



# QuickStix™ Reader



## USER MANUAL

Catalog #ACC-031

**The reader is designed exclusively for use with, and should only be used for, EnviroLogix QuickStix strips. Though the reader may physically accept other lateral flow or immuno-chromatographic strips, the optics and software should only be relied upon for accurate reading or interpretation of EnviroLogix diagnostics.**

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#### 4. Dimensions & weight

Length:	250 mm	Weight:	Approx. 1.4 kg without
Width:	285 mm		batteries and accessories
Height:	70 mm		

#### 5. PC connectivity

The Reader is equipped with a serial port and is designed to transfer and receive data from a PC through a standard serial RS 232 data cable with a 9-pin female SUB-D connector that is provided with the Reader. The Reader routinely and automatically transmits test results to the PC and receives assorted data from the PC including but not limited to sample ID numbers, product development data, code assignment data, and service-related data.

At the option of the user, wireless Bluetooth Reader-PC connectivity can be activated. A detailed description of Bluetooth functionality can be found in section 9.10 of this manual.

#### 6. QuickStix barcodes, strip lot numbers and event codes

QuickStix strips are manufactured with embedded barcodes, which contain:

1. the strip lot number
2. an alpha-numeric code that corresponds to each measurable trait or event

The Reader scans the strip barcode prior to scanning the strip's Test Line and Control Line, automatically identifying the relevant strip lot number and the traits/events present on the strip being scanned. New alpha-numeric codes will be assigned to new traits and/or events as they become available.

The procedure for inserting new trait/event codes into the Reader's memory, as well as for updating existing codes and/or eliminating or replacing codes, is described in Appendix A. Currently (June 2005), the Reader can be loaded with codes for the following traits/events:

<b>TRAIT or EVENT</b>	<b>ALPHA NUMERIC CODE</b>
Cry1Ab	C1
Cry9C	C9
Roundup Ready®	RR
Cry3B	C3
Cry1F	1F
LibertyLink® PAT/pat	LL
Aflatoxin	AF
Roundup Ready Soy	RS

## **7. Memory**

Despite automatic test-result transmission to the connected PC, the Reader has an internal memory configured to store the most recent 30 result records. The memory works on a FIFO (“First In First Out”) basis; the oldest record is overwritten each time an additional test is run once the storage capacity is exceeded.

## **8. Communication software**

The Reader comes with software which drives 2-way communication between the Reader and a connected PC. This communication software functions independently of whether the Reader is connected to the PC via standard serial cable or via Bluetooth.

The communication software drives four (4) functions:

1. Digital transfer of Sample ID numbers (also called Scale Ticket Numbers or STN) from the PC to the Reader
2. Digital transfer of test results from the Reader to the PC
3. Test result storage on a user-designated directory on the PC’s hard disk, in ASCII format DAT files (each test result corresponds to an individual DAT file)
4. Daily automatic test result consolidation from the above mentioned DAT files, into an Excel spreadsheet.

The software installation and update routines are contained in Appendix A.

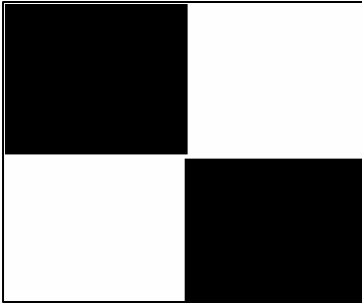
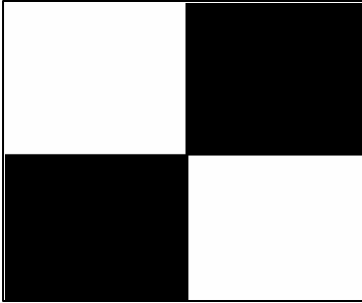
## **9. Regular operations**

The Reader provides the following operational modes:

1. Run tests
  - Confirm or edit Sample # or Scale Ticket Number
  - Confirm or edit location ID
  - Confirm or edit operator ID
  - Scan strip and display data
2. Instrument Settings
  - Date/Time
  - Enable/Disable auto-power off
  - Enable/Disable auto printing
  - Enable/Disable sound

## 9.1 Powering up

When the Reader is turned on the system will self-calibrate; this takes 10-15 seconds. The following screens will appear.



```
      Please wait
      system test
      ...
Instr. No. 12345678

Time:      Date:
10:31AM    12-24-04

      Version
Meter      Boot
X.XX.XX    X.XX.XX
```

## 9.2 Main Menu

Once self-calibration is complete the display advances to the MAIN MENU screen which presents two options:

1. Run / scan test
2. Instrument settings

```
      Main Menu

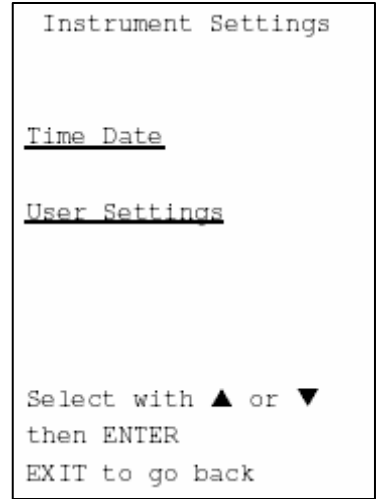
RUN / SCAN TEST
INSTRUMENT SETTINGS

Select with ▲ and ▼
then ENTER
```

### 9.3 Instrument settings

This function comprises two options:

1. Setting the time and date;
2. Assigning User Settings, which involves enabling or disabling 3 functions:
  - a. auto-print
  - b. auto-power off
  - c. sound/beep

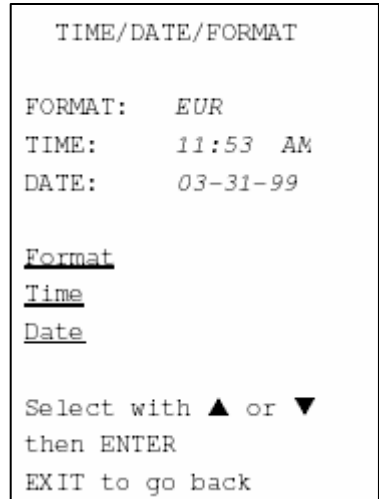


Below, the time and date screens are expanded upon, followed by the User Settings screen.

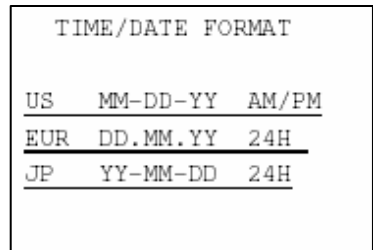
### 9.4 Time/Date

Setting date and time entails four simple screens. The first screen allows choosing between three functions:

1. setting the format
2. setting the time
3. setting the date



If in the first screen one chooses the Format function, the next screen allows selecting either the US format; or the European/Japanese format.



If in the first screen one chooses the Time function, then the next screen allows setting the time.

```
Set Time

TIME:  5:58
AM/PM: PM
7

Select field with ▲▼
ENTER to store
EXIT to abort
```

If in the first screen one chooses the Date function, then the next screen allows setting the date.

```
Set Date

DATE:  03-31-99
```

In all cases, pressing ENTER confirms and saves the selection, and pressing EXIT allows reversing to the previous screen.

## 9.5 User Settings

Enabling or disabling the auto-print, auto-power off and sound is accomplished with the four arrow keys, followed by ENTER to save, or EXIT to abort or cancel.

```
User Settings

Auto power off  OFF
Beep            ON
Auto Print      ON

Setup field with ◀▶
Select field with ▲▼
```

## 9.6 Run Scan test

The Run Test screen displays 3 IDs that must be entered prior to scanning a strip. These 3 IDs are:

1. Sample ID, also called Scale Ticket Number (STN)
2. Operator ID
3. Location ID

```
Run Test

Enter IDs:

STN#  1234567890ABCDE

OperID#      123
LocID#       123

Insert test strip!

PRESS DELTET TO CLEAR
PRESS ENTER TO START TEST
PRESS EXIT TO INTERRUPT
```

The Location ID should only be changed if for any reason the instrument is moved to a different physical location.

The Operator ID should only be changed when the Reader operator changes (typically this happens at the end of each work shift).

The Sample ID or Scale Ticket Number (STN) will change with every strip.

## 9.7 Scale Ticket Number (STN)

The STN should be digitally transmitted to the Reader from the connected PC while the Reader is in Main Menu.

The STN transmitted from the connected PC can be any alpha-numeric sequence up to 15 characters in length.

Once STN transmission from the PC to the Reader has occurred, the operator can select “Scan Test” from the Reader’s Main Menu. The Reader’s display will advance to the “Run Test” screen with the relevant STN # automatically displayed.

