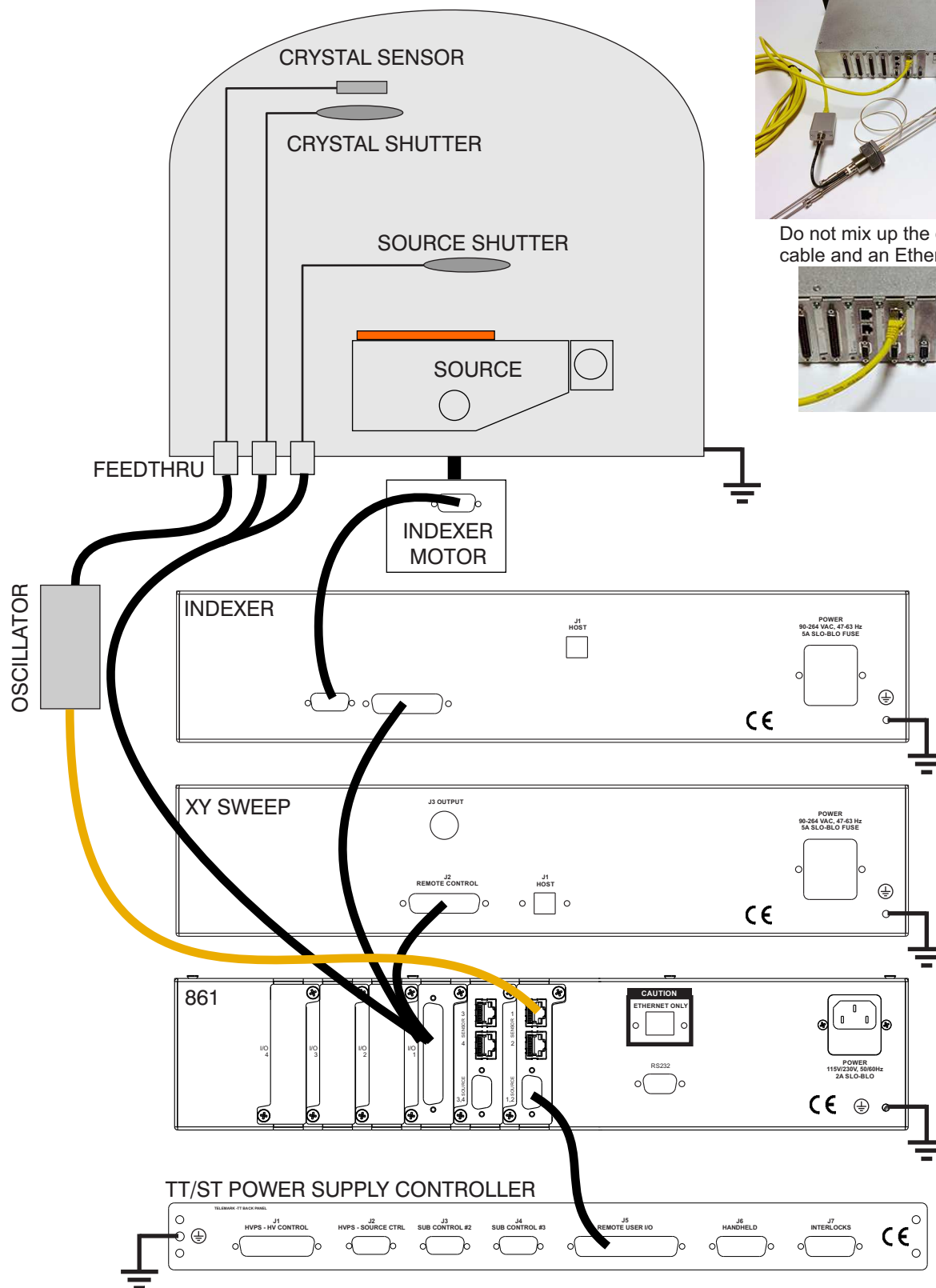


# ***TELEMARK*** Model 861 Quick Setup

## TYPICAL SYSTEM CONFIGURATION



Do not mix up the oscillator RJ45 cable and an Ethernet RJ45 cable



# TELEMARK Model 861 Quick Setup

## Notes:

- The full manual is found on the included USB drive in pdf form.
- The 861 boots up to the splash screen 30 seconds, and the configuration screen in under 2 minutes.
- The 861 is shipped with crystal simulation turned off, if crystal sensor one is not connected then the crystal error will sound when the 861 is turned on.
- The 861 is shipped with the 6MHz setting and screen saver set to 15 minutes.

