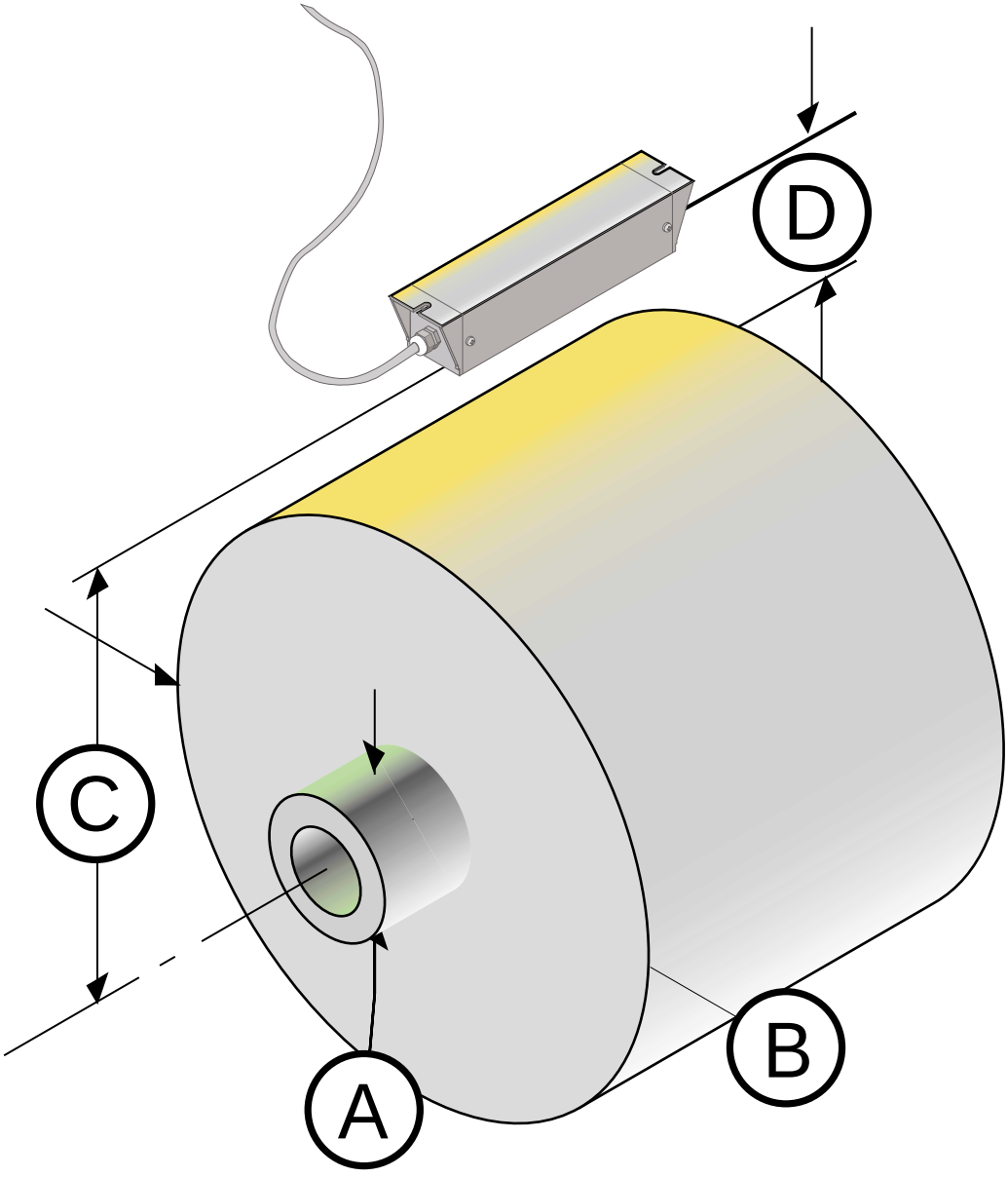
coiltek

Operating Manual

Model CS-5500 Roll-Build Control

and associated CSWINDM software



CS-5500 Ultrasonic Roll-Build Control

The CS-5500 monitors change in the diameter of a roll, coil or spool. Its output, a nominal 0-10VDC is used to:

- Control web tension while uncoiling by regulating the torque of a brake.
- Control web tension while winding by regulating the torque of a clutch.
- Maintain constant web speed while winding by regulating winding speed to correspond with roll build.
- Collect process data.

A microprocessor powers the control logic of the CS-5500. The user pre-programs all functions with Coiltek's CSWINDM software installed on a PC computer. Communication link is a standard[1] 9-pin RS-232C cable. The software link sets all the control parameters; but once programmed the control unit functions independently. **When not linked to the computer, the control's serial port should be closed!** Both parts of this manual, firmware and software, cover opening and closing the serial port.

Beyond this page, pictures show all connections and operations. Just a few notes regarding specifications and operation are listed here.

