

EQUIPMENTS AND SOFTWARES UNDER CoE

The Centre of Excellence for Integrated Landuse Planning and Water Resource Management is equipped with state-of-the-art equipments and devices. This objective was set with a future prospective for continuing training and providing assistance to relevant Govt. agencies.

The equipments currently available with the centre are:

- Oxy Top IS 6 Digital BOD Analyser- 1 no
- Oxi3205 Dissolved Oxygen Meter - 1 no
- Digital Water Level Recorder - 2 nos
- Digital Rainfall Recorder - 2nos.
- Scanner- 1 no
- Plotter- 1 no
- Runoff Sediment Sampler - 2 nos.
- Soil Moisture Profile Probe - 1 no
- Ground Penetrating Radar - 1no.

BOD (Biological Oxygen Demand) meter

Make & Model: WTW GmbH, Weilheim, Germany OxiTop IS 6 Digital BOD Analyser

Key Features:

- ✚ BOD self-check measurements" to DIN 38 409 T52 Mercury-free BOD measurement
- ✚ APHA/DIN Standard method
- ✚ Very simple handling
- ✚ Retrofittable
- ✚ Accurate
- ✚ Mercury –free BOD measurement with digital display
- ✚ Large measuring range with overflow indication
- ✚ Auto Temp function-intelligent temperature monitoring for
- ✚ Automatic start under optimal conditions
- ✚ Automatic zero setting at start
- ✚ Built in measurement memory for 5 days
- ✚ Weekend measurement possible with automatic storage
- ✚ Battery Powered; typical battery life 2 years

Technical Specification

- Measuring Principle: Manometric with pressure sensor/respirometric
- Parameter: BOD
- Measuring Range:0-4000 mg/l (directly without any dilution)

- Display Range: 0-50 digits
- Display Accuracy: ± 1 digit
- Maximum sample load: max 6 samples simultaneously (infinite times)
- Power: 2 x CR 2430 Batteries, approx life 2 years (per head)
- Warranty: 1 year from installation

DO (Dissolved Oxygen) Meter

Make & Model: WTW GmbH, Weilheim, German Oxi3205 SET 2

Key Features

- ✚ Versatile
- ✚ Field proven DO meter with backlit graphic display for mobile applications
- ✚ It enables you to perform measurements quickly and reliably
- ✚ Set include Cellox® 325 3, Cleaning Solution, Electrolyte, Exchange membrane heads, Stand, Beaker. Including short instruction manual, CD-Rom and batteries, Merk

Technical Specifications

- D.O. Concentration: 0.00...2.00 mg/l \pm 0.5% of measured value
0.00...90 mg/l \pm 0.5% of measured value
- Saturation: 00...200.0% \pm 0.5% of measured value
- Part. Pressure: 00...200.0hPa...1250 hPa \pm 0.5%
- Temperature: -5.0...105.0°C \pm 0.1°C
- Calibration : Cellox/DuroOx with OxiCal calibration vessel
- Calibration memory: Current Calibration Recallable
- Built-in air pressure sensor for compensation: yes
- Display: LCD graphic display, backlit
- Data logger: none
- Power Supply: 4 x 1.5 V AA or 4 x 1.2 V NiMH rechargeable
- Continuous operation up to 1000 hours (150 with lit display)

Digital Water Level Recorder

Introduction

This is a micro controller based Digital Water Level Recorder reflect state of the art in micro controller based instrumentation design. The Water Level sensor can be attached with this data logger for the collection of real time data automatically. The micro controller converts the analog signals from these sensors to digital format. The micro controller has their individual operating software's programmed in their internal EEPROMS and the data acquired by them is stored in their internal data RAMS. This micro controller remains in the sleep mode and wake up only when either a signal from the sensors is available or when they receive control signals from the master controller for acquiring the stored data. The micro controller has its internal memory along with additional 512K EEPROM, a real time clock with a LCD (16 x 2) to display the instrument status. PC End Software will create a file Excel file at desired location.



