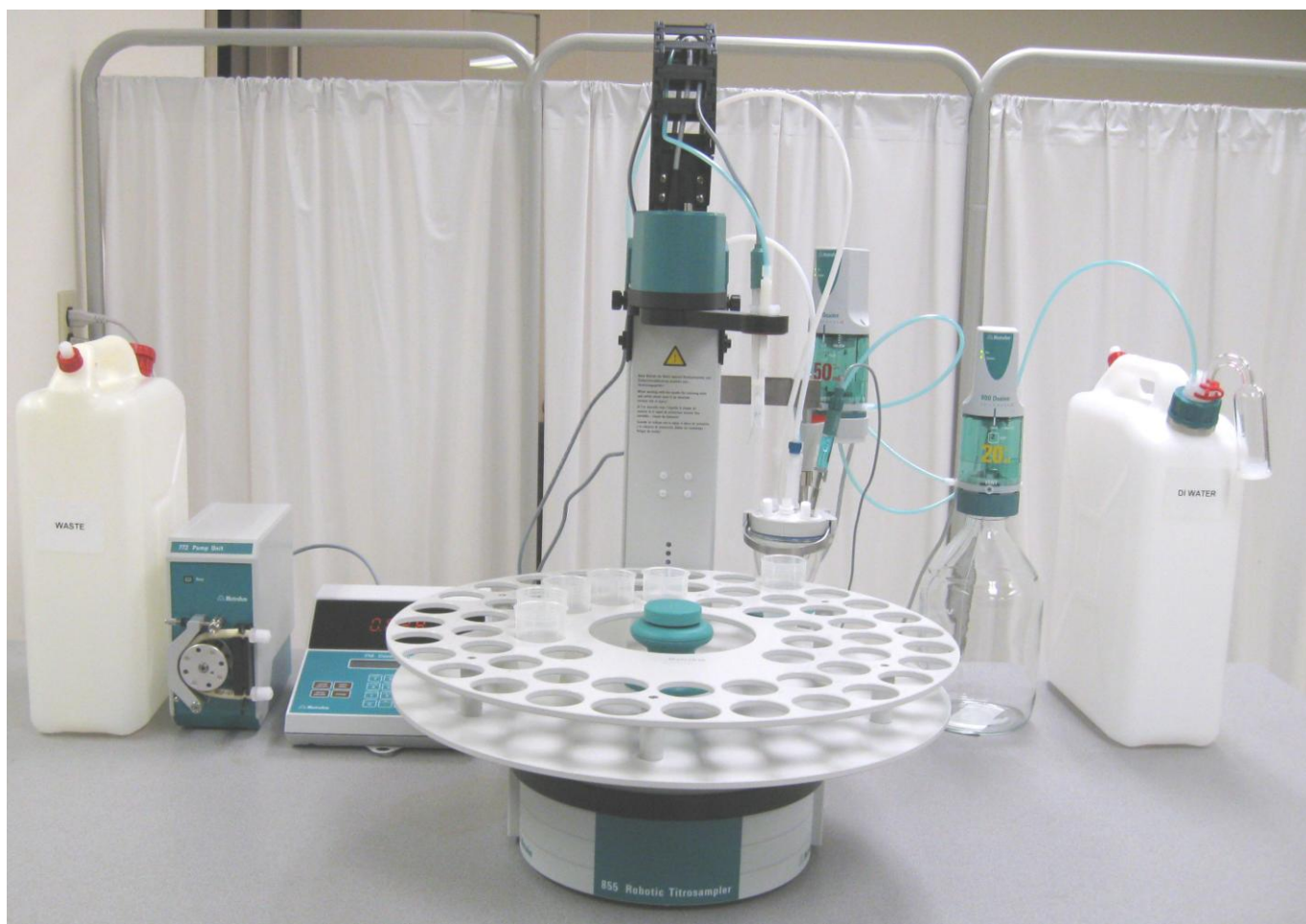


Cond-pH-Alk Transfer Pipetting System with 59-place Rack Installation Instructions