Hardware

Power: Single phase, 50-60 Hz, 120 or 240 VAC – switch selectable.

Sensor: Ultrasonic element in rugged steel case. Nine-conductor cable (up to 60'-0" length) connects sensing head to processor board.

Outputs: Isolated control output. Maximum output voltage adjustable up to 10VDC

Isolated reference output — adjustable 0-10VDC.

Discrete Status outputs (*NO/NC relay contacts*):

FAR status output indicates an "empty roll".

NEAR status output indicates a "full roll" or an "overfull roll".

CONTROL status output will trip at a preset roll build. The software sets the trip point and can also set hysteresis and time-delay if required.

CSWINDM software sets the trip points of all three status outputs .

[1] Do not use a cross-link cable. (e.g. a cable that crosses TSM and RCV lines.)

The control output signal never drops to zero. All processes must maintain web tension or speed regardless of roll diameter. In torque mode, the control calculates minimum torque based on wrap ratio and maximum (full-roll) output. The control output signal increases linearly in proportion to roll diameter.

In speed mode, the control calculates minimum output based on wrap ratio and full-speed output at core. The control output signal decreases in proportion to roll diameter. The signal is non-linear as it is a function of *the reciprocal* of the diameter.

Using a CB-5000AM adapter card, the CS-5500 accepts a process-related control signal (e.g. line speed) and will scale it in relation to roll build. This adapter plugs into the 20-pin header (J5). The line-speed signal must be scaled to 5 VDC max and either isolated or referenced to the ground terminal.

The CS-5500 stores up to 7 preset programs in non-volatile memory. The user can change programs either on the processor board (see Switch Settings) or remotely (see Wiring). Remote selection is limited to 3 presets and all PRESET switches on DIP must be OFF.

The CS-5500 is a board-level device. Do not mount the unit near components that are highly sensitive to RFI. Like all microprocessor devices, the CS-5500 is sensitive to strong electrical noise. AC inverter drives and heavy-duty power supplies in close proximity can affect the control. DC drives, brake current controls, and most SCR controls devices do not cause problems.

The CS-5500 has two LEDs, labeled +5V and +15V, to show the status of the power supplies. If either fails to light up, the board has failed and must be replaced. If the +5V LED flashes, the processor's watchdog timer senses a fault condition: usually a bad transducer connection or low supply voltage.

