



Figure 2 914X Field Metrology Well

3.2 Parts and Controls

This section describes the exterior features of the Field Metrology Well. All interface and power connections are found on the front of the instrument (see Figure 2).

3.2.1 Display Panel

Figure 3 on next page shows the layout of the display panel.

Display (1)

The display is a 240 x 160 pixel monochrome graphics LCD device with a bright LED back-light. The display is used to show current control temperature, measurements, status information, operating parameters, and soft key functions.

▲▼◀▶ Arrow Keys (2)

The Arrow Keys allow you to move the cursor on the display, change the display layout, and adjust the contrast of the display. The contrast can only be adjusted using the ▲ and ▼ arrow keys while viewing the main display window.

Enter Key (3)

The Enter Key allows you to select menus and accept new values.

SET PT. (4)

The Set Pt. Key allows you to enable the instrument to heat or cool to a desired set-point. Until this key is enabled, the instrument will not heat or cool. It is in a “sleep” state for safety of the operator and instrument.

°C/°F Key (5)

The °C/°F Key allows you to change the displayed temperature units from °C to °F and vice versa.

Menu Key (6)

The Menu Key allows the user to access all parameter and settings menus. From the main menu, the user can use the soft keys to access submenus and functions.

Exit Key (7)

The Exit Key allows you to exit menus and cancel newly entered values.

Soft Keys (8)

The Soft Keys are the four buttons immediately below the display (labeled F1 to F4). The functions of the soft keys are indicated on the display above the buttons. The function of the keys may change depending on the menu or function that is selected.

Switch Connector (9)

The switch hold connector posts are located on the left side of the display panel.

Block Temperature Indicator (10) [Patent Pending]

The Block Temperature Indicator lamp allows users to know when the block temperature is safe (50°C to 60°C) to remove inserts or move the Field Metrology Well. The indicator light is lit continuously once the block has exceeded approximately 50°C (varies 50°C to 60°C). The indicator light stays lit until the block cools to less than approximately 50°C. If the instrument is disconnected from mains power, the indicator light flashes until the block temperature is less than approximately 50°C.



Figure 3 Display panel and keys

3.2.2 Display

The front panel display is shown in detail in Figure 4 on opposite page.

Heat Source Temperature (1)

The most recent block temperature measurement is shown in large digits in the box at the top of the screen.

Set-point Temperature (2)

The current set-point temperature is displayed just below the Process Temperature.

Reference Thermometer Temperature (3) [-P models only]

When installed, the most recent reference thermometer measurement is shown on the screen.

Stability Status (4)

On the right hand side of the screen, you will find a graph displaying the current status of the stability of the Field Metrology Well.

Heating/Cooling Status (5)

Just below the stability graph there is a bar graph that will indicate HEATING, COOLING, or CUTOUT. This status graph indicates the current level of heating or cooling if the instrument is not in cutout mode.

UUT Output (6) [-P models only]

When installed, the most recent UUT output measurement is shown. The value displayed depends on the output type selected: mA, RTD, or TC.

Soft Key Functions (7)

The four texts at the bottom of the display (not shown) indicate the functions of the soft keys (F1-F4). These functions change with each menu.

Editing Windows

While setting up and operating the instrument, you are often required to enter or select parameters. Editing windows appear on the screen when necessary to show the values of parameters and allow edits.

