Operation

Power

The CorrReader Pro performs an initialization sequence confirming the battery level, SD card presence and valid programming. The GPS then acquires satellites. When GPS locked and synchronized, the CorrReader Pro goes to Measurement Screen. If an error is encountered, a text message will display on the screen.

Measurement Screen

The CorrReader Pro obtains a GPS lock and synchronization before displaying the Measurement Screen, also all 3 LED's will blink green. The Measurement Screen displays the OFF, ON and AC readings along with the local time and battery level.

Taking Readings

Press ENTER to store the readings to the SD card. After the readings are stored, the CorrReader Pro will show a screen where the user can enter a comment, i.e. test station ID, maximum 16 characters.

The Comments Screen has three rows for a keypad and bottom row showing the user's comment. Use the arrow keys to navigate the screen and select a letter or number. There are some special control characters;

3 Done – Store the comment & returns to the Measurement Screen

→ Backspace – Erases the last character

← Next Screen – Toggles between the main keyboard screen and a secondary screen with specialized characters.

The arrow keys will wrap, i.e. when the cursor is on 'A', selecting the left arrow key will cause the cursor to move to '3'.

To add additional comments, press the down arrow twice to enter the Comments Screen. Press the up arrow twice to exit the Comments Screen without saving.

Stationary Data Logging Mode

The CorrReader Pro firmware update V1.D9 now offers a stationary logging mode. If the user holds the button while turning the CorrReader Pro on, it will enter Stationary Mode. The CorrReader Pro will being logging automatically, as soon as GPS lock is acquired. The CorrReader Pro will then run until the battery is depleted.

In Stationary Mode, the user has the option to provide external power from a USB battery pack or USB wall adapter. This will allow for indefinite logging time.

Lights

There are three LEDs on the face that blink. The colour of the LED indicates different operational states. When all three LED's are green, the CorrReader Pro is ready to store a reading.

	Green	Yellow	Red
POWER	All checks ok	Initialization sequence	Problem – battery low, no SD card
GPS	Has GPS lock— blinks in time with PPS	Searching for satellites or wait for almanac	No GPS lock, timed out
READ	Synchronized & shows measure-ment—blinks in time with cycle	Storing readings	Write error

Field Use

Connect the black terminal/lead to a Cu/CuSO4 reference cell. Connect the red terminal/lead to the pipe or test station.

Turn the CorrReader Pro on and wait for the start-up checks and measurement screen to appear. For proper cathodic protection, the reading should be negative; if positive, check your wiring and/or rectifier output.

Do NOT survey during thunderstorms, lightning may cause injury to personnel and/or damage to the CorrReader Pro.

Limited Warranty

All Cathodic Technology Limited (Cath-Tech) instruments and equipment are warranted against defects in materials, design or workmanship for a period of two years from date of sale. This warranty excludes damage due to misuse, abuse, tampering or acts of God such as fires, floods, wind damage, lightning etc.

We will repair or replace at our option any defective component, after examination in our manufacturing facility, if the fault is due to defective materials or labour, within two years of the purchase date. For warranty repair, a Returned Goods Authorization (RGA) must be obtained from Cathodic Technology Ltd prior to shipping the defective unit pre-paid to our location.

Note: There is no warranty expressed or implied on batteries.

Cath-Tech Policy

Cath-Tech extends a two-year in use warranty on all units, which have been designed and/or manufactured by Cath-Tech staff. Under normal circumstances there is no need to access the interior of the unit. To do so without prior Cath-Tech approval will void any and all warranties.

Cath-Tech reserves the right to make any changes in design or specification which it deems an improvement, with no liability to make the same changes on existing equipment.

This warranty is in lieu of all other warranties or guaranties, expressed or implied, which might otherwise exist. The purchaser is relying only upon this guarantee and not upon any representations not herein expressed.

Any material or equipment being returned to the factory must first have a Returned Goods Authorization (RGA) from Cath-Tech.

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CATH-TECH
CP Survey Instruments

Operation Manual for CorrReader Pro

GPS Synchronized Test Station Reader

Cathodic Technology Ltd.
15-1 Marconi Court
Bolton, Ontario
Canada L7E 1E2
Ph: ++1-905-857-1050
ctl@cath-tech.com
www.cath-tech.com

USB Port

The USB port is located on the outside of the case, near the terminals. Use a Mini USB cable, 2m long maximum. The USB port provides access to the SD card memory and charges the battery. For computer communication or charging the CorrReader Pro must be powered ON in Test Point Mode.