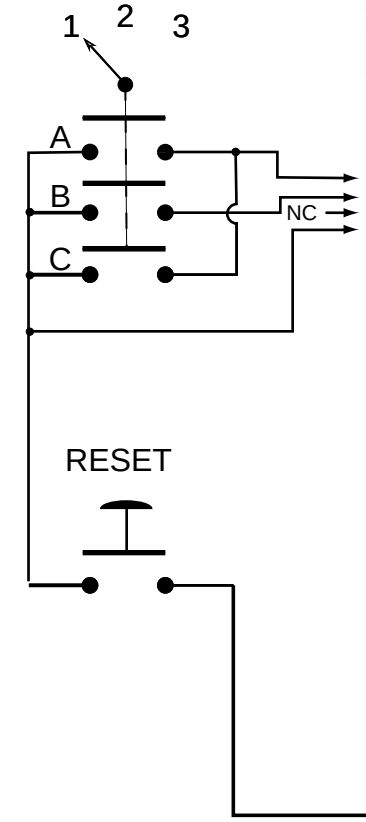
Software

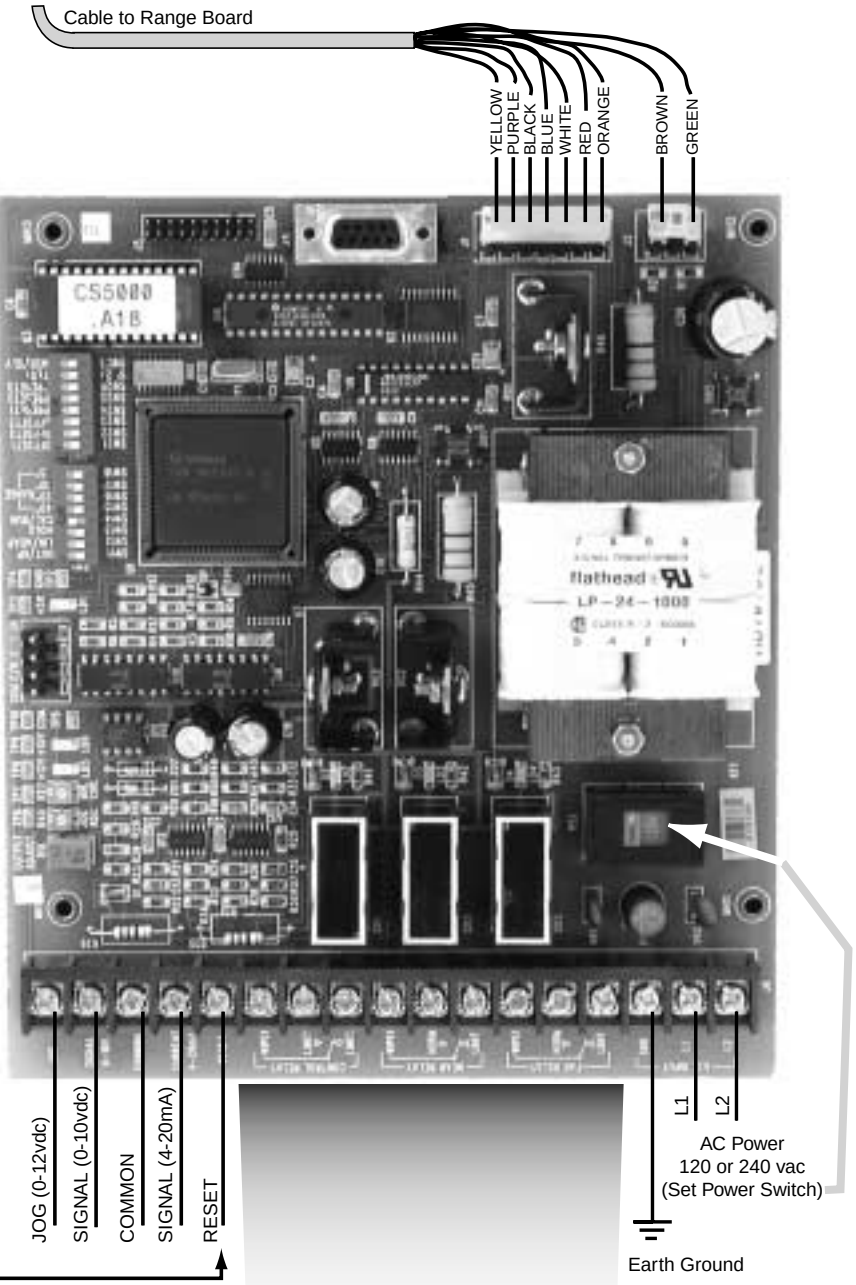
Software Installation and operation instruction begins on page 8. You will also find that the software has many help screens. If you're stumped, give us a call (330-334-1525).