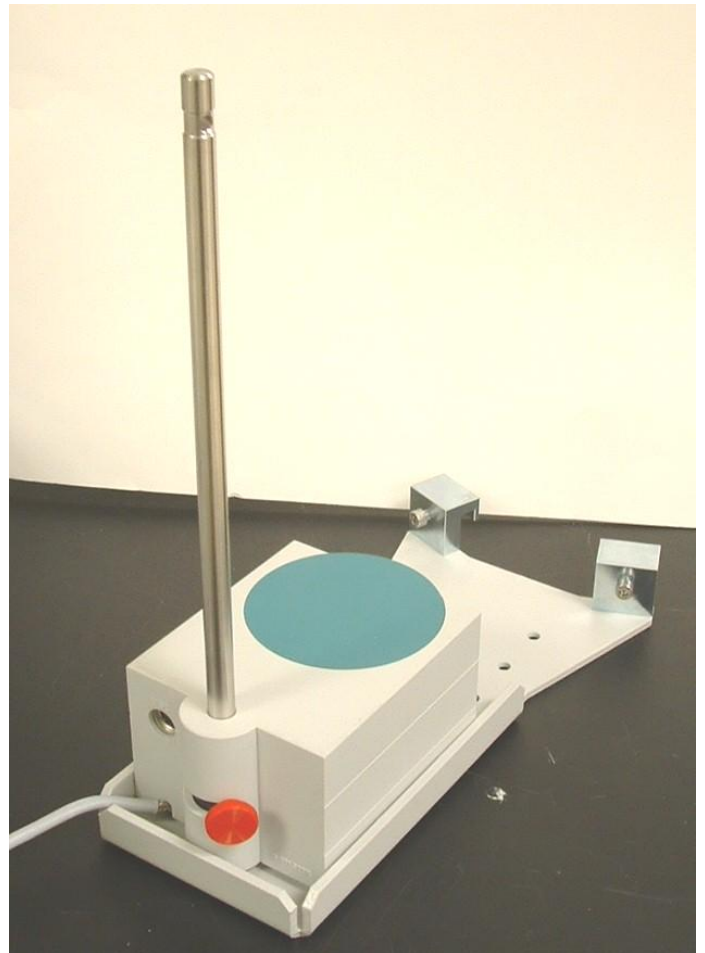


IMPORTANT:

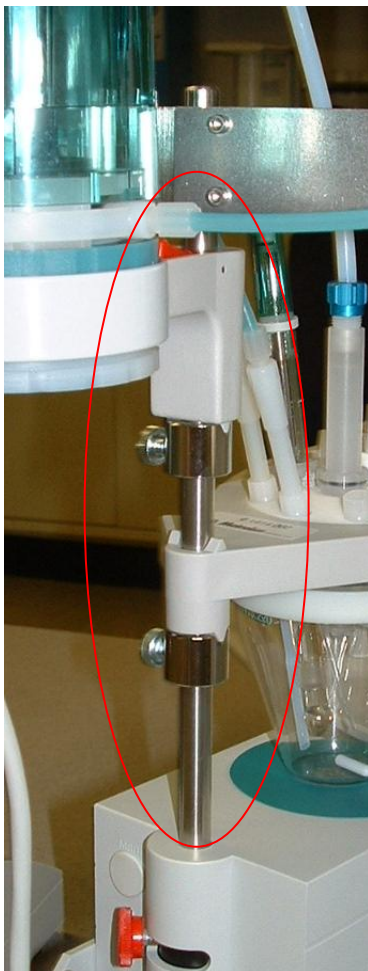
- **Do not connect any instruments to computer yet.**
- **Open Tiamo and import the methods and config file (devices, titrants/solutions, rack data and database view).**

855 Sample Processor Setup:

- **Mount the rod into the hole closer to the back of the external base plate.**
- **Mount the 801 stirrer to the external base plate.**



- **Mount the external vessel base plate to the 855. Secure screws, but do not tighten. This will hold the base plate in place so it won't fall. **Be sure to put the vessel lid, two clamping rings and dosino holder on before putting the holding plate on the rod!****
- **Mount the holding plate on the rod.**
 - **Loosen the screws on the external base plate.**
 - **Secure the holding plate to the rear of the 855.**
 - **Align the external base plate and the holding plate so it is aligned.**
 - **Tighten all the screws.**



- **BE SURE THE SWINGHEAD IS PLUGGED IN PRIOR TO POWER UP.**
- **NEVER TOUCH THE 855 WHILE IT IS RESETTING!!!**
 - **Connect the 855 Mains cable to a surge protector.**
 - **Connect the 855 Controller cable with ferrite core attached to a USB port in the back of the computer.**
 - **Connect the Micro titration arm to the 855 (right side) and secure with three screws/washers.**



MSB 1 = Transfer Pipette (50mL IDU) – ferrite core attached
MSB 2 = H2SO4 (0.02N; 20mL IDU Port 1) – ferrite core attached
MSB 3 = 801 Stirrer – ferrite core attached



20mL Dosing Unit for Alkalinity Titrant Setup:

- **Connect 40cm tubing from 800/807 Port 1 to External Titration Vessel.**
- **If using the 1L Amber Bottle, use the Tray for 2 Dosing:**

