is very similar to the one shown in Fig. 16 on page 1616 except that it has an additional “Add” button. See Figure 34: Select storage folder at left. If there are more than 12 folders there are arrow keys on the left to navigate to other folders. Add a new folder with the “Add” button. There is virtually no limit on the number of folders that a Dynaview can accommodate.

These buttons are self-evident. Change the name and/or description as needed. When finished, touch “Store Recipe” and all the setup changes are retained in the new recipe. If you have chosen an existing recipe for storage, the old recipe is overwritten by the new recipe. If you have added a new recipe, it is initialized to the contents of the new recipe.

4.2 The rest of the setup menu

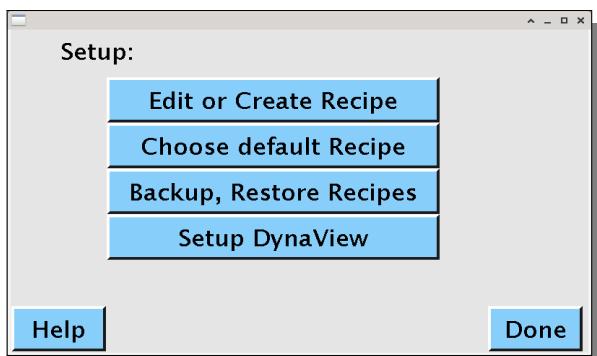


Figure 36: Setup Screen

From either of the main screens (Fig. 13 or Fig. 14 on page 15), touch “Setup” and the screen at left will appear. We already discussed the “Manage Recipes” button in section 4.1 above, and the “Setup Dynaview” button in section 2.4, also above. What is left is the “Choose default Recipe” and the “Backup, Restore Recipes” buttons.

4.2.1 Choose Default Recipe

When a Dynaview first starts up, it loads the default recipe that you specify here. Touch “Choose default Recipe” and the Dynaview will show a series of screens to let you choose the recipe to use. Of course, it has to be already defined.

4.2.2 Backup Recipes



Figure 37: Back up, restore recipes

Touch the “Backup, Restore Recipes” button and the Back up, restore recipes screen appears as shown at left.

Recipes are stored in XML format files. These are text files with an ".xml" extension. The "Back up all" and "Restore all" buttons will create (or use if present) a folder called "recipes" in the root directory of a connected USB drive. There is one sub-folder called "xml" which in turn holds all the folders you see in the Dynaview. These folders then hold the recipe files.

The other three buttons operate on one recipe only. Note that Porcine Associates has an app where you can read, edit and write the XML recipe files if you wish to maintain recipes externally to the Dynaview.

4.2.2.1 Back up all

Copy all of Dynaview's recipe files to a USB drive.

4.2.2.2 Restore all:

Copy all the recipe files from a USB drive to the Dynaview. One additional level of backup is maintained within the Dynaview.

4.2.2.3 Export one to XML:

Export one recipe. Pick the recipe to export on the next few screens. The XML file will be placed in the internal data directory and in the root directory of a USB drive if one is present.

4.2.2.4 Import XML from internal:

Import XML from USB:

Import one XML file from the chosen source, either the root directory of an attached USB drive or the data directory within the Dynaview. This option leads to three more screens:

- 1) Choose the XML file to import, then
- 2) Choose or create (Add) the Dynaview folder to place the file, then
- 3) Choose to overwrite an existing recipe or create (Add) a new recipe.

5 Advanced Installation

Dynaview offers up to 3 binary outputs and 2 binary inputs. Dynaview offers a single output that can be used as a 4 to 20ma current output or a 0.4 to 2.0V voltage output.



Figure 38: I/O external connections

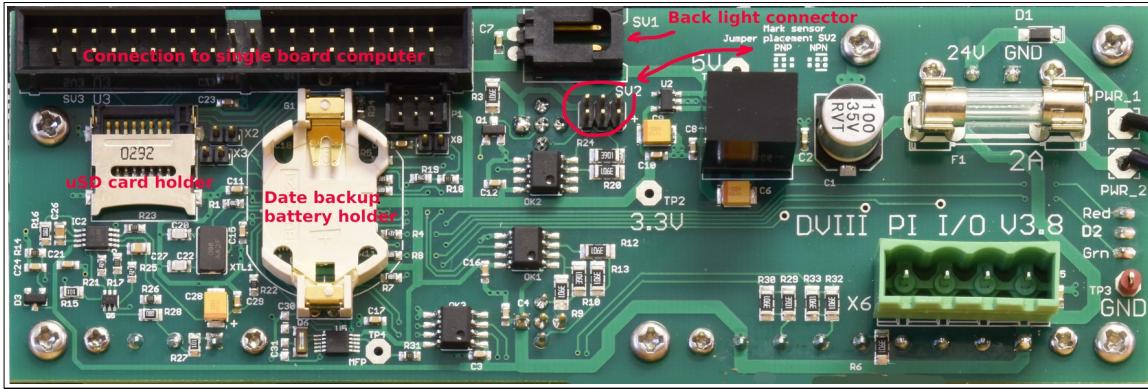


Figure 39: I/O Internal connections

5.1 Binary Outputs

Output Signal	Function	Pin
Limit Alarm	Asserted if an unacknowledged limit alarm is present	4
Warning Alarm	Asserted if an unacknowledged warning alarm is present	3
Strobe	Short pulse on every mark sensor event	5

Table 1: Binary outputs

All binary outputs switch the load to ground. Connect one side of the load to +24V and the other side to the Dynaview output pin. 24V is provided on the I/O connector on pins 1 and 8.

