

## Dpu-H245 Manual

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DPU-3445 (with paper Holder)

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carrying out actual field tests. 4. <http://oneworldland.com/userfiles/compressor-3-manual.xml>

2 CONTROLS Operating the CRM510LP is simplicity itself. Because the CRM510LP operates on only microamperes of current, the electrometer detector operates continuously obviating the need for a warmup period. All other functions are controlled by the internal microcomputer MCU. The functions of the CRM510LP front panel controls are described below. Power to the MCU remains on at all times. The display will be turned off if a button is not selected in a reasonable time to conserve power. CRM510LP Continuous Radon Monitor is a complete data acquisition system based on an internal microcomputer MCU. All operator interaction is accomplished via easy to follow LCD screen prompted selections and pushbutton entered commands. Nearly all the features of the data logger program can be used immediately without extensive operator training because responses are prompted by screen menus. The operating system and fixed parameters are stored in EPROM Erasable programmable read only memory. Whereas instrument settings which seldom need changing such as units, calibration factor, background value, and serial number are stored in an EEPROM Electrically erasable programmable read only memory. In the RUN MODE the MCU reads and stores data from builtin radon and environmental sensors and displays current readings of these parameters on the LCD screen. The selection of units for screen display remains in effect during the total data collection period. The units selected at the start of the test will be retained as the default during output. Up to 8 days 192 hours of accumulated hourly count interval data are stored. In the event of a system failure for any reason during a test, all data collected prior to the failure point will be retained. Moreover, the CRM510LP will continue to operate and recalculate even after the data storage memory is full. This data may only be displayed as long as the test is running. It is NOT available if the test is terminated See section 4.3.

4 digital combination screen lock. For tamperresistant security during a test, a key lock switch is provided. Screen security is also provided whereby only elapsed time can be viewed without entering a digital unlock code. Computation Algorithm To fully utilize all the functions of the CRM510LP, an understanding of some of the features of the computational algorithm is helpful. The elapsed time and total accumulated count data are collected, stored, displayed, and printed directly in units of minutes and counts, respectively. However, the present concentration data are computed using an algorithm based on a digital model of a rate meter. Due to the above features, present concentration data will not reach a stable value for approximately one hour after initial startup. However, the accumulated average concentration data are computed and updated at onetenth minute intervals and are immediately valid within the counting statistical constrains of the radon level being measured. The background value used in this computation is stored in EEPROM and can only be changed by procedures described in Appendix F. Operation 1. Turn the CRM510LP keyswitch to the RUN position. The screen will temporarily display RUN. The units used in the previous test will then be displayed on the LCD screen. The display will show SELF TEST ACTIVE 6. If successful, the screen will display PASSED SELF TEST TEST STARTED. If, however, the screen displays FAILED SELF TEST then goes blank, repeat the test initiation procedure. If the unit fails three straight self tests, contact femto TECH for technical assistance at 937 7464427. At the end of this six minute period, the screen locks to a blank display and the tilt transducer is activated and remains active until the end of the test. The tilt transducer is designed for fixed position tests with the CRM510LP in a level position. 8.

<http://dev.pb-adcon.de/node/18200>

After the first six minutes of a test, a digital code must be entered to unlock the screen for viewing the parameters other than elapsed time See DIGITAL COMBINATION SCREEN LOCK SECTION 4.3.4 for details. 9. The CRM510LP will continue to collect data until the test is terminated by the exit procedure below. The accumulated data will be retained as long as a new test is not initiated. However, when a new test is initiated, the previous data are cleared. The unit must have no test less

than 1 hour of data in its memory. As soon as the screen displays TIME 0 min The screen will display No Data to Print Turn the key to the RUN position. After the correct time is displayed, immediately turn the keyswitch to OFF to store the time. 4.3.4 DIGITAL COMBINATION SCREEN LOCK Description A builtin screen security feature prevents unauthorized personnel from access to test parameters and results. If the correct code has been entered, the count data display will come up on the screen. At this point, USE ALL DATA will the display on the screen. This will display SKIP 1ST 12 HOURS on the LCD screen, and the computer will recalculate the test, eliminating the first twelve hours from calculations. Keep in mind that the US EPA protocol test must have a minimum of 44 hours of contiguous data. All hours of data will be printed but the first twelve hours will have three asterisks printed in the hour column to signify that those hours values were not used in the average radon concentration calculation. The last test is retained memory until a new test is started. Test circuitry is built into the CRM510LP to provide the operator with information on the charge level of both battery systems. If the remaining charge in the microcomputer battery drops below that needed to sustain a 48 hour test, the unit will not allow a test to begin. A test in progress is not jeopardized and may be continued for up to 48 hours.