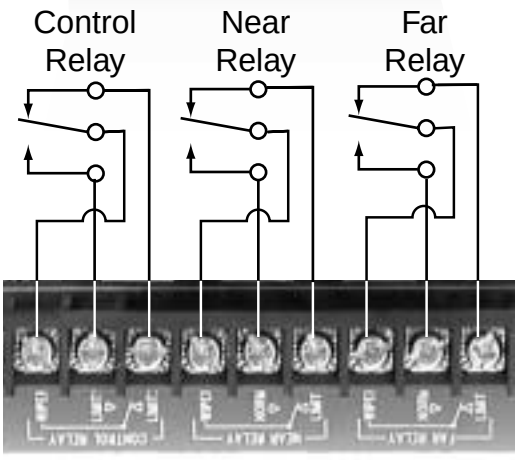
WIRING CS-5500 Control

	1	2	3
	↖	↑	↗
A	X	0	0
B	0	X	X
C	0	0	X

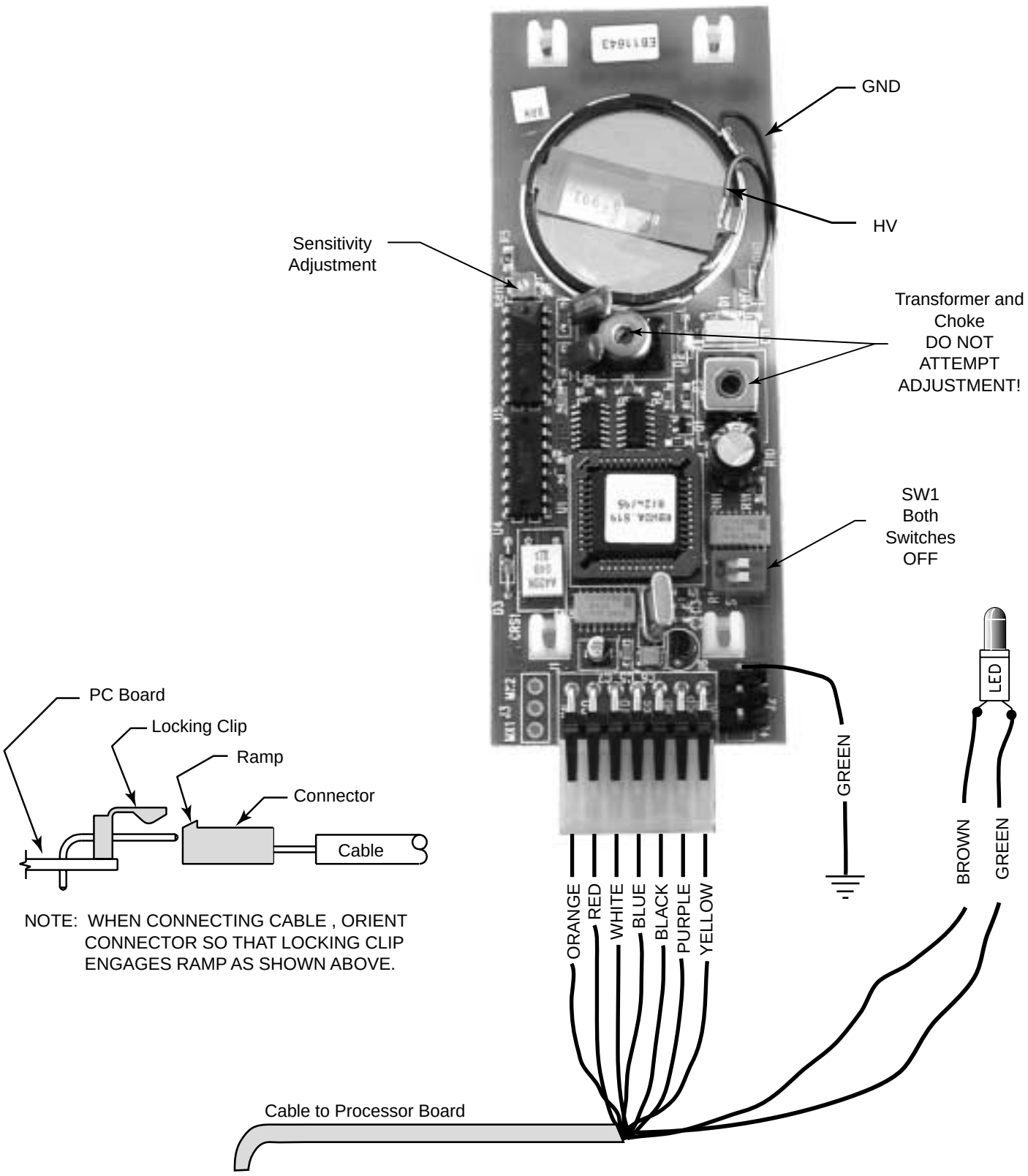
Optional Setup for Remote Selection of Preset Programs





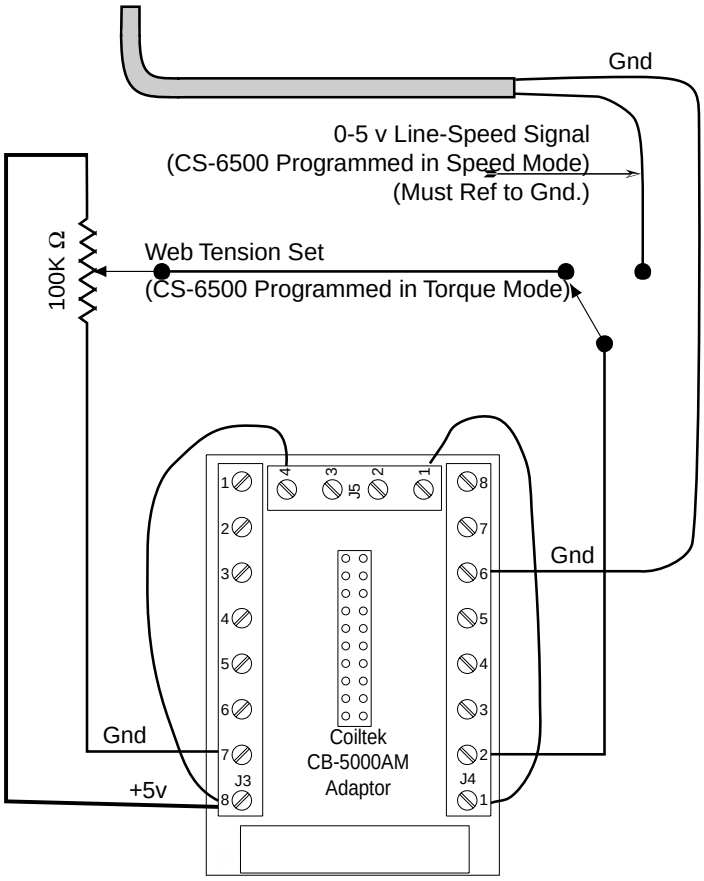


Note: NEAR and FAR relays are ON when target is in range. Relays release when target moves out of range.