1

## BEFORE INSTALLING DEPOSITION CONTROLLER

The 861 can be operated with 0 to 4 I/O cards installed. There are 3 types of I/O cards:

37 pin with 8 inputs and 8 outputs plus a dedicated "abort" output (360/860 pinout)

25 pin input (880 pinout)

25 pin output (880 pinout)

**If ordered with 37 pin I/O card(s) from the factory with the proper setting then this step can be skipped.** The 37 pin I/O card has jumpers that need to be set for Active or Passive Input operation. Passive input is TTL level inputs activated by a short across input pins. Active input is activated by 12 to 24 volts DC across the input pins. To change setting remove the controller cover and move jumpers on PC board.

The 25 pin input card has both Active and Passive pins available .



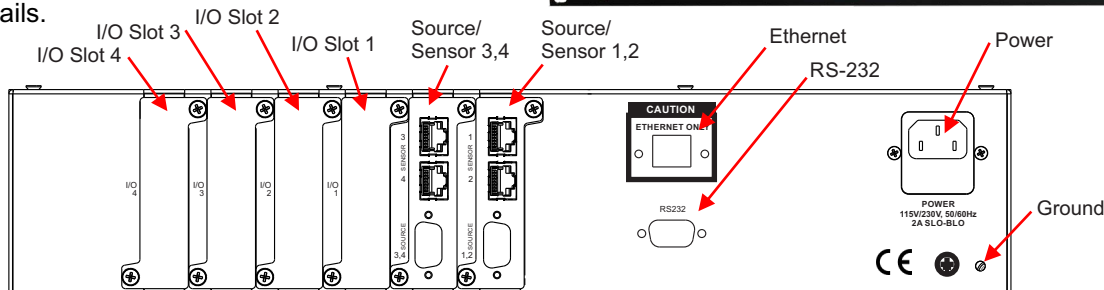
2

## INSTALL DEPOSITION CONTROLLER

The 861 is designed to be installed in a 19 inch rack.

Required power: 90-264 VAC, 47-63 Hz

The 861 should be properly grounded, see manual for more details.

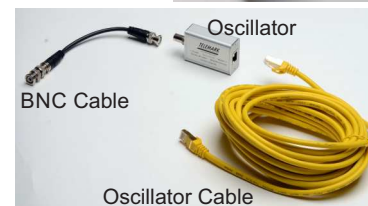
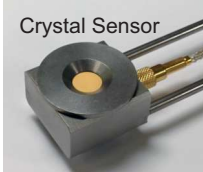


3

## INSTALL CRYSTAL SENSOR AND OSCILLATOR

The 861 is designed to be used with:

- 5 or 6 MHz crystals
- Internal vacuum coaxial cable, 30 inches long (from crystal sensor to feed through)
- External BNC cable, 6 inches long (from feed through to oscillator)
- Telemark oscillator (other oscillators will not work)
- Shielded RJ45 cable, to 25 feet long (from oscillator to 861)



**4**

**CONFIGURING THE 861 SYSTEM**, see the 861 manual for more details

1. **Setup – Display:** Parameters affecting the display
2. **Setup – Utility:** Miscellaneous parameters such as, crystal frequency, sound volumes, date and time
3. **Setup – Source:** number of pockets, shutter, indexer, source voltage, etc.
4. **Setup – Sensor:** number of crystals, shutter, indexer, etc.
5. **Setup – Inputs:** Setup of user defined inputs and system defined inputs. User defined inputs are used to trigger outputs and actions. System defined inputs are automatically created by the 861 for source and sensor selection feedback. After the inputs are created the D connector pins can be changed if needed.