However, the computer will not allow a test to be initiated from the RUN key switch position and displays a LOW BATTERY message on the LCD screen, if a test is attempted with less than 48 hours of battery power supply available. The status of the electrometer battery system is also checked by the microcomputer. If the charge on the electrometer battery drops to a point where the operation of the radon detector could be effected, the computer in the CRM510LP will not allow a radon test to begin. If a radon test is attempted from the RUN key switch position, a LOW BATTERY message is displayed on the LCD screen and test startup is inhibited. If the computer detects a low electrometer battery condition during a test, a low battery flag is set in the collected data and the condition indicated in the printed test summary. The various battery voltages will then briefly display. These sensors have been incorporated to measure parameters that may effect the interpretation of short term radon analyses. The variation of these parameters during a radon analysis provides information that can be used to judge whether a test may have been compromised by environmental conditions or occupant interference. Although the span and scale settings for these sensors are adjusted during manufacturing to agree with precision laboratory instruments, their measurement data should be used as qualitative time varying information only. The MCU reads and processes the information from the environmental sensors every six minutes and saves their hourly averages along with the hourly radon readings. 4.4.1 TEMPERATURE Temperature is measured with a thermistor transducer situated inside the CRM510LP cabinet. The CRM510LP MCU digitizes and processes the analog signal from the temperature transducer for display and storage in units of F or C. 4.4.2 BAROMETRIC PRESSURE The barometric pressure is measured with a differential pressure transducer referenced to vacuum.

The pressure measured by the CRM510LP is the actual atmospheric pressure at the test location station pressure. If required, the CRM510LP MCU can be programmed to apply a MSL adjustment to the pressure measurements See APPENDIX F. 4.4.3 RELATIVE HUMIDITY Relative humidity is measured with a capacitance transducer situated inside the CRM510LP cabinet. The CRM510 computer digitizes and processes the analog signals from the capacitance transducer for display and storage in units of percent relative humidity. 4.5 RS232C INTERFACE The CRM510LP has a builtin RS232C serial port for interfacing with computers, modems, and other peripheral devices. The key switch should be in the OFF position when making connections to the RS232C plug. The serial data output is from pin 22 on the rear 25 pin connector since this connector also provides a simplified Centronics parallel output. Thus, standard 25 pin to 9 pin cables available at the computer parts store will not work. A custom cable is required. Contact femto TECH for answers on the use of the RS232C interface or see Appendix F for details. 4.6 PARALLEL PRINTER INTERFACE The

CRM510LP also contains an 8 bit simplified Centronics Registered trademark of Centronics Corporation interface on the same DB25 connector on the back panel. This is useful for connecting to a variety of low cost printers. This also may require a custom cable. See Appendix F for details of the connector. The data printed for the TABLE may work on some printers since it only contains printable ASCII characters with each line terminated with a carriage return.

## 5. RADON MONITORING

### 5.1 METHOD

The femto TECH CRM510LP is a continuous radon monitor CRM employing passive diffusion sampling of the ambient air environment in which it is situated. Radon decay products are electrostatically removed and prevented from entering the internal pulsed ion sensing volume. In addition to the general protocol documentation referenced above, femto TECH, INC.

Additions and revisions to this document or new documents pertinent to the application of the CRM510LP RADON MONITOR will be available to registered owners as they are published.