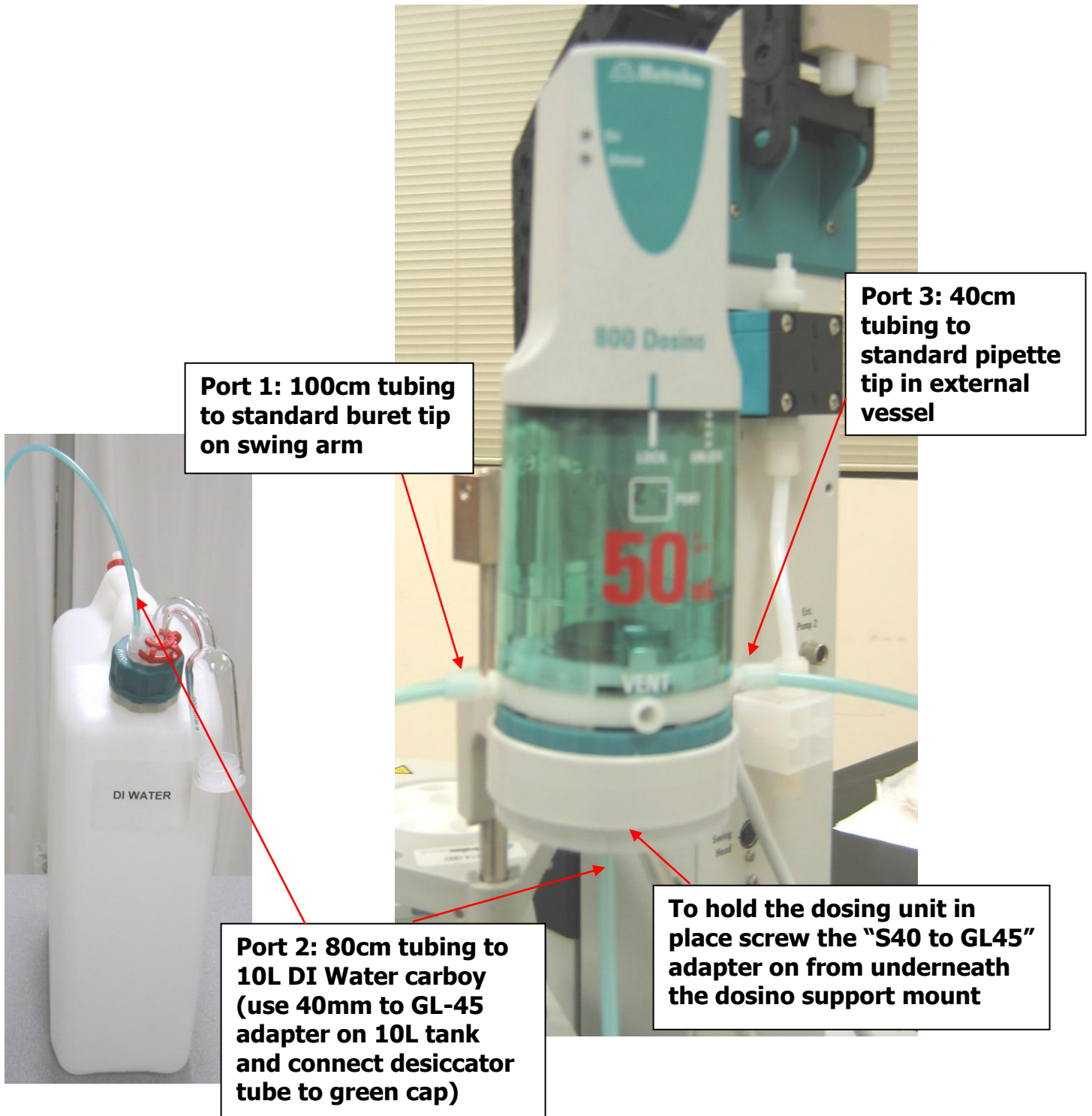


- **If using the 2L or 4L Bottle, setup without holder:**



Transfer Pipette / Dosino / Swinghead Setup:

- **Connect the 800 Dosino to the 50mL dosing unit (Transfer Pipette) to 855 MSB 1 and place in support mount for dosino.**
- **Attach the tubing to the appropriate ports below:**