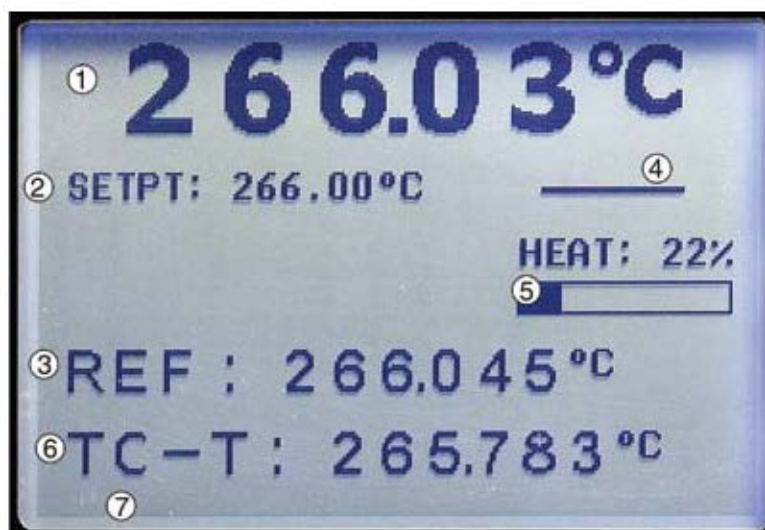


Figure 4 914X display

3.2.3 Power Panel

The following are found on the lower front panel of the instrument (see Figures 5 and Figure 6 on opposite page).

Power Cord Plug (1)

The power supply cord attaches to the lower front power panel. Plug the cord into an AC mains supply appropriate for the voltage range as specified in the specifications tables.

Power Switch (2)

For the 9142, the power switch is located on the power entry module of the unit at the lower center of the power panel.

For the 9143 and 9144, the power switch is located between the RS-232 and the fuses.

Serial Connector (3)

On the 9142, the serial connector is a 9-pin subminiature D type located on the power panel above the power entry module. On the 9143 and 9144, the serial connector is a 9-pin subminiature D type located on the power panel to the left of the power switch. The serial (RS-232) interface can be used to transmit measurements and control the operation of the instrument.

Fuses (4)

For the 9142, the fuses are located inside the power entry module of the unit (Figure 5 on opposite page).

For the 9143 and 9144, the fuses are separate from the power connector (Figure 6 on opposite page).

If necessary, fuses must be replaced according to Specifications (see Section 2.1 Specifications on page 13).