## 6. MAINTENANCE

### 6.1 CALIBRATION

The factor relating counts per unit time and radon concentration is a consequence of the structural and electronic design of the CRM510LP and only small variations between different production units have been observed. If a user application demands greater accuracy, direct calibration of the unit at a radon chamber facility is required. To insure continued confidence in the accuracy of your instrument, it is recommended that a calibration be performed at least once a year or according to state or national standards as required. Therefore, environmental gamma radiation or intrinsic ions are not sources of background as with most other types of detectors. However, progeny plateout on the detector surfaces can result in a slow buildup of an alpha radiation background from Polonium210. A background determination can be performed by placing the CRM510LP in an air tight enclosure or plastic bag. Flow the background gas through the enclosure or bag for at least six hours. Please contact femto TECH for battery replacement.

## 7. WARRANTY

Femto TECH, INC. This warranty is limited to repair or replacement at femto TECH's option. Buyer assumes responsibility to apply femto TECH, INC. Femto TECH, INC. recognizes no other warranty policy than this policy as stated.

## 8. REPAIR POLICY

If this unit becomes defective due to workmanship or materials at any time within one year of purchase, return this unit to the distributor or dealer from whom the unit was purchased along with proof of purchase Sales slip, invoice, or receiving slip copy, for repair or replacement.

If the unit becomes defective beyond the one year warranty period, or was damaged due to physical abuse or attempts to operate the unit beyond its environmental specification limits, warranty repair or replacement does not apply. However, femto TECH, INC.

## APPENDIX A OPTIONAL DPU201G THERMAL PRINTER OPERATION

Before using the Seiko DPU201G printer with the femto TECH MODEL CRM510LP radon monitor, it is recommended that you read pages 1 through 12 of the DPU201G INSTRUCTION MANUAL. Once you are familiar with the operation of the printer, turn off both the DPU201G and the CRM510LP, and connect the two components using the cable supplied with the DPU201G printer option. The FEMALE DB25 end of the cable should be connected to the output port on the CRM510LP and the MALE 14 pin end to the parallel input port on the DPU201G. The display should read Software Rev XXX if the test had previously stopped, or TEST ENDED. The unit, in either situation, is now ready to print out. The number of minutes of stored data is displayed on the LCD screen. If open house conditions were encountered at the start of the test, the user has the option of not using the first twelve hours of the test data in the calculation of the average radon concentration. The first twelve hours of the test will be printed, but will be marked by triple asterisks instead of hours, and are NOT used for the calculation of the final average at the bottom of the printout.

## 8. At the conclusion of a printout, turn off the power on the printer, and turn the CRM510LP key switch to the OFF position, before disconnecting the printer.

## FIGURE 1. EXAMPLE CRM510LP RADON TEST REPORTS

Examples of both TABLE and GRAPH format versions of radon test reports from a 48 hour measurement with a CRM510LP are presented in Fig. 1. In both formats a header is printed with lines for test information to be entered by the operator.

The instrument serial number, calibration factor, and background are also printed in the report headers and test summaries of total time, total counts, and average concentration are printed at the end of both report formats. In the TABLE format seven columns of hourly data are printed for the radon concentration, the tilt status, the low battery warning, the relative humidity, the atmospheric pressure, and the temperature. The asterisk in line 48 is an example of a low electrometer battery warning in a test report. The same 48 hour data set printed in GRAPH format is shown on the right in Fig. 1. The plot is scaled to provide maximum resolution for each of the plotted parameters. The scale values and a plot key for each of the parameters are printed in the header along the horizontal axis of the graph.

**APPENDIX B OPTIONAL DPUH245 THERMAL PRINTER OPERATION** Print operation for the DPUH245 Printer is the same as the DPU201G. However, the DPUH245 does have the ability to run on either battery power or AC power, whereas the DPU201G does not have true AC operation; it simply runs on battery power as it is being charged. Special instructions for DPU245H charging, battery and AC operations are 1. The printer will not operate while in CHARGE mode. If the printer battery is low, the AC adaptor may be used as a power supply instead of a battery charger by simply plugging the adaptor into the printer and a wall outlet. 2. To use the adaptor as a battery pack charger, hook up the adaptor between the printer and a wall outlet. This printer and adaptor have different voltages and polarities than other femtoTECH items. Any attempt to use an adaptor from the CRM510LP or any other femtoTECH components will damage this printer, and its adaptor will damage all other femto TECH instruments and printers.

