

ControlMax Software
For
PowerMax
Single-Phase Recloser

User Manual

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1. Introduction

This document will discuss the functionality of ControlMax, the PowerMax Recloser Communications Software. ControlMax is a utility that allows remote configuration, monitoring, and control of the Joslyn Hi-Voltage PowerMax 100 and 130 Recloser.

ControlMax Microsoft Windows application that will run on Windows 95, 98, 2000, and Windows NT. Communications to the PowerMax control is through an RS-232 interface, either directly or remotely through a modem.

In general, ControlMax provides the following functionality:

- Upload, download, view, edit and save to a file the setpoint values of a PowerMax.
- Upload, view, and save to a file the system values of a PowerMax.
- Monitor the current status, system values, and event logs of a PowerMax.
- Remotely control the operations that are available on the PowerMax front panel.

2. User Interface

ControlMax is a dialog-based application. All flow through the application is controlled by push buttons.

The user interface is designed to run at all Windows desktop resolutions, from 800x600 and up.

3. Communications

This section describes the communications interface between the PowerMax control and ControlMax.

3.1 Communications Protocol

All communications with the PowerMax uses the Modbus RTU protocol.

3.2 Communications Media

All communications from the PC uses RS-232. A straight male to female DB9 cable is required for connection through the front port and the user's PC.

If ControlMax is to communicate to a network of multi-dropped devices, it must be connected to the network through a modem or a RS-232 to RS-485 converter. Hence, the port configuration and protocol command set is identical from the standpoint of ControlMax regardless of the media used.

3.3 Direct Connection

A direct connection is one that requires no modem dialing; the PC's communications port is connected directly to the device or the device network. Communications to the PowerMax is through either RS-232 or a converter to a RS-485 or fiber optic network.

3.4 Dial-up Connection

A dial-up connection requires that the PC's communications port be connected to a modem. The actual device or device network is also connected to a modem. (Note that it is assumed that the modem is 100% Hayes compatible.)

4. Software

4.1 Installation

ControlMax is installed from floppy disk using an installation program. The installation program is started by running *A:\setup*. The installation will perform the following operations.

1. The home directory will be set to "C:\Program Files\controlmax".
2. Create a program icon in the program manager / start menu.
3. If desired, create a special PowerMax folder to store all created and downloaded recloser files.

4.2 Uninstall Software

ControlMax can be removed from the system using the Add/Remove Programs utility in the Control Panel.

5. ControlMax Software Application

5.1 Main Menu

The Main Menu dialog provides the launch pad for all of the applications major operations. Each operation is displayed in a button on the Main dialog.

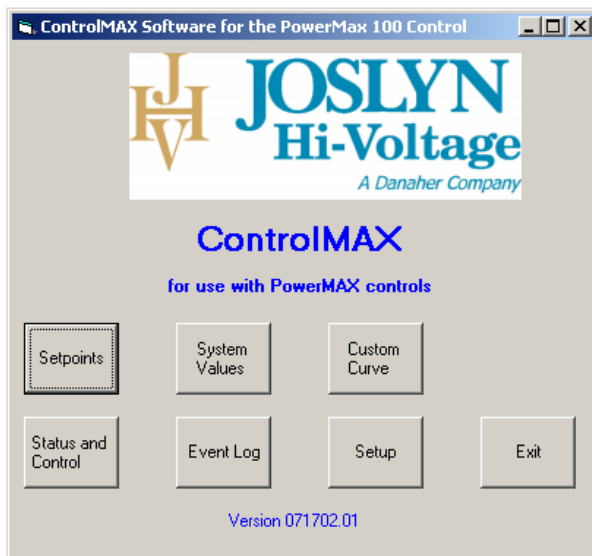


Figure 1: Main Menu

The following table describes the action performed when each button is pressed on the Main dialog shown in Figure 1.

Button	Action
Setpoints	Offline Setpoint and Protection Curve editing screen
Status & Control	Online system monitoring and control
System Values	Online current, voltage, operations counter, contact duty and last event data
Event Log	Online or Offline review of the controls 20 status event log
Custom Curve	User special curve generator screen
Setup	Application parameters screen
Exit	Exit ControlMax Software

5.2 Setpoints Menu

Figure 2: Setpoints Menu

The following table describes the action performed when each button is pressed on the Setpoint dialog shown in figure 2.

Button	Action
Read from Controller	Online retrieval of control setpoints.
Send to Controller	Online downloading of modified settings shown on the screen.
Read from File	Offline retrieval of previously created and stored setpoints.
Save to File	Offline saving of created setpoints.
Load Default	Offline load of factory default setpoints.
Print Setpoints	Offline sending of setpoints to connected printer.
Main Menu	Exit to Main Menu

