Niskin Rosette Rack

Series 60.xxx

Manual

KC Denmark A/S

Research Equipment
Limnology ● Oceanography ● Hydrobiology

Niskin Rosette Rack – 6, 12 or 24 Bottles
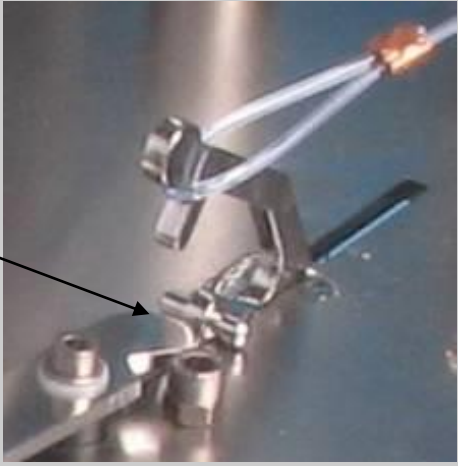
Caution

KC Denmark A/S is not, and cannot be held, responsible for any damage(s) made to equipment or to operators who ignore safety precautions or because of misuse or wrong operation.
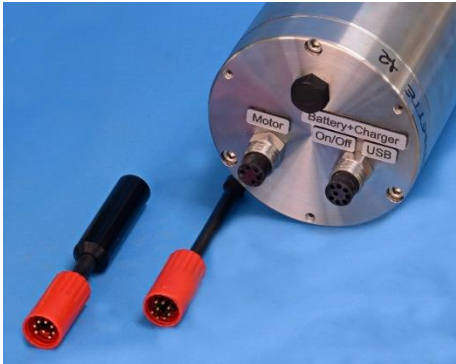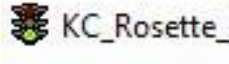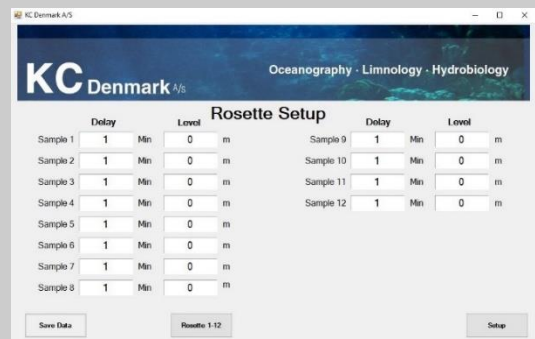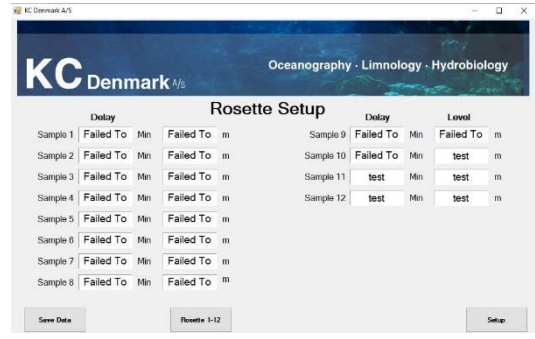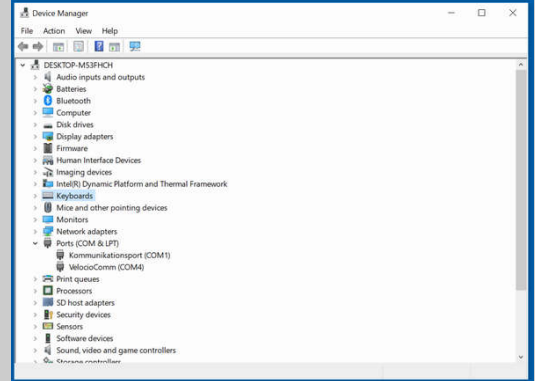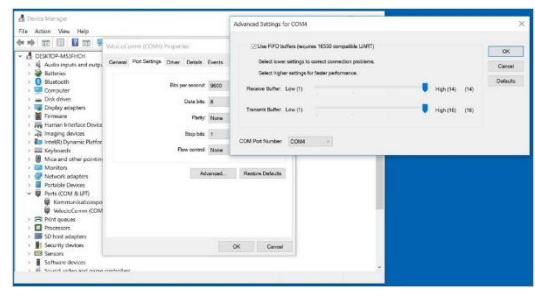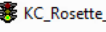
IMPORTANT:
The rosette rack (motor) has a limit of 6000 m. Standard delivery of the battery cylinder (100.117) has a depth limit of 4000 m; for 6000 m depth please use battery cylinder 100.226.