5.2 Binary Inputs

Input Signal	Function	Pin
Alarm Acknowledge	When an alarm is acknowledged, its associated output is de-asserted	7
New Roll	Signals Dynaview to stop processing the current roll and start processing a new one. If reports are enabled, it triggers report generation as well.	6

Table 2: Binary inputs

All binary inputs are optically isolated and are asserted by connecting the associated pin to ground. For a switch or relay, connect one side to ground and the other side to the input pin. The input will be asserted when the switch or relay closes. A ground is provided on pin 2 of the I/O connector.

5.3 Analog output

There is one optional analog output. To use the 4-20ma output directly, connect a current sensing element between pins 3 and 2. Current is sourced internally from the Dynaview, so no power supply is necessary. For a voltage output, connect pins 1 and 3, then monitor the voltage between pins 1 and 2. The voltage will be between 0.4V and 2.0V, corresponding to 4ma to 20ma.

Analog Output Signal	Function	Pin
Current output	4 to 20ma output	3
Ground	Current return or ground reference	2
Voltage conversion resistor	100 ohm, 0.1% resistor with one side connected to ground	1

Table 3: Analog outputs

5.4 USD card

Refer to Figure 39: I/O Internal connections on page 31 above. Note the location of the uSD card (labeled “Report Storage”). This card is used for volatile storage as the storage associated with the main processor is read-only.

5.5 Mark Sensor Connection

pin	Signal
1	+24V
2	Signal input NPN
3	Ground
4	Signal input PNP
5	Teach output

Table 4: Mark Sensor connector

5.6 Encoder Connection

Pin	Signal
1	+24V
2	Encoder input A
3	Ground
4	Encoder input B
5	NC

Table 5: Encoder connector

For a single-output encoder, use encoder input A. For a quadrature output encoder, use both A and B. If the Dynaview shows speed and length incorrectly, either reverse the two wires from the encoder, or choose Quad Rev when setting up the encoder. See paragraph 2.4.3.3 Output code: on page 10 above.

5.7 Data and directories

5.7.1 Recipes

The recipe base directory is “/var/opt/DynaviewIII/recipes/xml”. Each folder has the same name as the Dynaview folder short name. The folder description is kept in a hidden file (.xxxx) with the same base name as the folder.

Within each folder, recipe files have the same name as the Dynaview short name with an xml extension.

There is another hidden file in the base directory “.defaultRecipe”, which is a symbolic link to the chosen default recipe.

The only limit on the number of folders and files is the limits imposed by the underlying file system.

5.7.2 Other setup data

Changeable data that is not part of a recipe is kept in “/var/opt/DynaviewIII/globals”. Files in this directory are private and are not editable by users. They are managed via the Dynaview application and the touch-screen.

5.7.3 Run Length Data

Run length data files are kept in the directory “/home/ftp/pub” which is a link to the volatile directory “/var/tmp/DynaviewIII”. Data for the last 10 rolls processed are kept in this directory along with any temporary binary files. This directory is physically located in a RAM disk, so contents are lost when the power is removed. This directory is exposed to any FTP clients that are on the network. The ftp address is `ftp://<ip address>/pub`, where <ip address> is replaced by the hostname or the IP address in dotted notation.

5.7.4 USB storage Drive

When a USB storage drive is plugged into a USB port it is automatically mounted at “/mnt/pen”. This means that the root directory of the pen drive can be accessed as “/mnt/pen”. If a recipe calls for data to be saved and a USB drive is present, the run length data files are copied to the root directory of the USB drive. USB drives are unmounted as soon as the reports are copied so can be removed at any time.

5.8 Web server

Dynaview III has a built-in web server. If your network has a name server, simply enter the host name of the Dynaview III into your web browser. As an example, if the host name is “DynaviewIII_910011”, just enter “http://DynaviewIII_910011” in the browser. If your network does not have a name server you would substitute the IP address in dotted notation for the hostname. An example would be “<http://192.168.0.101>”. Dynaview shows its network address on the About screen (Setup|About).

In either case the browser will display current data from the Dynaview III, updating every few seconds.

6 Maintenance

The Dynaview has one internal 3V CR2032 coin cell battery that will eventually need replacement. There is no other routine maintenance. This battery keeps the clock alive when the Dynaview is not powered. It is located on the I/O board, refer to Figure 39: I/O Internal connections on page 31 above.

7 Linux operating system

Linux provides all the services of a modern operating system. These include:

- Full multi-tasking, multi-user environment
- Full access to the network
- Web server
- FTP server
- Access to local and remote storage
- Many more services

This lets Dynaview accommodate any foreseeable customer requirement. As all the time-sensitive processes are done in the I/O processor, we can safely load the Dynaview III application and Linux much more heavily than they are currently.