5.2.1 Saving Setpoints to a File

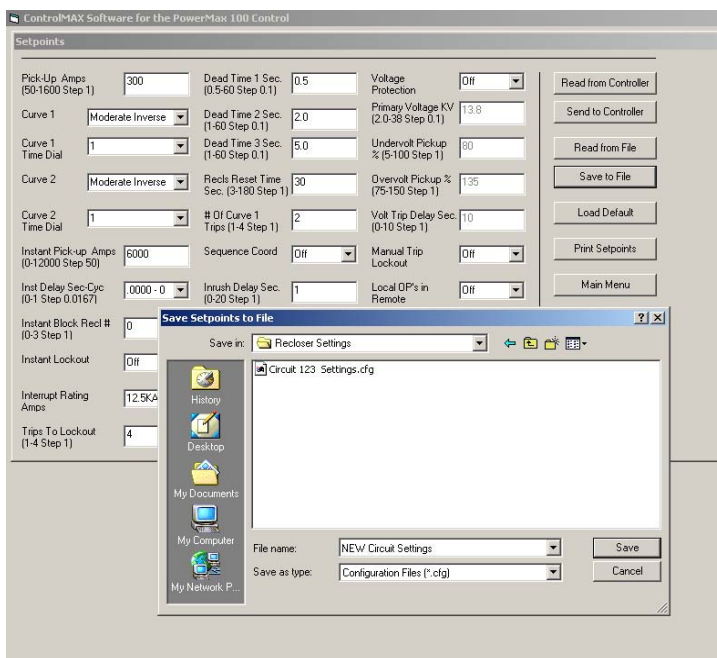


Figure 3: Saving Setpoint File

5.2.2 Retrieving Setpoints from a File

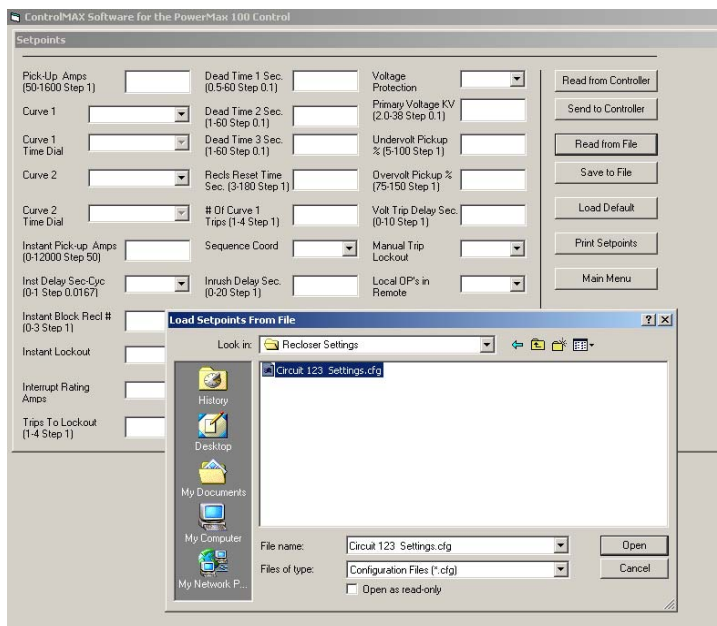


Figure 4: Retrieving Saved Setpoint File

5.3 Status and Control Menu

The following table describes the action performed when each button is pressed on the Status and Control dialog shown in Figure 5.

Button	Action
Review Event Log	Device 20 status event log.
Review System Values	Online current, voltage, operations counter, contact duty and last event data.
Main Menu	Return to the Main Menu.

5.4 System Values and Events Menu

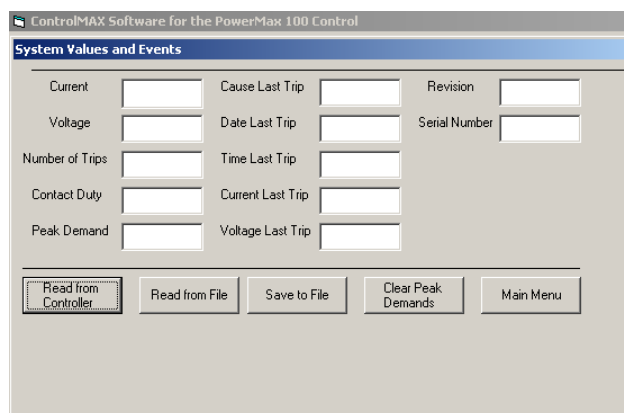


Figure 6: System Values and Events

The following table describes the action performed when each button is pressed on the System Values and Events dialog shown in Figure 6.

Button	Action
Read from Controller	Online uploading of control's System Values and Events.
Read from File	Offline retrieving of a control's System Values and Events previously saved file.
Save to File	Online saving of the control's System Values and Events to a file.
Clear Peak Demands	Online clearing of the control's accumulator Peak Demand.
Main Menu	Return to the Main Menu.