Make & Model: Virtual Electronics Digital Water Level Recorder

Technical Specifications

- Display: 16 Characters X 2 Lines LCD
- Sensor: Shaft Encoder Type
- Technology: RISC Based
- Micro controller: PIC16F877

- Real Time Clock: Provided
- Data Storage Capacity: 512K EEPROM
- Power Supply: 12 VDC
- Battery Charging: Solar Panel; Output Voltage: 12 Volt DC and Wattage: 10 watt
- Display Range: 999.999 meters or 9999.99 feet
- Recording Rate: Programmable, 1 min to 24 hour
- Operating Temperature: 0 to 50°C
- Operating Humidity: 0 to 90 % non condensing
- Resolution: 1mm or 0.01 feet
- Data Retrieval: Through Data Shuttle on Computer. The data shuttle is pocket size device that can be used to download & transport the data from weather station to a computer, allowing the instrument to stay in place for continuous monitoring. The shuttle connects to a PC and is used with “Virtualware” to download data.
- Accuracy: ± 5 mm (for a depth of 100 feet)

Digital Rainfall Recorder

Introduction

This is micro controller based Digital rainfall Recorder reflect state of the art in micro controller based instrumentation design. The Rain Sensor can be attached with data logger for the collection of real time data automatically. Rainfall amounts are necessary for river forecasting, since, without rainfall, one cannot predict runoff and therefore future stages. A tipping bucket rain gauge consists of a funnel and a rocker mechanism with two little “buckets” on it, located underneath the funnel. When rain falls into the funnel, it fills one of the little buckets on the rocker mechanism. Once a given amount of rain falls into the funnel, the rocker “tips” over, emptying one of the buckets and moving the other one underneath the funnel. A recorder in the gauge records each tip and the time it occurred. A real time clock with an LCD (16 x 2) is providing to display the logged readings. In this system you can get current rain and previous rain at a time.

Make & Model: Virtual Electronics Digital Rainfall Recorder

Technical Specification of Data Logger

- Data Storage: 512K EEPROM
- Real time Clock: Provided
- Scan Rate: Programmable either from 1 min to 24 hour
- Display: 16 x 2 LCD Display
- Power Input: 12 V
- Battery Charging: Through Solar Panel (10 W/12V)
- Operating Temperature Range: - 20° to 50 °C

- Operating Humidity Range: 0 to 90 % non condensing
- Data Output: Through Data Shuttle on Computer
- Expandability: More Channel can be added at Extra Cost

Technical Specification of Sensors

- Sensor: Tipping Bucket Rain Gauge
- Least Count: 0.20mm
- Sensing: Magnet & Reed Switch
- Capacity: Unlimited
- Accuracy: 5% @2mm/hr

A0 Size Scanner

Make & Model: Colortrac SmartLF Gx+42e



Specifications

- True Optical Resolution: 1200 dpi
- Interpolated Resolution: 9600 dpi
- Maximum Scan Width: 42" (106.7 cm)
- Maximum Media Width: 46" (116.8 cm)
- Maximum Medium Thickness: 0.08" (2mm)
- Accuracy: +/-0.1% +/-1pixel
- Data Capture (Color/Grayscale): 48-bit/16-bit
- Color Space: RAW RGB/sRGB
- Scan Speed 1BIT Mono (in/sec)@200 dpi: 12.00
- Scan Speed 1BIT COLOR (in/sec)@200 dpi: 4.00
- Paper Path: Face-Down, front entry, rear exit

- Interface: High Speed USB 2.0/Gigabit Ethernet-network ready
- Power Requirements: External power supply 100-250 VAC auto sensing +/-10% Less than 40 VA (Scanning) 4.2 VA (standby)
- Weight & Dimension (WXHxD):97 lbs (44 kg) 56.7x7x14.6" (144x18x37 cm)
- Host Platform: Window XP, Windows Vista- 32 bit
- Included Software: Smart All-in-one scan and copy software
- Warranty: 3years

A0 Size Plotter

Make & Model: Canon Image PROGRAPH
iPF81

Specifications:

- Maximum Resolution: 2400x1200 dpi
- Media Supply: 1 Roll + Cut Sheet
- Maximum Media Width: 44"
- Maximum Media Length: 18 meters
- Media Thickness: 0.8mm; Speed: 1A1/25 sec
- Interface: 10 BASE-T/100 Base-TX, USB 2.0 High Speed
- Supported OS: Windows 200 / XP / VISTA
- Memory: 384 MB; Hard Disk: 80 GB
- Power: AC 100-240 VAC (50/60 HZ)
- Consumption: 190W (Operation), 5W (Standby)
- Copier: 1 to 10,000% reduction and enlargement
- Integrated PC Specifications: Intel Pentium with Latest processor more than 1.5 Ghz, 15 Inch Touch Screen TFT, Hard Disk min 80 GB or more, RAM 1 GB, DVD-R & other standard accessories
- Stand: Universal Reprao Stand will be supplied for integrating Scanner, Plotter & PC