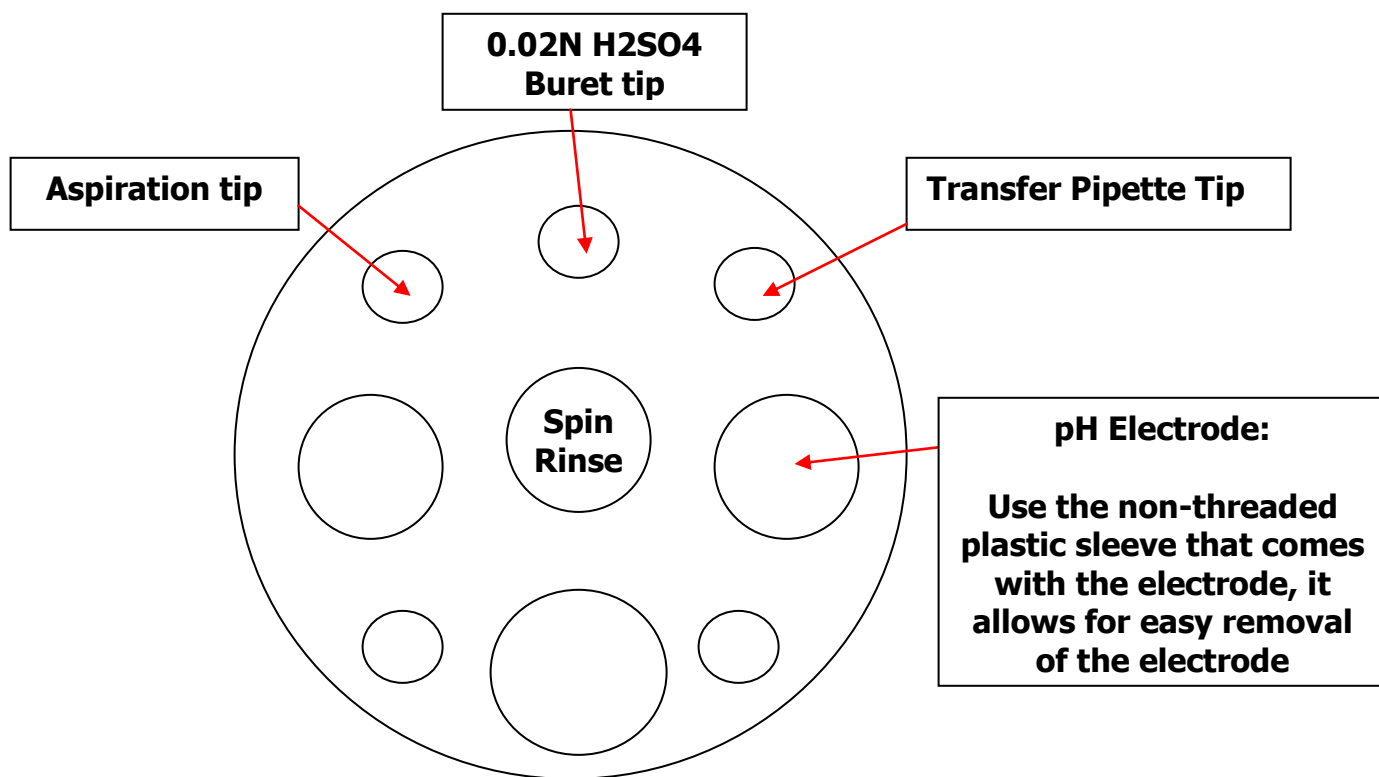


Micro Transfer Arm Setup:

- Load the conductivity probe cable and pipette tubing (100cm) through the 855 guide chain (also allow some slack) and secure the conductivity probe and pipette tip (standard pipette tip) in the titration arm as seen below. **Make sure it appears identical to the picture to avoid breakage of the conductivity probe or bending of the pipette tip.**



Titration Vessel Setup:

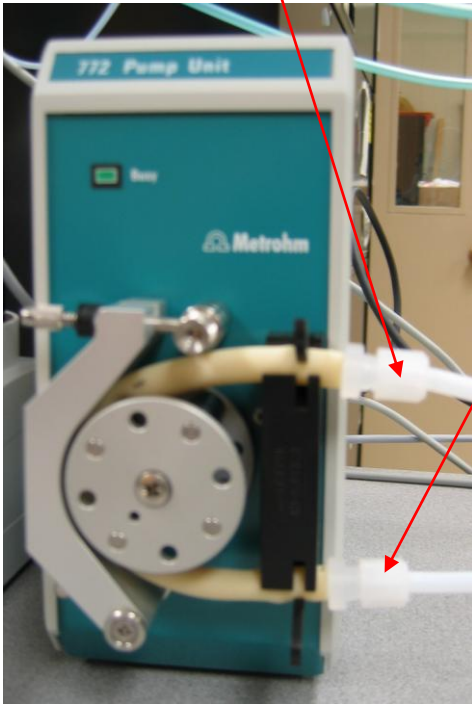


IMPORTANT:

- Use 16mm stir bar.
- Center the vessel on the 801 stirrer. This will ensure for proper stirring.
- Make sure all of the contents in the cell are not touching each other.