5.5 Event Log Menu

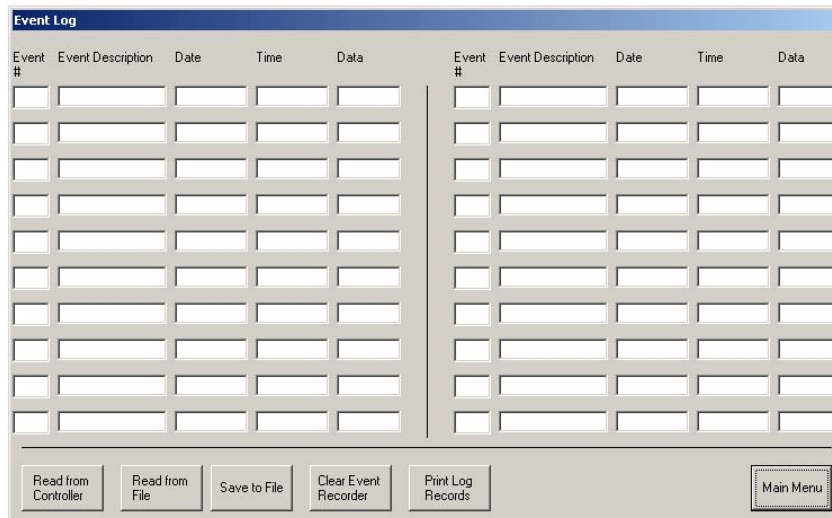


Figure 7: Event Log

The following table describes the action performed when each button is pressed on the Event Log dialog shown in Figure 7.

Button	Action
Read from Controller	Online uploading of control's Event Log.
Read from File	Offline retrieving of a control's Event Log that was previously saved to a file.
Save to File	Online saving of the control's Event Log to a file.
Clear Event Records	Online clearing of the control's 20 Event Records.
Print Log Records	Offline printing of event log shown on the screen.
Main Menu	Return to the Main Menu.

5.6 Custom Curve Menu

TimesP/U	Trip Time	TimesP/U	Trip Time	TimesP/U	Trip Time	TimesP/U	Trip Time
20.000		3.556		1.939		1.333	
16.000		3.368		1.882		1.306	
12.800		3.200		1.829		1.280	
10.667		3.048		1.778		1.255	
9.143		2.909		1.730		1.231	
8.000		2.783		1.684		1.208	
7.111		2.667		1.641		1.185	
6.400		2.560		1.600		1.164	
5.818		2.462		1.561		1.143	
5.333		2.370		1.524		1.123	
4.923		2.286		1.488		1.103	
4.571		2.207		1.455		1.085	
4.267		2.133		1.422		1.067	
4.000		2.065		1.391		1.049	
3.765		2.000		1.362		1.032	

Curve Number: 1
Table ID: 1
Standard Curve: Moderate Inverse
Time Dial: 1
Load Standard Curve

Clear Read from Controller Send to Controller Read from File Save to File Plot Curve Main Menu

Figure 8: Custom Curve Screen

The following table describes the action performed when each button is pressed on the Custom Curve dialog shown in Figure 8. Note that custom curves can only be created and loaded into the PowerMax control using the ControlMax software.

Button	Action
Curve Number	Selectable as either 1 or 2. When 1 is selected the custom curve created will be used as Curve 1 in the control's Setpoints. When 2 is selected, the custom curve created will be used as Curve 2 in the control's Setpoints. <i>Note:</i> If a custom curve is created and sent to the control, the Setpoint Curve will show the designation as "Custom".
Table ID	User selectable designation for the created custom curve.
Standard Curve	User can create a custom curve from selectable standard curve.
Time Dial	User can create a custom curve from selectable standard time dial. The available selectable time dial will be based on the standard curve selected.
Clear	User can clear all the values entered in the custom curve screen.
Read from Controller	Online uploading of control's Custom Curve. <i>Note:</i> The desired curve number must be selected and the control must have had a custom curve(s) previously sent to the control.
Send to Controller	Online downloading of the created custom curve to the

	controller. <i>Note:</i> The desired curve number (1 or 2) must be selected to be sure the custom curve loads to the correct Curve setpoint.
Read from File	Offline retrieving of a created custom curve that was previously saved to a file.
Save to File	Offline saving of a custom curve to a file.
Plot Curve	Offline printing of a created custom curve.
Main Menu	Return to the Main Menu.

5.7 Setup Menu

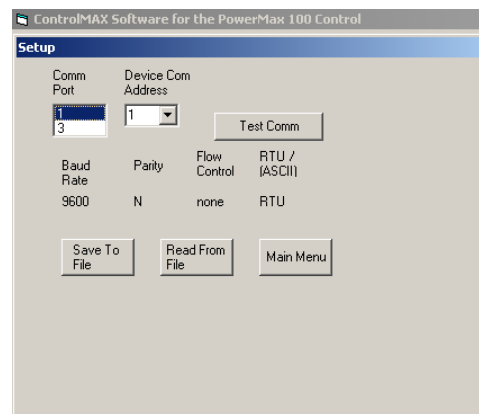


Figure 9: Setup Menu

The following table describes the action performed when each button is pressed on the Setup dialog shown in Figure 9.

Button	Action
Com Port	Selectable as either 1 or 3 and based on the user's PC port designation.
Device Com Address	Selectable device designation as defined by the user. Factory default address is set at 1.
Test Comm	This button allows testing of the communication path between the PC and the PowerMax control at any time. <i>Note:</i> If the control is connected to the PC when ControlMax is started, connection will automatically be established.
Save to File	Online saving of the control's Setup to a file.
Read from File	Offline retrieving of a control's Setup previously saved as a file.
Save to File	Online saving of the control's System Values and Events to a file.