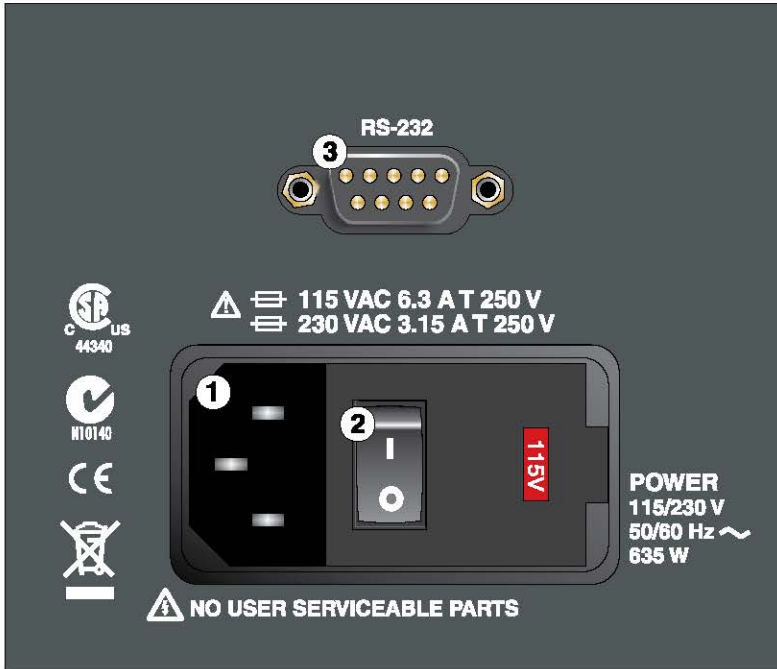


Figure 5 9142 power panel

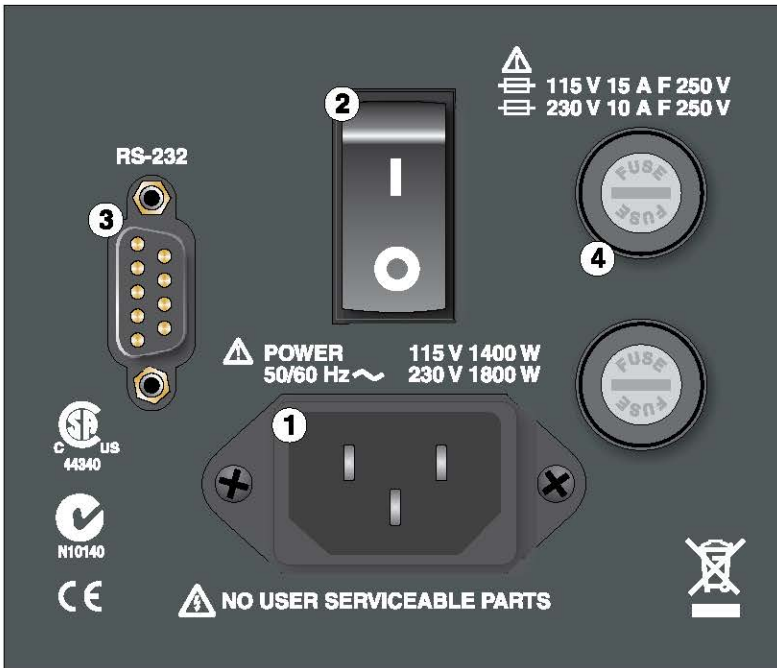


Figure 6 9143 and 9144 power panel

3.2.4 -P Option Panel (-P models only)

The -P (process version) panel is the readout portion of the instrument and is only available with -P models.



Figure 7 -P option panel

Reference Thermometer Connection (1)

The 6-pin DIN smart connector on the front panel allows a reference probe to be attached to the instrument for use with the reference thermometer function of the instrument. The smart connector stores probe calibration coefficients. The 6-pin DIN accepts traditional connectors and the probe coefficients can be entered into the readout or an appropriate characterization curve can be selected through the user interface (see Section 1.5.2 Immunity Testing on page 8 for information on using clamp-on ferrites).

A PRT is the only type of probe that is supported by the reference thermometer input. The PRT (RTD or SPRT) probe connects to the reference thermometer input using a 6-pin DIN connector. Figure 8 shows how a four-wire probe is wired to the 6-pin DIN connector. One pair of wires attaches to pins 1 and 2 and the other pair attaches to pins 4 and 5 (pins 1 and 5 source current and pins 2 and 4 sense the potential). If a shield wire is present, it should be connected to pin 3, which is also used for the memory circuit. Pin 6 is only used for the memory circuit.

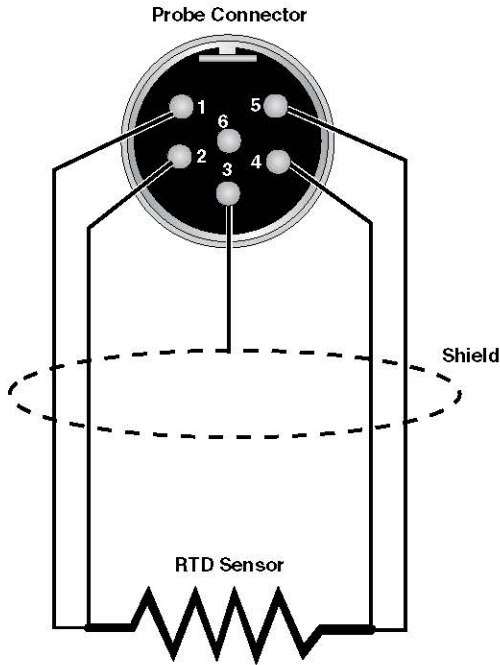


Figure 8 Probe connector wiring

A two-wire probe can also be used with the reference thermometer. It is connected by attaching one wire to both pins 1 and 2 of the plug and the other wire to both pins 4 and 5. If a shield wire is present, it should be connected to pin 3. Accuracy may be significantly degraded using a two-wire connection because of lead resistance.