Rinse Pump/Aspiration Pump Setup:

Attach tubing to Waste carboy or a drain



M8 tubing- Attach to Aspiration Tip

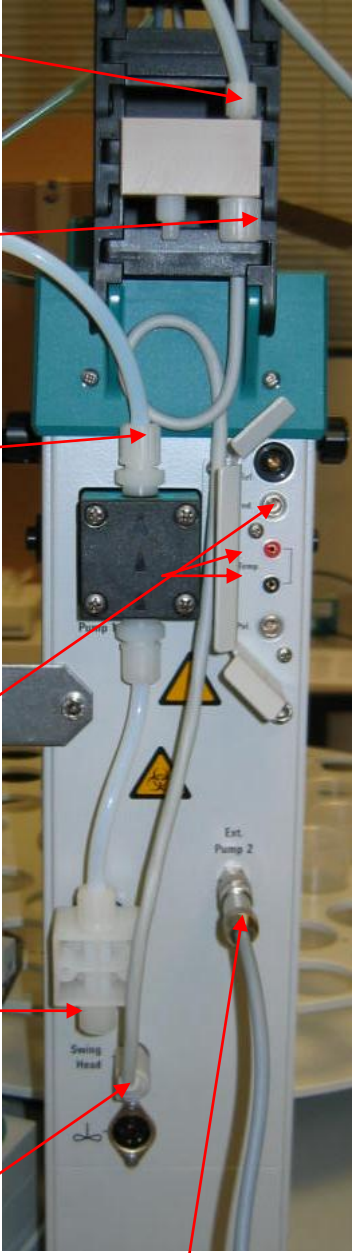
Attach tubing to distribution head

H₂O Spin Rinse Connection (via 1/4" tubing) to external vessel

Connect pH electrode to IND and PT1000 (use 4mm to 2mm adapters)

DI Water Connection from Carboy

786 Swinghead connection



772 Pump Connection



Rack Setup:

- **Install the 59-place rack and tighten knob.**
- **For the methods to work properly, the following positions must be filled with the appropriate solutions:**