If the PC does not transmit an STN or if the Reader does not successfully receive the STN from the PC, the operator must manually enter an STN. If the operator manually enters an STN, it must be a purely numeric ID, up to 15 characters in length.

```
Run Test

Enter IDs:

STN#  1234567890ABCDE

OperID#      123
LocID#       123

Insert test strip!

PRESS DELTET TO CLEAR
PRESS ENTER TO START TEST
PRESS EXIT TO INTERRUPT
```

The Location and Operator IDs will be automatically displayed with values carried-over from the previous scan. The Operator ID field only requires data entry between shifts (or if the operator changes for any other reason). The Location ID field only requires data entry if the Reader's physical location changes.

Once the operator has verified that the STN, Location ID and Operator ID displayed in the Run Test screen are correct, the only required action is to physically insert the reacted strip into the strip holder, place the strip holder into the Reader aperture, and hit ENTER to initiate the test.

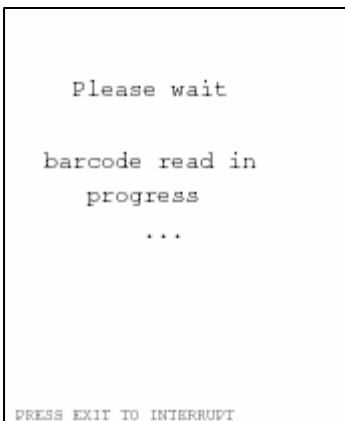
## 9.8 Inserting reacted strips into the Reader

**Remove pad from bottom of strip** and insert into the slot in the strip holder with the bottom pointing away from the handle; then gently slide the holder into the aperture located at the front of the Reader until it clicks into place.

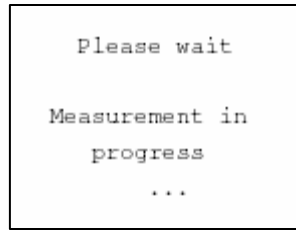


Once the holder has been inserted into the Reader, press ENTER to initiate the scan sequence.

Once the scan sequence has been initiated, the Reader will momentarily display the following strip barcode read and check screens.



If barcode read and barcode check have occurred correctly, the display will then advance to the Measurement in Progress screen:

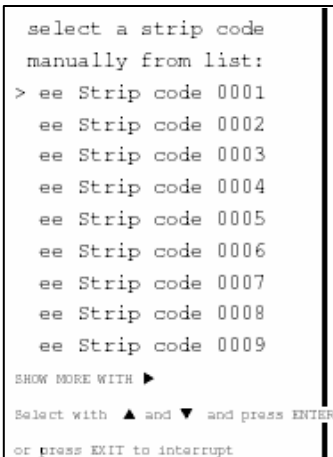


Once each scan sequence is complete:

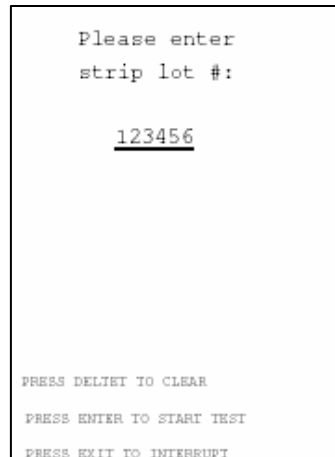
1. The display will have automatically advanced to the results screen, illustrated on the next page.
2. The Reader's internal printer will automatically print the results on the roll of thermal paper housed inside the Reader (for replacements, see Appendix D); the "auto print" feature can be disabled in User Settings as explained in section 9.5 above. The printed results will mirror the results as displayed on the screen.
3. The test results record will be automatically transmitted to the connected PC. The Reader will display a message that indicates that the data transmission has successfully occurred.
4. The Reader operator should remove the strip holder from the Reader aperture, and remove the strip from the holder.

If for any reason the strip's barcode cannot be read by the Reader, it will generate an error message; on subsequent screens, the Reader will request the following two manual entries before proceeding with the scan. (If the operator inserts a non-EnviroLogix strip it will request manual entry as well; however, even if data is entered, the Reader will not read a non-EnviroLogix strip properly.)

*Manual selection of a strip code from a menu of options*



*Manual entry of the strip lot number*





- a) **ID** - refers to the trait or event's 2-digit alpha-numeric ID code, as described in section 6 of this manual
- b) **Ver** - a 3-digit reference to the version of the trait or event ID code currently loaded in the Reader
- c) **SI**- stands for "Signal Intensity" which is a 2-digit indicator, on a scale of 1-99, reflecting the strip's Test Line intensity by comparison to the strip's Control Line intensity
- d) **GMO Range** - is expressed as a percentage figure, and corresponds to the reported Signal Intensity pursuant to statistical calculations

*If using EnviroLogix multi-event strips, the Reader is capable of displaying up to six (6) events simultaneously.*

The actual number of lines displayed on the Reader's results screen will depend on the number of events that are present on the EnviroLogix strip being scanned.