4-20mA Connectors (2)

The 4-20mA connectors allow current and/or voltage probes to be connected for measurement of associated devices.

PRT/RTD Connector (3)

The 4-wire PRT/RTD connectors allow the user to connect 3-wire and 2-wire (with jumpers, see Figure 9 on next page) PRT/RTDs to the readout. The correct wiring for the 4-wire PRT/RTD is shown on the instrument. Figure 9 shows the correct wiring for a 2 or 3-wire PRT/RTD (see Section 1.5.2 Immunity Testing on page 8 for information on using clamp-on ferrites).

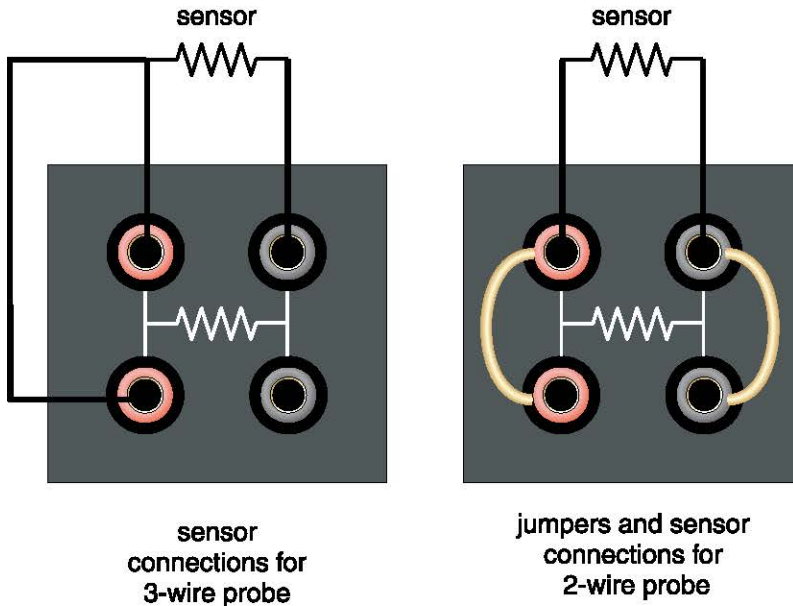


Figure 9 Jumper locations for 3-wire and 2-wire connections

Thermocouple (TC) Connector (4)

The TC connector allows for the use of subminiature TC connectors (see CE Comments on page 8 for information on using clamp-on ferrites).

Fuse (5)

Fuse for the 4-20 mA circuit. Always replace with a fuse of the appropriate rating (see Section 2.1 Specifications on page 13).

3.3 Languages

The display on Field Metrology Wells can be set to different languages depending on the configuration.

- European: English, French, Spanish, Italian, German
- Russian: Russian, English
- Asian: English, Chinese, Japanese

3.3.1 Language Selection

Select the language to be displayed by following the steps shown in Figure 10 on opposite page.

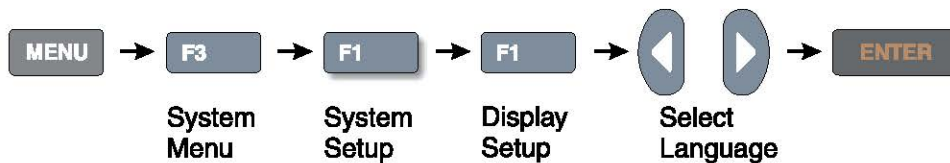


Figure 10 Steps to language selection

3.3.2 Reset to English Language

If you are in a language and need a short cut exit, press F1 and F4 simultaneously to reset the display to English.

To reset to your originally selected language after resetting to English, follow the steps in Figure 10 on this page.



Note: The F1 and F4 English shortcut override is temporary. If you toggle the power off, the instrument will return to the language selected in the DISPLAY SETUP menu rather than coming up in English.