Position 54 = Buffer #1 = Special Bkr 1

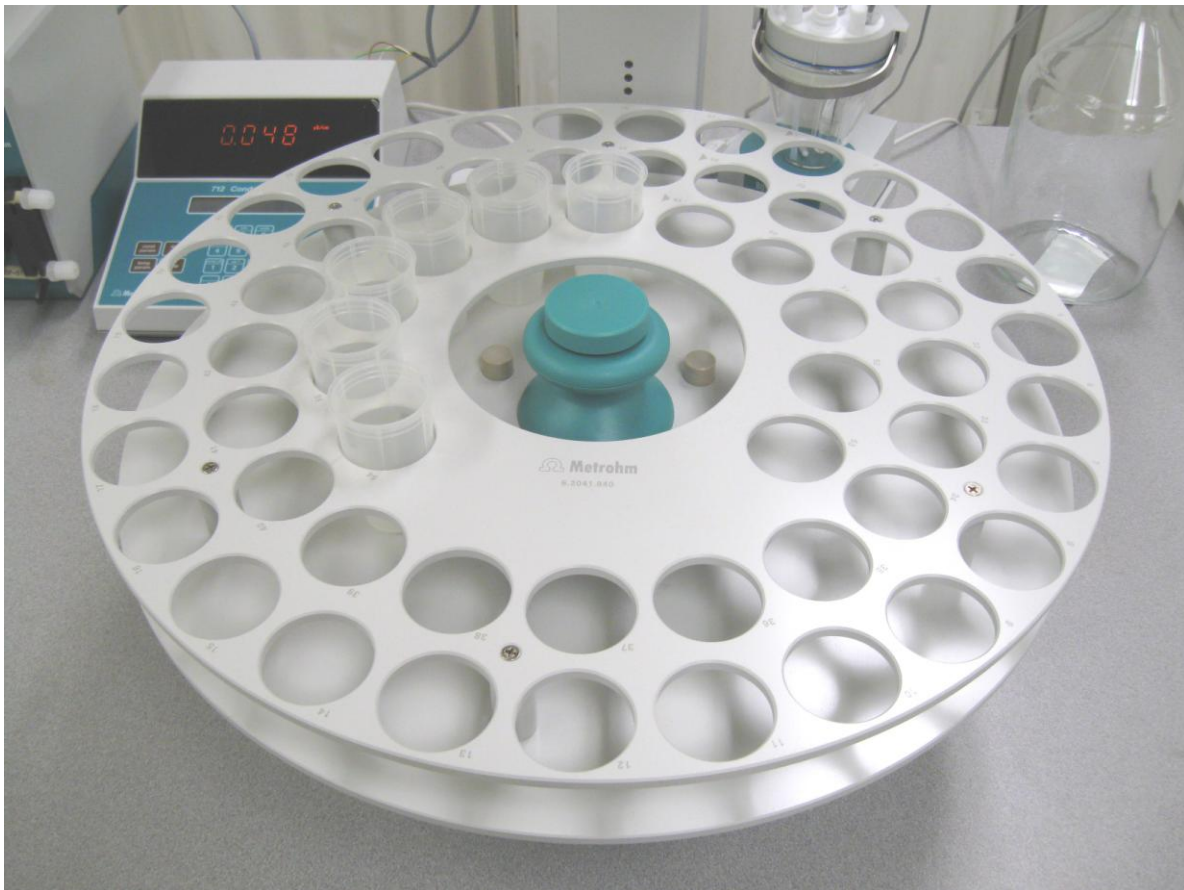
Position 55 = Buffer #2 = Special Bkr 2

Position 56 = Buffer #3 = Special Bkr 3

Position 57 = Conductivity Standard = Special Bkr 4

Position 58 = DI Water (for dip rinse #1) = Special Bkr 5

Position 59 = DI Water (for dip rinse #2) = Special Bkr 6



Tubing Parameters:

****Make sure to connect appropriate tubing to dosinos and vessel lid****

Transfer Pipette (855 MSB 1)

0.02N H2SO4 (855 MSB 2)

Titrant/Solution - Transfer Pipette

Solution Titer Titer history **Dosing unit** GLP

Hardware

Name

Type IDU

Order number 6.3032.250

Serial number 10930534

Cylinder volume 50 mL

Cylinder serial number 5897

Parameters for preparation

Dosing port Prep/Empty Dosing port 2

Dosing rate Dosing port 1 maximum mL/min

Dosing rate Dosing port 2 maximum mL/min

Dosing rate Fill port maximum mL/min

Dosing rate Special port maximum mL/min

Tubing parameters

	Port	Length	Diameter
Dosing port 1	Port 1	100.0 cm	2.0 mm
Dosing port 2	Port 3	40.0 cm	2.0 mm
Fill port	Port 2	80.0 cm	2.0 mm
Special port	Port 4	0.0 cm	2.0 mm

Valve disk

Rotating direction automatic

Not over Port 4

Titrant/Solution - H2SO4

Solution Titer Titer history **Dosing unit** GLP

Hardware

Name

Type IDU

Order number 6.3032.220

Serial number 11131114

Cylinder volume 20 mL

Cylinder serial number 15294

Parameters for preparation

Dosing port Prep/Empty Dosing port 1

Dosing rate Dosing port 1 maximum mL/min

Dosing rate Dosing port 2 maximum mL/min

Dosing rate Fill port maximum mL/min

Dosing rate Special port maximum mL/min

Tubing parameters

	Port	Length	Diameter
Dosing port 1	Port 1	40.0 cm	2.0 mm
Dosing port 2	Port 3	0.0 cm	2.0 mm
Fill port	Port 2	25.0 cm	2.0 mm
Special port	Port 4	0.0 cm	2.0 mm