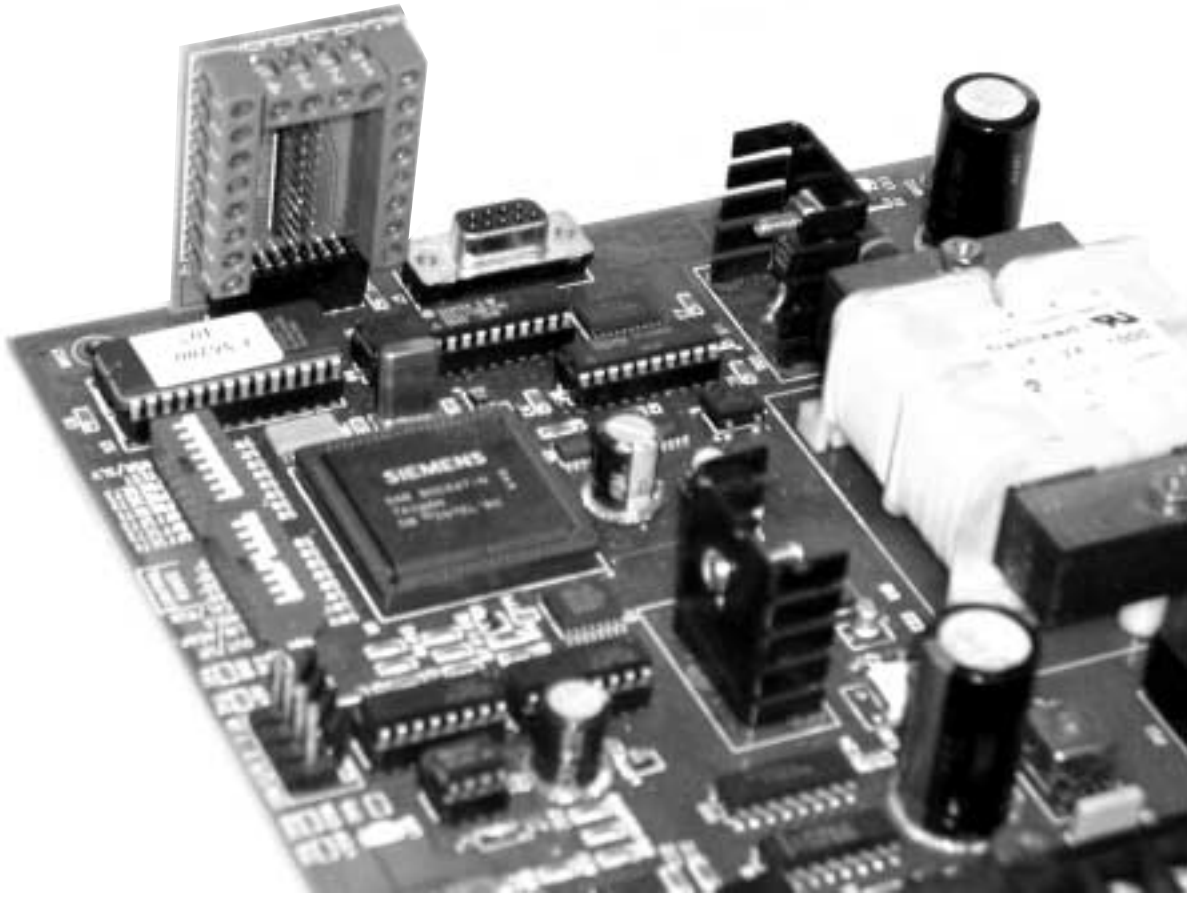


CS-5500 Transducer Rangeboard Wiring

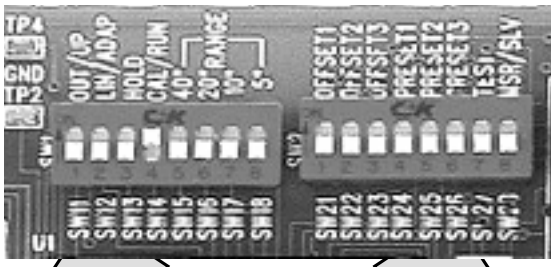
Setup Scaling of Line Speed or Web Tension
Using the CB-5000AM Adapter card with CS-5500 Control



Insert CB-5000AM
Adapter as shown.