Soil Moisture Profile Probe and Soil Moisture Meter

Make & Model: Delta-TPR 2/6 and Delta-T HH2



Specifications

- Profile Probe 100 cm comprises 6 x integral soil moisture sensors
- Maximum measuring depth: 100 cm
- Fitted with IP68 connector
- Supplied with user manual, protective tube, spare centering springs and O-rings
- Type PRC/d-HH2 1.5 meter cable PR2 to HH2 IP68 connectors (f) to 25-way D-socket (IP54). Cable connects PR2 Profile Probe to HH2 Moisture Meter
- Type HH2 moisture meter with integral 25-pin D-connector for sensor or PC connection, includes connector cap, battery, user manual with PC software and RS232 cable assembly
- Type ATL1 access tube-long 1154mm x 28mm diameter. Fibre glass tube for installation in augured hole, includes cap, bung and collar for use with 100 cm Profile Probes

Sediment Sampler

Make & Model: Coshocton Type Sediment Sampler

Dimensions of Sediment Sampler

- ✚ H Flume=30 cm
- ✚ H Flume=45 cm
- ✚ Coshocton Wheel= 60 cm
- ✚ Coshocton Wheel= 90 cm
- ✚ Stand for installation of
Coshocton Wheel= 90 cm
- ✚ Stand for installation of
Coshocton Wheel= 60 cm



Ground Penetrating Radar

Make & Model: GSSI SIR-3000

Technical Specifications:

System

- ✚ Data Storage: Internal memory:
 - 1 GB Flash memory card
 - Compact Flash port: Accepts industry standard
 - CF memory up to 2 GB (user provided)
- ✚ Display: Enhanced 8.4" TFT, 800 x 600 resolution, 64K colors
- ✚ Display Modes: Linescan, O-scope, 3D
- ✚ Antennae
 - Multiple Low Frequency Antenna - Five antennas in one (center frequencies, 16,20,35, 40 and 80 MHz)
- ✚ Depth of Investigation upto 50 meters



Data Acquisition

- ✚ Data Format: RADAN (dzt)
- ✚ Scan Rate Examples:
 - 220 scans/sec at 256 samples/scan, 16 bit
 - 120 scans/sec at 512 samples/scan, 16 bit
- ✚ Sample size: 8-bit or 16-bit, user-selectable
- ✚ Scan Interval: User-selectable
- ✚ Number of samples per scan: 256, 512, 1024, 2048, 4096, 8192
- ✚ Operating Modes: Free run, survey wheel, point mode
- ✚ Time Range: 0-8,000 nanoseconds full scale, user-selectable



- ✚ Gain: Manual or automatic, 1-5 gain points (-20 to +80 dB)
- ✚ Filters:
 - ✚ Vertical: Low-Pass and High-Pass IIR and FIR
 - ✚ Horizontal: Stacking, Background Removal

Operating

- ✚ Operating Temperature: -10oC to 40oC ambient
- ✚ Charging Power Requirements: 15 V DC, 4 amps
- ✚ Battery: 10.8 V DC, internal
- ✚ Transmit Rate: Up to 100 KHz

Input/Output: Available Ports:-

- ✚ Antenna input
- ✚ DC power input
- ✚ Serial RS232 (GPS port)
- ✚ Compact Flash memory
- ✚ USB master and slave

Mechanical

- ✚ Dimensions: 31.5 (L) x 22 (W) x 10.5 (H) cm
- ✚ Weight: 4.1 kg, (9 lbs) including battery

Environmental

- ✚ Water resistant

System include

- ✚ Software FGWINRADNT-MAIN V 6.5 advanced RADAN software
- ✚ RADAN InterActive 3D module

- ✚ Transit case
- ✚ 2 batteries
- ✚ Battery charger
- ✚ AC adapter (also works as charger)
- ✚ User manual
- ✚ Sunshade
- ✚ The system should work with all existing antennas

Typical Uses

- Utility Detection- metallic and non metallic
- Environmental remediation'
- Damage prevention
- Road inspection
- Geological Investigation
- Archaeology and forensics