Valve disk

Rotating direction automatic

Not over Port 4

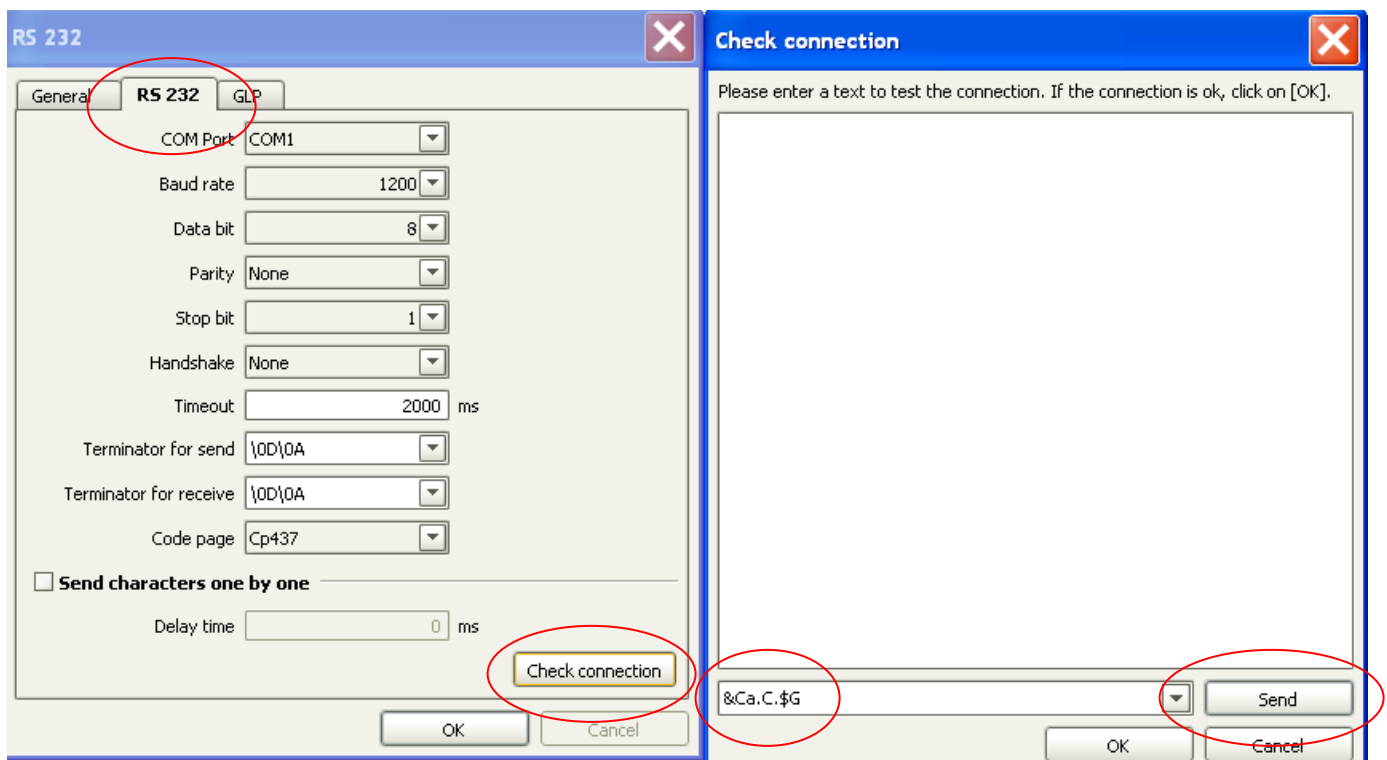
712 Conductivity Meter Setup (configured as RS232 device):

- Connect the mains cable to a surge suppressor.
- Connect the Conductivity Probe/PT1000 to the appropriate ports.
- Connect the 020240202 Cable from the RS232 port on the back of the 712 to COM 1 on the back of the computer.
- In Tiamo Devices list, check to see if the 712 is **OK**. If not, open 712 in configuration and select RS232 tab and click on 'Check connection'.
- Enter **&Ca.C.\$G** and click **SEND** and Click **OK**. The 712 should go into the calibration mode. If so, then press **QUIT** on the 712 keypad to clear.