SWITCH SETTINGS
CS-5500 Series



Not Used

PayOut — TakeUp
Linear — Adaptive
HOLD
Calibrate — RUN

CONTROL RANGE
40 inches
20 inches
10 inches
5 inches

1 2 3 4 5 6 7 8

SW1

ON

OFF

SW2

Offset #1
Offset #2
Offset #3
PreSet #1
PreSet #2
PreSet #3
TEST
Master —Slave

1 2 3 4 5 6 7 8

5 6 7 8 Open RS-232 Port

5 6 7 8 Close RS-232 Port

OFFSET SETTINGS
NOT USED

PRESET PROGRAMS

4 5 6 Program 0

4 5 6 Program 1

4 5 6 Program 2

4 5 6 Program 3

4 5 6 Program 4

4 5 6 Program 5

4 5 6 Program 6

4 5 6 Program 7

LEGEND

1 2 Switch 1 is OFF
Switch 2 is ON

Using CSWINDM-32

with Coiltek CS-5500 Diametral-Build Control

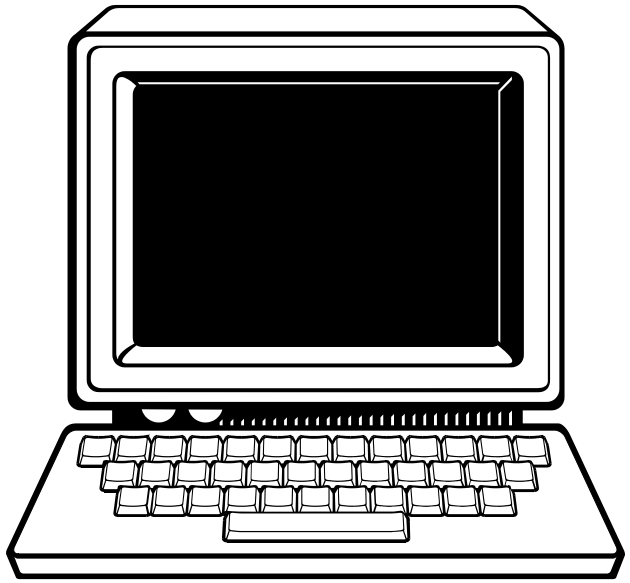
Coil Technology, Inc
Wadsworth, Ohio

To Install CSWINDM-32

on Windows® 95, 98, 2000, XP or NT

Installation from Internet or E-Mail:

1. Save cswindm.zip file to your desktop and exit all running programs*.
2. On your desktop doubleclick cswindm.zip icon.
3. Agree to Winzip terms in Applet.
4. Doubleclick on Setup.exe and agree to extract files to a Temp folder.
4. Click "OK" to launch the CSWINDM32 installation program.
5. Follow setup instructions on the screen.