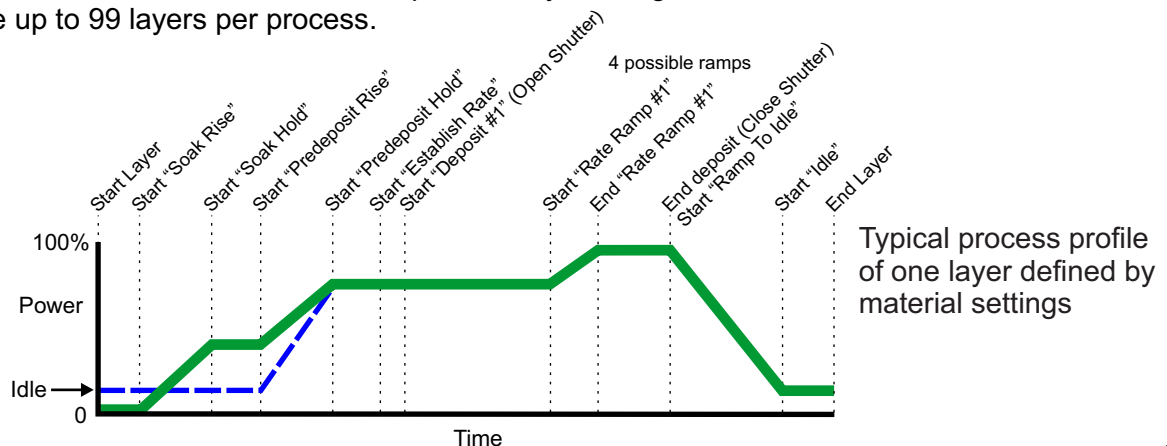
**Setup outputs and actions may need to be changed after materials and processes are defined because they can be used in condition strings**

6. **Setup – Outputs:** User defined outputs and system defined outputs. User defined outputs can be triggered by condition strings. System defined outputs are automatically created by the 861 for source and sensor selection and shutter control. After the outputs are created the D connector pins can be changed if needed.
7. **Setup – Actions:** 16 internal user programmable actions can be used to provide special functions upon the true evaluation of a condition string. These functions may be such things as terminating a deposit on an input from an optical monitor or sounding an alarm when certain events are true.

**5**

**DEFINE MATERIALS AND PROCESSES**, see the 861 manual for more details

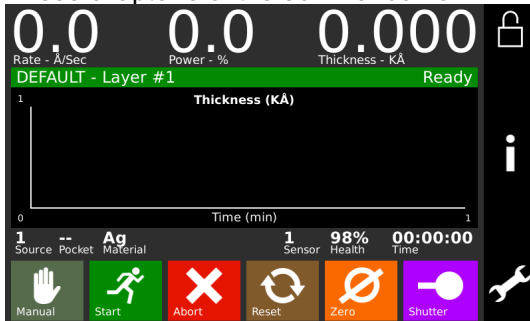
1. **Materials:** Parameters affecting the deposition of each material: density, impedance, source#, pocket#, sensor#, etc.
2. **Process:** Describes the layers of a process. Once a material has been created in the 861 then it can be added to a process layer and given a thickness. There can be up to 99 layers per process.



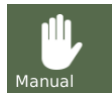
### 6

#### OPERATING THE 861 SYSTEM,

see chapter 6 of the 861 manual for

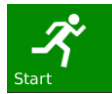


#### MANUAL BUTTON



This button is used to toggle the 861 Manual mode on and off. The Manual mode indicates that the source control voltage output is being controlled through the Remote Power Handset

#### START BUTTON



The Start button starts a process, starts a layer, resumes an aborted process, or notifies the 861 that the pocket or crystal is in position.

#### ABORT BUTTON



The Abort button puts the 861 into the Abort mode.

#### RESET BUTTON



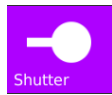
The Reset button is used to clear the controller from Abort mode and put it into the Ready mode.

#### ZERO BUTTON



Pressing the Zero button causes the thickness display to go to zero. This button is active at all times

#### SHUTTER BUTTON



This button is used to manually open and close the active source shutter.

#### STATUS BUTTON



This button is used to cycle through the different status screens. The display settings allow the six different status screens to be active or not. Refer to chapter 6 for a detailed description of these status screens.

#### PROGRAM BUTTON



Pressing the programming button will bring up the main programming screen.

### 7

#### ADDITIONAL NOTES:

**The USB drive supplied with the 861 is for backing up and restoring materials, processes, and all the system files. It is also useful for data logging. It also includes a 861 pdf manual, 360/860 conversion software and VNC software and other Telemark information.**

The supplied handheld remote is for manually adjusting power when in "Manual" mode and for activating "Abort" at any time.

The 861 can be viewed and controlled remotely via Ethernet and a VNC client (Remote Desktop), see chapter 4. The network needs to have a DHCP server to automatically supply the 861 with an IP address.

See chapter 7 to see the how to tune the material control loop parameters referred to as PID parameters (Proportional gain, Integral Time constant and Derivative Time constant).

See chapter 8 for details about control of an 861 from computer/PLC using the RS-232 serial interface. The interface is set at 9600 Baud, 8 Bit data, No Parity, 1 Stop bit