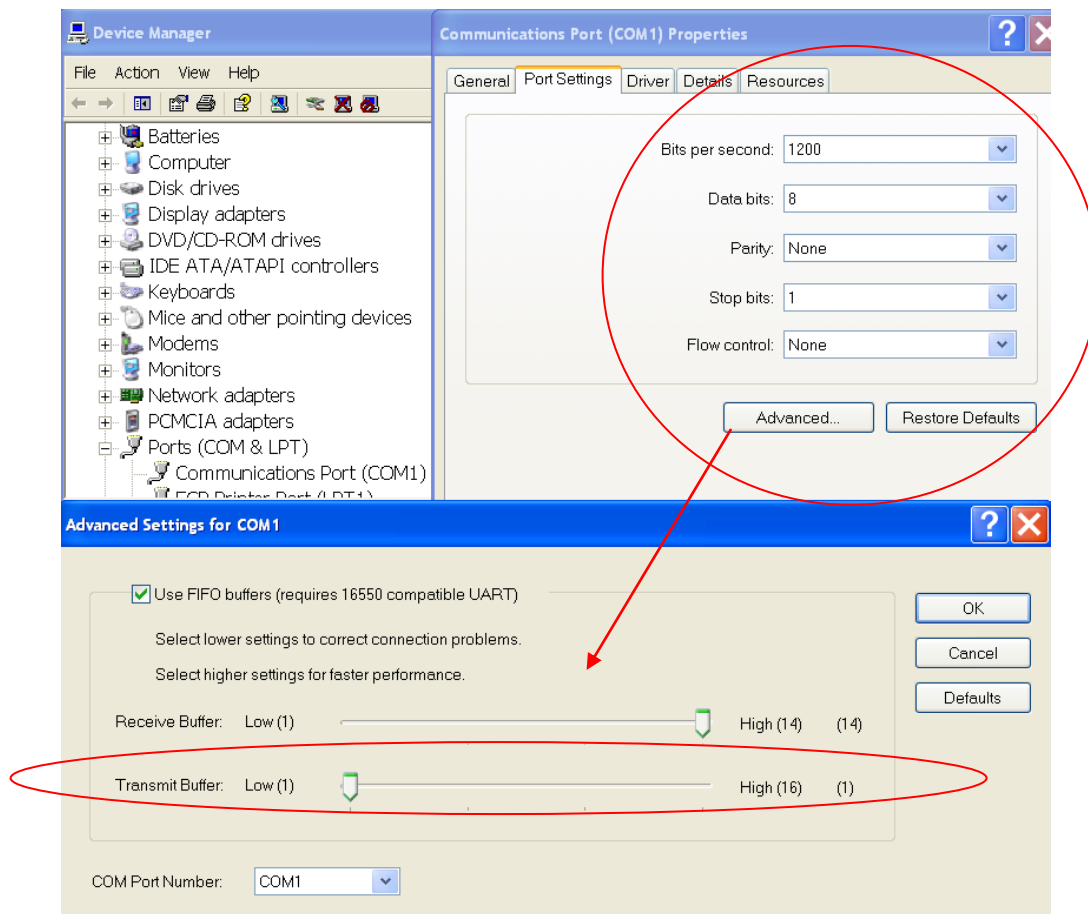
RS232 Settings

(Config setup in 712, Tiamo, and Computer):

Baud Rate: 1200
Data Bit: 8
Stop Bit: 1
Parity: None
Handshake: None

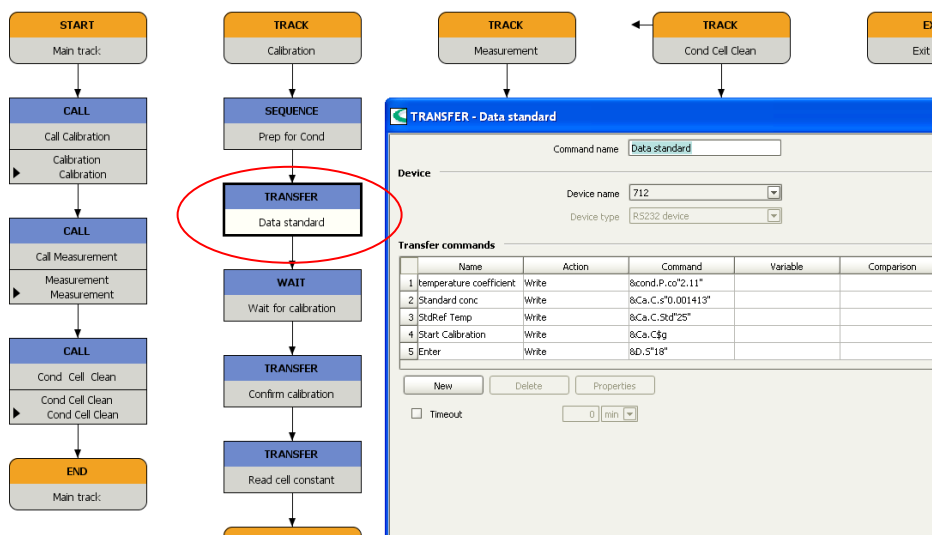


- **712 COM 1 Setup in Control Panel – Device Manager – Ports (COM):**



- **712 Calibration Settings:**

- **Temp Coefficient (%/°C):** depends on the cond standard used
- **Cond Standard Concentration:** enter in S/cm
- **Standard Reference Temp:** enter temp based on cond std used in °C



Additional Info:

- Fill the sample tubes to at least 55mL of sample, standard or buffer.
- Keep the waste containers empty and the water containers full!
- Replace the DI water in positions 58 and 59 each time the rack is loaded.
- Prep the titrant Dosinos once a day (mornings) via manual control. **No need to prep the Transfer Pipette (50mL).**

855 Configuration Info:

Tower 1:

Swing Position = 0 mm

Rinse Position = 0 mm

Config tab:

Swing offset = 0.0°

Max swing range = 84.0°

Swing radius = 110.0 mm

Rotation offset = 0.0°

Swing direction = - (negative; RIGHT swinging)

Lift Positions:

Work position = 180 mm

Rinse position = 160 mm

Shift position = 105 mm

Special beakers:

Special Beaker 1 thru 6 = Work Position = 180

Workplace Page:

- Use the *Determination Series* to run samples and calibrations, buffers and standards.
- Sample position and ID **ARE REQUIRED** for samples.

Database Page:

- Load the view, "EnvPkg Cond-pH-Alk Database view" for results to be shown in columns.

RS01 = Cond (uS/cm)

RS02 = pH

RS03 = Alkalinity (mg/L)

RS06 = pH Slope

RS07 = pH(as)

RS08 = Cell Constant (/cm)

RS09 = pH Temp (°C)

RS10 = Cond Temp (°C)