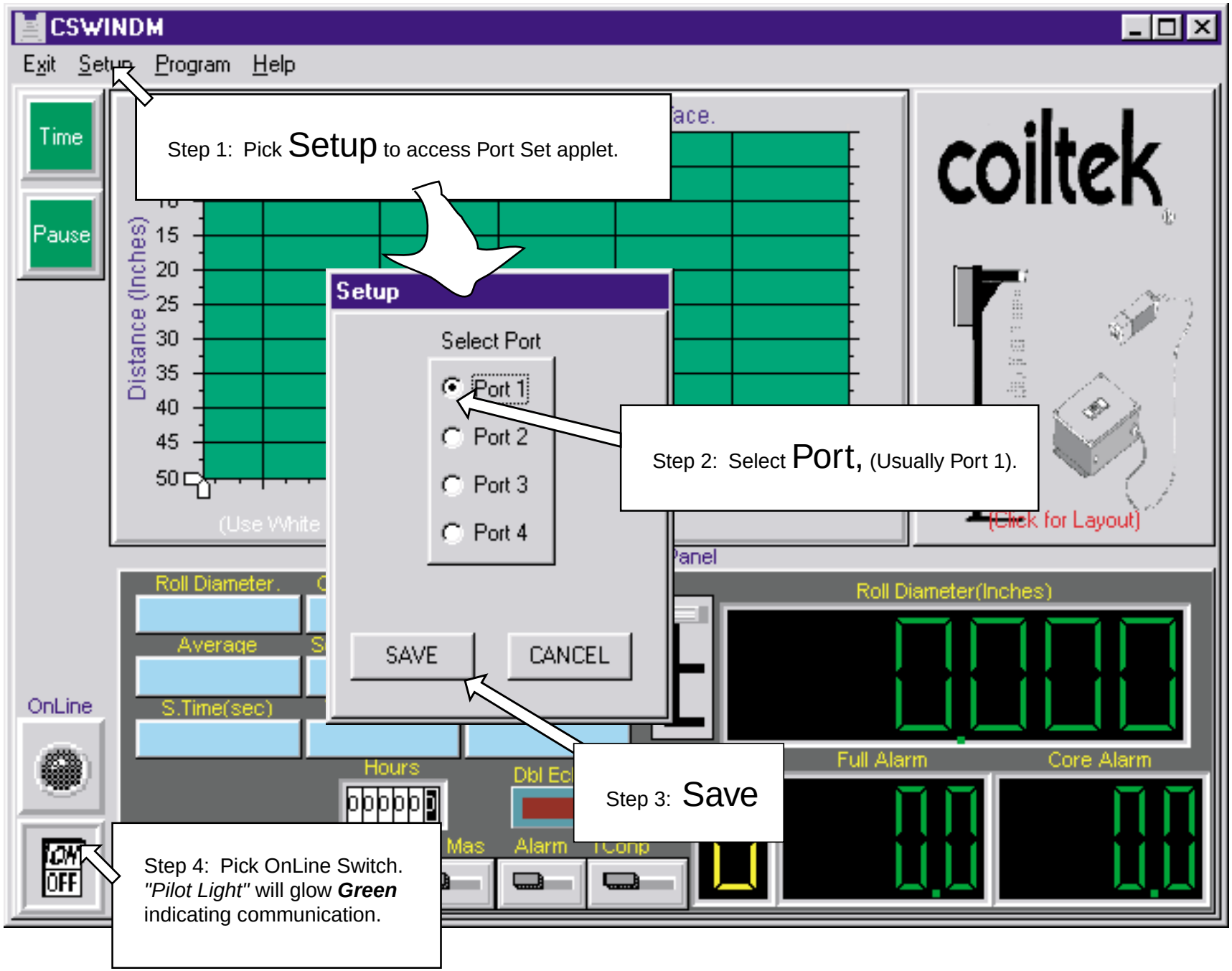


Installation from CD:

1. Insert the compact disc into your CD-ROM drive.
2. From the "Start" button, select "Run"
3. Type D:\setup.exe *(where D: is your CD-ROM drive)*.
4. Click "OK" to launch the CSWINDM32 installation program.
5. Follow setup instructions on the screen.

Note *: Visual C++ runtime library files, Mfc42.dll and Msvcrt.dll, must be Version 6.0 or later. If these files must be updated, Setup will ask if you'd like to restart Windows. Generally, Setup will resume when Windows restarts. If it does not, run Set-up again. CSWIN32 installer will automatically update these files provided they are not in use by another program. Any Visual C++ program running will cause a "sharing violation" and prevent installation. DISABLE ANY VIRUS SHIELD AND MAKE CERTAIN THAT NO OTHER PROGRAMS ARE RUNNING.

If you encounter persistent problem with installation, call Coiltek at 800-883-7542.


CSWINDM
Exit
Setup
Program
Help
Time
Pause
Step 1: Pick Setup to access Port Set applet.
Distance (Inches)
15
20
25
30
35
40
45
50
(Use White
coiltek
(Click for Layout)
Setup
Select Port
Port 1
Port 2
Port 3
Port 4
SAVE
CANCEL
Step 2: Select Port, (Usually Port 1).
Roll Diameter.
Average
S.Time(sec)
Hours
Roll Diameter(Inches)
Full Alarm
Core Alarm
OnLine
ON
OFF
Step 3: Save
Step 4: Pick OnLine Switch.
"Pilot Light" will glow Green
indicating communication.

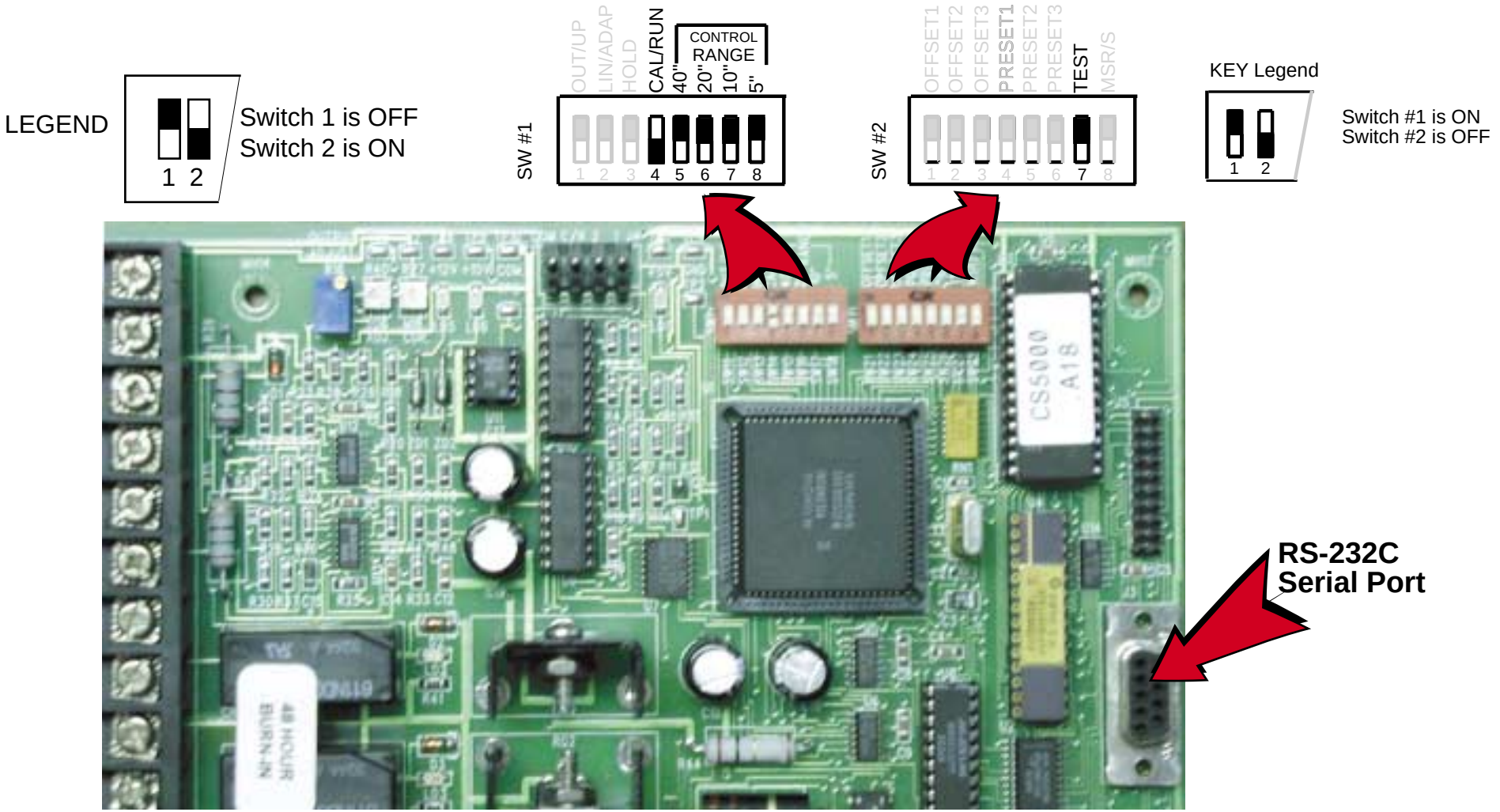
Setting up the **coiltek®** **CS-5500** Control for PC Communication