**APPENDIX C femto TECH DOWNLOAD SOFTWARE** This section provides system requirements, instructions to install this program, a quick description of what it does and quick instructions on how to use the software to retrieve data from a unit. This section can also be found as the ReadMe.txt file on the download software CD. **System Requirements** This program should install to any Win95 computer or greater with at least 10MB of hard drive space. To communicate with a femto TECH radon monitor you will need an available COM port with the port number in the range of 1 to 4 and the serial cable provided with the unit. **Directions for Software Installation** Insert the femto TECH download software CD into your computer CDROM drive and the setup program should run automatically. If it does not run automatically, use your file browser and surf to the CDROM drive that the femto TECH download software is in and double click the setup.exe file. The setup.exe installation program will guide you through the rest of the process. After completing the install process, choose your system settings before trying to retrieve any data from a femto TECH radon monitor. To do this, start the program and click the View menu option and then the System Settings option. **Program Operations** The primary purpose of this program is to retrieve data from a femto TECH radon monitor, store the data to your computer, and generate reports for both the technician and the customer. This program also allows the user to regenerate a report using the stored data retrieved from a femto TECH radon monitor. Each time new data is retrieved from a femto TECH radon monitor, three files are created. The first file is the raw data from the unit stored in a.raw file. The second file is the technician report stored in a.tech file. And the third file is the customer report stored in either a.txt or.doc file depending on which file format you choose in System Settings.

There is an example of each of the files created in the \Reports directory under the directory the application was stored in. All files, except.doc files viewed by Microsoft Word, can be viewed from a simple text editor such as NotePad.exe. The files are designed to be viewed with courier size 10 font.

**Using the Program**

1. **Start Program** To start the program, navigate to the program icon in your start menu and click it.
2. **Change System Settings** To see or change your system settings, click the View menu option and then click System Settings. Edit the window as needed and click Save to store the data.
3. **Receive Data** To retrieve data from a femto TECH radon monitor, click the File menu option and then click Receive Data.. The program will step you through the process.
4. **Regenerate Data** To regenerate existing data, click the File menu and then click Regenerate Report.. The program will step you through the process.

To access this information, Click the Help menu option and then click

the About option. APPENDIX D OPTIONAL CARBON MONOXIDE DETECTION The femto TECH CRM510LP can include an internal a carbon monoxide sensor. The data output provides a selection of either the RADON REPORT or the CO REPORT in either TABLE or GRAPH mode on a DPU201G or H245. Radon and CO levels can be obtained by printing both reports data for radon and CO are retained until a new test is initiated. The RADON REPORT graphs radon, barometric pressure and temperature while the CO REPORT graphs CO, barometric pressure and temperature. Humidity results are only available using the TABLE output of the reports. A summary of the duration in minutes of the test and the average of the radon or carbon monoxide for the test period is provided at the bottom of the report. Proceed the step 4, Appendix A. APPENDIX E OPTIONAL MODEM OPERATION The CRM510LP can be purchased with software and hardware that provide for uploading data files to a host computer via a telecommunications link.

All software and hardware required for the upload side of the link is furnished with the femto TECH, INC. However, femto TECH, INC. The CRM510LP modem driver routines use standard AT command codes and recognize numerical result codes from the modem. Prompting and response messages are displayed on the CRM510LP LCD screen at each stage of the communication. If the modem and connecting cable were purchased from femto TECH, INC., two simple connections to the CRM510LP and the phone line are all that you will need to perform a file upload. The modem must be connected to a private line and should not be connected to a party, call waiting, or coinoperated telephone line. Also the MODEM MODE jumpers described in APPENDIX F must be installed on the CRM510LP side of the cable connector. It is recommended that only individuals with experience in this type of communication hardware attempt to interface a user supplied modem to the CRM510LP. Moreover, modem manufacturers take certain liberties with the AT and RS232C conventions which could make it difficult to establish a reliable interface for this application. Operation With the keyswitch in the OFF position, make the interface connection between the CRM510LP and the modem. Insert the modems telephone cable into a telephone outlet. Once the hardware connections have been made, a file transfer is performed following the procedure described below. Turn off the CRM510LP, check all hardware connections and restart the upload sequence. Note 4. The blinking cursor will progress through the digits as the number is dialed. If the HOST computer telephone line is busy, a BUSY message will be displayed. If a connection can not be successfully made after several tries, check with the host computer operator to determine whether the receive hardware and software are operating properly.