A dust cover is attached to the case to protect the USB port from dust, dirt, sand, etc. under normal use. Ensure the cover is properly inserted into the USB port to prevent damage.

Troubleshooting

Problem	Possible Solution
CorrReader Pro won't turn on	Charge battery—plug in and press the power button
No GPS lock	Ensure the CorrReader Pro is outside with a clear view of the sky, move away from tall buildings
Low or no DC voltage reading	Check all cable connections Remove half cell cap Inspect test station, test station may be damaged Move to another test station to confirm
Stuck on the keyboard screen, can't return to measurements	Use the arrow keys to navigate to the ∃ symbol in the upper right corner and press ENTER
AC reading above 15V	Potentially dangerous area, disconnect and follow company procedures
No computer communication	Turn the CorrReader Pro ON—a message will show on the CorrReader Pro screen Use a maximum USB cable length of 2m (6')

Environmental Protection

Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority or retailer for recycling advice.

Files

Memory

CorrReader Pro uses a MicroSD card to store programmed settings and data. To access the data, turn the CorrReader Pro on and connect to the computer with a USB cable. The SD card will appear as a drive on the computer and files can be copied off and on to the card.

The SD card contains two types of files, a configuration file and data files.

- Configuration file - program information
- Data files - stored survey data

Configuration File

CFG.TXT contains the programmed settings. These can be changed & saved in the same text file. If the file is accidentally deleted, the CorrReader Pro will create another one with the last good settings the next time it is turned on. The user must set the same cycle/program the interrupters are set to.

```
CATHODIC TECHNOLOGY
STPR CFG.TXT
TotalCycle [msec] = 4000,
OffTime [msec] = 1000,
StartWith = 0,
MeasDelayON = 0,
MeasDelayOFF = 0,
LocalGPSTimeOffset = -5,
NumOfReadings = 3,
END
```

`TotalCycle [msec] = 4000,`	Enter the total cycle time in milliseconds; 1000ms = 1 sec
`OffTime [msec] = 1000,` `StartWith = 0,`	Enter the OFF time in milliseconds, must be shorter than total cycle time
`StartWith = 0,`	Select 0 to start the cycle with OFF, or 1 to start the cycle with ON
`MeasDelayON = 0,`	ON measurement delay, set to 0 to calculate automatically (recommended) (minimum 80ms)
`MeasDelayOFF = 0,`	OFF measurement delay, set to 0 to calculate automatically (recommended) (minimum 80ms)
`LocalGPSTimeOffset = -4,`	Change to the local time zone, CorrReader Pro will now display and store local time.
`NumOfReadings = 3,`	Choose how many readings are stored when ENTER is pressed (max 20).

Data Files

DATA####.CSV contains the survey data. A new data file is created every time the CFG.TXT is changed. The file header contains information on the CorrReader Pro (serial number, etc) and cycle settings.

Battery

CorrReader Pro is powered by an internal lithium ion battery. Battery is charged by the USB port, 5V 500mA input. The CorrReader Pro must be powered ON to charge.

In Test Point Mode, after 10 minutes of inactivity the CorrReader Pro will power down to conserve battery life. In Stationary Mode, the CorrReader Pro will power down when the battery is fully depleted.

After charging, unplug the USB cable and turn the unit on and off before storing it.

If the CorrReader refuses to charge, there is a battery recovery procedure on our website. Scan the QR code to review it. The internal Lithium-Ion battery pack can also be replaced with a AA battery adapter.

Technical Specification

Input Range: +/- 10 V DC

Input Resolution: 0.1 mV

Input Range: 100 V AC RMS

Input Resolution: 0.1 V AC

Input Resistance: 25 MΩ

AC Rejection: 50 V RMS superimposed

Accuracy: 0.01% DC, 0.5% AC

Power: 3.6 V 5.3 Ah Lithium Ion

(Optional) Power: 3 x AA alkaline

Memory: MicroSD, FAT32 Format