The contents of the results screen are automatically transmitted to the connected PC in an ASCII format DAT file, and saved onto a user-designated directory on the PC's hard drive. Each scan will generate its corresponding DAT file on the PC.

Test result information contained in the above-mentioned DAT files will be automatically exported into an Excel spreadsheet by the Reader-PC software described in section 5 and Appendix A.

Each day, the software will create a new Excel file to capture that day's test results.

Below is an example of how the data is organized in the daily test-result Excel file.

1	2	3	4	5	6	7	8	9	10	11	12	
								Analyte 1				
Test Seq. No.	Date	Time	Reader Serial No.	Operator ID	Location ID	Strip lot #	Sample # or STN	Trait/Event Code	Trait/Event code Version	Signal Intensity (SI)	GMO Range	





## **Appendix A**

### **Communication software installation**

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Bi-directional data flow between the Reader and the connected PC is driven by EnviroLogix Result Control.exe (ERC).

ERC will be provided on a CD; it will automatically start an installation wizard to install the required components onto the PC. Select the directory to install; a shortcut will be placed on the desktop.

EnviroLogix Field Sales Representatives will guide users through the simple menu of options and screen displays generated by ERC. The program will enable storage in Excel by default, and will use a default directory to store data. To change the default directory, go to “File – Set Directory to Store.” Make sure the “Enable \*.xls file” and “summary file” boxes are checked (enabled). Specify the com port to use and connect it using the button on the main screen. At this point the reader is ready to receive data.

## **Appendix B**

### **Event code updates**

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Event code updates, new event codes, product development data, code assignment data and service-related data are uploaded to the Reader by EnviroLogix Field Sales representatives or technical service personnel.

## **Appendix C**

### **Troubleshooting**

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The Reader has an internal diagnostic capability that detects and alerts the user to common problems that require corrective action, and notifies the user if it detects a potential problem when performing a scan or calculating a scan result. The following screens will be displayed when such problems or potential problems are detected.

MEMORY FAULT IN  
EEPROM.

Checksum error.

Record deleted in  
XXXXXXXXXX  
data base

Switch instrument OFF

MOTOR FAULT

Motor is blocked.

Please switch off  
instrument.  
and  
check carriage.

Press OFF

Measurement not  
possible.

No test code  
available.

It is unable to run  
a test.

ENTER to continue

OPTICAL FAILURE

Internal standard  
is out of range.

It is unable to run  
a test.

ENTER to continue

MEASUREMENT  
CANCELED

please wait

ENTER to continue

Warning

Battery low.

Change batteries  
or  
plug in power supply

ENTER to continue

WARNING

Appropriate code  
is not available for  
barcode printed on  
strip.

Measurement is  
canceled!

Press ENTER to interrupt

WARNING

Barcode check  
failed for barcode  
printed on strip.

Select a code for  
this strip manually  
or  
interrupt measurement

Press ENTER to select

Press EXIT to interrupt

Measurement canceled.

Test strip is  
expired.

Press ENTER to continue

STRIP CODE SELECTION

selected strip code  
is expired!

Please select  
another strip code.

Press ENTER to continue

Press EXIT to interrupt

## Appendix D

### Replacements

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#### **AC adapter**

FRIWO Switchmode Power Supply

15 watt MPP 15 (100-240V, 47-63 Hz, 400 mA, output 6 V 2100 mA)

FRIWO P/N: 1812036 – Vale P/N: 15.0791

Includes standard DC connector of your choice + Input Mains Prong of your choice

Price: \$37.35 each

Vale Distribution Co., Tel: 1-800-606-8253; [www.valedistro.com](http://www.valedistro.com)

Contact Alan Andrews [aandrews@valdistro.com](mailto:aandrews@valdistro.com)

#### **Printer Thermal paper**

Data Modul Inc.

1767-4 Veterans Memorial Highway, Islandia, NY 11749

Tel: 631-951-0800

Product code DPA-245-TR1II

Order number DG06619

Length of the paper rolls approx. 25 yards

<http://www.datamodul.com>

## Appendix E

### Safety & Maintenance Notes

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Read these Safety Notes before using the Reader.