When the CSWIINDM32 software is installed on the PC and the CS6500 Control is powered on, follow this procedure:

1. Connect a standard 9-pin (DB-9) RS-2322C serial cable between the DB-9 connector on the processor board and the computer's serial port.

2. Set DIP switches as shown below. Make sure the CAL/RUN switch is ON *(RUN position)*, the four Control Range switches OFF, and the TEST switch OFF.

3. Jump the RESET terminal to COMMON *(or remove and reapply power).* This action forces the processor to recognize the switch settings.



Step 2: Pick a Program Preset #1 through #7. Don't use #0. Remember the location!

Step 3: Type in parameters that match your application:

A. Core Diameter
B. Roll Diameter
C. Distance from Sensor to Axis of Rotation

... bring up the Scale Dialog Applet. Select Operating Mode:

Torque
(Output is Linear)
or
Speed
(Output is a 1/x function).

Step 1: Pick Program/ Remote to bring up Program Utility Screen.

Step 4 Click Enable & Settings to...

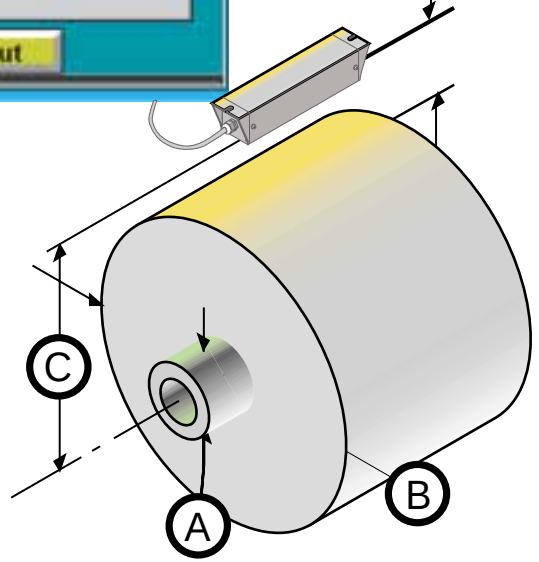
Must be greater than Hi/Lo Setting

Step 5: If using FULL ROLL Alarm, Click Enable & Settings to...

...bring up Control Relay Applet. Type in Roll-Build Limits and Core Diameter.

Alarm outputs can be delayed in 50 msec units.
(20 samples = 1 sec)

Step 6: Click XMIT to transmit the program to the CS-6500 control. XMIT button turns green during transmission. When it returns to blue, Click CLOSE to return to the Main Screen



Setting up the **coiltek®** **CS-5500** Control for On-Line Operation

Once parameters are downloaded to the control from the CSWIINDM32 software, follow this procedure:

1. Use the three Preset DIP switches to select the Program Preset Location you chose. Short the RESET terminal to COMMON (or interrupt power). Your program is now operational.

2. When you are satisfied with the operation, turn on one of the four Control Range DIP switches to close the RS-232-C port. Again shortthe RESET terminal to COMMON (or interrupt power). You can now remove the RS-232C cable.