Although, the user is required to furnish this portion of the telecommunications link, a description of a simple workable system is presented as a guide for the user to develop a custom system. The system described below is based on a commercially available communications software program ProComm Plus 1.1B by Datastorm Technologies, Inc. running on an IBM type PC. The communications software must perform the following tasks 1. Auto answer on ring, 2. Connect online at 2400 baud, 3. Interpret password sent from CRM510LP, 4. Transmit a readytoreceive file code to the CRM510LP, 5. Receive ASCII file transmitted from CRM510LP, 6. Store received file, 7. Send filereceived code to the CRM510LP, and 8. Go on hook and wait for next call. At the completion of the download sequence, a compiled BASIC program is called to format and save the data set in an ASCII file that can be easily transported to a data base, a spread sheet, a word processor, or another program specific to the reporting and record keeping needs of the user. The required handshake protocols can best be understood by examining the example programs listed below. APPENDIX F SPECIAL FEATURES The CRM510LP has special features and capabilities that can be utilized by advanced users. An OFF logic state is set by connecting the particular pin to the ground pin 16. The computer reads these control code lines on power up and enters the operating mode designated by the setting. Abstract This integration is a part of Siebel Integrations between. User Manual Due to continuous improvement, actual product may different. Manual and cnc vertical mill, manual lathe, manual and cnc plasma. Add Data Manual The following manual describes how to add Companies,. 1

How to Use This Manual The following miniguide will help you efficiently. Manual 5 Rules, regulations, instructions, manual and records for discharging functions at Manual is updated as required; Suppliers are expected to comply with.

DPUH245 Seiko Instruments recommended Printer Cable optional You need to coordinate the baud rate and data transmission conditions on both Main Body and the printer. The factory setting of Main Body is as follows. Direct thermal pr Page 4 and 5 Low Voltage Low 24Volt Voltage Seri Page 6 and 7 Low Voltage Low 24Volt Voltage Seri Page 8 and 9 Low Voltage Low 24Volt Voltage Seri Page 10 and 11 Low Voltage Low 24Volt Voltage Seri Page 12 and 13 Low Voltage Low 24Volt Voltage Seri Page 14 and 15 Low Voltage Low 24Volt Voltage Seri Page 16 and 17 Low Voltage Low 24Volt Voltage Seri Page 18 and 19 Low Voltage 24Volt Mobile Printer S Page 20 and 21 Low Voltage 24Volt Mobile Printer S Page 22 and 23 Low Voltage Low 24Volt Voltage Seri Page 24 and 25 Low Voltage Low 24Volt Voltage Seri Page 27 and 28 Low Voltage 24Volt Mobile Printer S Page 29 and 30 Thermal Printer Subassembled print Page 31 and 32 Low Voltage 24Volt Serial Printer M Thank you, for helping us keep this platform clean. The editors will have a look at it as soon as possible. Flowmeters Dial InLine Orifice Plate Totalizing Ultrasonic Variable Area With Switch Output With Transmitter Output Level Bin Vibrators Level Indicators Level Switches Level Transmitters Pump Controllers and. Please check your inbox, and if you can't find it, check your spam folder to make sure it didnt end up there. Please also check your spam folder. The subject of each caution is illustrated inside the triangle e.g., high temperature caution symbol shown on the left. Do not take a prohibited action shown inside or near this symbol e.g., disassemble prohibiting symbol shown on the left. A specific action is given near the symbol. Use soft dry cloth to remove stains. Do not leave spent batteries in the battery compartment. Operating hours by battery power are only ensured when using the supplied NiMH batteries. It is recommended that sampling is performed without using the tube.

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