1. The Reader is a precision instrument. Never attempt to dismantle it. There is a serious danger of a powerful electric shock.
2. Do not leave or operate the Reader in locations exposed to direct sunlight.
3. Do not bring the Reader close to a flame.
4. Do not drop the Reader or otherwise subject it to strong impact.
5. This Reader contains precision electronic components. To ensure that scanning operations are performed correctly, do not subject the Reader to impact or shock while a scan is being run.
6. Do not use or store the Reader in very humid, dirty or dusty places; places subject to extreme temperature increases such as in direct sunlight, a closed car in summer, or extremely cold places; places subject to strong vibration; places affected by smoke or steam; places subject to strong magnetic fields (such as near motors, transformers, or magnets); sandy places, such as beaches or deserts, or places where there is wind-borne sand and dust.

7. Avoid moving the Reader suddenly from a cold location into a warm location, as condensation may occur.
8. The Reader should be cleaned on a regular basis by wiping the outside with a damp cloth.

## **Appendix F**

### **Trademarks**

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EnviroLogix Inc., EnviroLogix and QuickStix are trademarks of EnviroLogix Inc., 500 Riverside Industrial Parkway, Portland, Maine 04103. Phone: + 1-207-797-0300.

BlueTooth is a registered trademark of Bluetooth SIG, Inc.

Roundup Ready is a registered trademark of Monsanto Technology, LLC  
LibertyLink is a trademark of Bayer

## **Appendix G**

### **Operating & storage conditions**

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1. Storage Temperature Range: -20°C - +55°C (-4°F to 130°F) for 24 hours
2. Storage Humidity Range: 0% - 80% rH, Non - condensing
3. Operating Temperature Range: 15°C – 32°C (60°F – 90°F)
4. Operating Humidity Range: 20% - 80% rH, Non - condensing
5. Diffuse Ambient Light: ≤ 5.000 Lux with strip holder inserted

There are no built-in sensors to detect extreme climatic conditions; however, operating the Reader outside the specified temperature and/or rH range is expected to negatively impact the Reader's precision.

## Appendix H

### FCC Declaration of Conformity

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This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Product: EnviroLogix QuickStix Reader  
Responsible Party: EnviroLogix Inc.  
Portland, Maine 04103  
Phone: 207-797-0300

### Part 15 of Title 47 of the Code of Federal Regulations

*This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help*

Changes or modifications not expressly approved by EnviroLogix may cause interference and void the user's authority to operate the equipment.

## Appendix I

### Standards and certifications

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European Union: CE

United States: UL

## Appendix J

### EnviroLogix Limited Warranty

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EnviroLogix Inc. (“EnviroLogix”) warrants the Reader against defects in materials and workmanship, when used in accordance with the applicable instructions, up to fifty thousand scan sequences or for a period of 18 months from the date of shipment, whichever occurs earlier.

The reader is a precision instrument that requires very careful handling.

This warranty does not cover physical mishandling in any manner including but not limited to storage or operation in an unprotected environment, excessive exposure to direct sunlight, liquid spillage on any part of its surface or interior, objects falling on top of the reader and/or the reader being dropped onto the floor or any other surface from any significant height.

If the Reader does not conform to this Limited Warranty and the customer notifies EnviroLogix in writing of such defects during the warranty period and returns the Reader to EnviroLogix for evaluation, EnviroLogix will repair or replace the Reader at its option.

During the period of defects evaluation, EnviroLogix will swap the defective Reader with a loaner unit from its loaner pool located at its Portland, Maine, headquarters. Upon completion of necessary repairs, or upon determining that a replacement unit will be provided to the customer, the loaned unit will be reverse-swapped with the customer’s repaired unit or the replacement unit, as the case may be.

**IMPORTANT:** The Reader will only accept EnviroLogix QuickStix and should only be used to scan EnviroLogix QuickStix. The Reader will not recognize immunological strips that are not manufactured by EnviroLogix. EnviroLogix supplies the Reader to its customers on the explicit understanding that it will be used exclusively to scan and measure results produced by EnviroLogix QuickStix. Any other use is neither intended nor authorized by EnviroLogix.

## Appendix K

### EnviroLogix Customer Service

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EnviroLogix maintains a dedicated staff for fielding any problems that may arise with the Readers. For troubleshooting please ask for “Reader Support” at 1-866-408-4597 (in the U.S.) or +1 (207) 797-0300. Hours are Monday through Friday, 8:00 am to 5:00 pm Eastern Time; messages may be left in the general voice mail and will be returned as quickly as possible on the next business day.