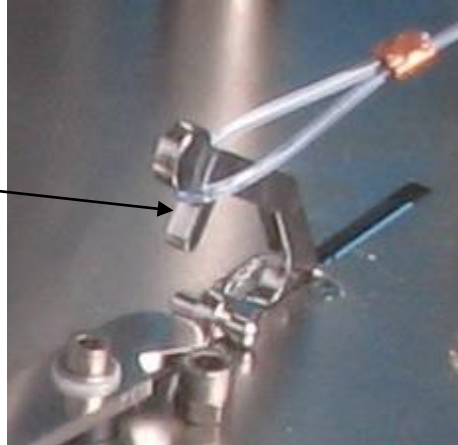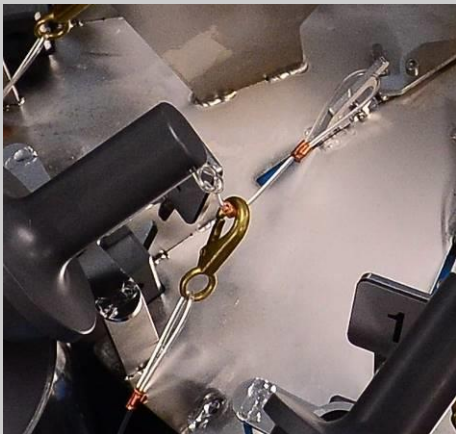| Item	Preparation	
1	Mount the bottles one by one, starting from a random position on the rack. **Caution** When mounting the bottles, first align the bottom part to the bracket of the bottle.	
2	While pressing down the black knob on the Niskin bottle, gently push the upper end of the bottle towards the middle of the rack. When the bottle is in correct position, release the knob and ensure the water sampler is locked in position. **Caution** After completing step 1 and 2, make sure the bottle is properly secured at both ends, otherwise it might be lost during the sampling.	

3	Mount and prepare all Niskin bottles, one by one. Push the release bracket towards the middle of the rack. Turn the small horizontal pawl in order to secure the bracket.	
4	While forcing the Niskin bottle's upper lid towards the centre of the rack, attach the nylon cord on the <u>upper</u> side of the release bracket as shown. ⚠ **Caution** Mounting the cord below the hook will prevent a correct release of the bottle.	
5	Attach the lower release cord to the upper release cord as shown in item 2.	

6	Attach the release cord from the lower lid to the upper release wire.	

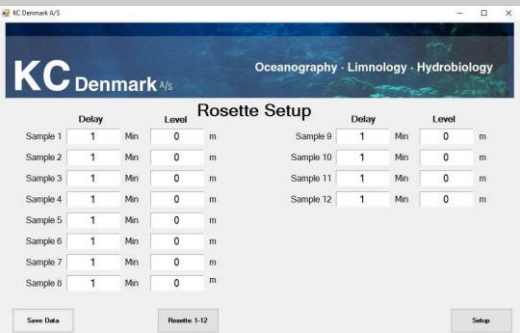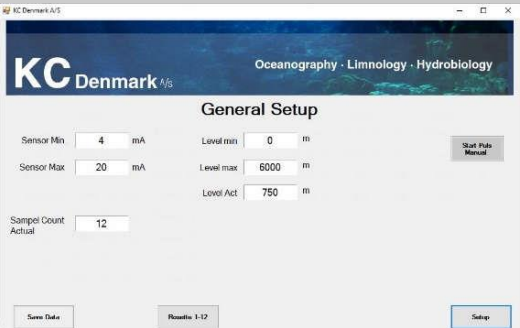|	**Programming the delay**	
7	Connect the 5-conductor cable from the motor to the battery cylinder. Charge the battery inserting the 8-conductor cable to the Battery Charger connector. A fully discharged battery requires charging for 8-10 hours, approx. The charger contains advanced electronics preventing overcharging even if connected for a long time. The SubConn connectors requires to be greased with Molykote 44, see recommendations on page 8-11. The photo shows the programming plug (to the left) and a dummy for the SubConn connector (optional). *Standard delivery of the battery cylinder (100.117) has a depth limit of 4000 m; for 6000 m depth please use battery cylinder 100.226.*	
8	The tablet comes with pre-installed software for the programming. Once charged replace the charger cable with the USB cable and connect to USB on the tablet.	
9	Run the KC program on the tablet's desktop.	KC_Rosette_

10	The software detects the hardware. If connection is OK, the column "Delay" contains some values. Proceed to item 14.	
11	If the column "Delay" shows the text "Failed", there is no connection to the device. Proceed to item 12.	
12	**If no connection:** 1. Disconnect USB cable and battery supply if connected 2. Close Program on tablet 3. Connect USB cable in tablet and KC timer, the battery is not needed 4. Press on the KC icon on tablet 5. 5. If still no connection, check COM port in Windows "Device Manager" there must be a Com port named VelocioComm (COM4)	
13	If there is a a Com port named VelocioComm (COM?) but the Com? is not COM4 1. Open VelocioComm (COM?) settings 2. Select port settings 3. Select Advanced 4. Then change COM Port Number to COM4 and press OK 5. Close all windows and try to connect again	
14	Once the connection is established, connect the battery and connect the Rosette to the PC. Run KC program ![KC_Rosette] on the PC	

15	Now the sampler can be programmed. **Release by time lapse trigger:** 1. Sample 1 Delay: Start delay after power on (inserting the starter plug, item 18) 2. If you estimate that, the deployment to the desired depth takes 5 minutes you may enter the value "5". All remaining samples may have various delays between every sample. You can enter an individually delay in the range of 1 min. to 600 hours for every sample but keep in mind, that the battery capacity may be insufficient for very huge delays. 3. The next sample delay is to be understood as the time delay from previous sample 4. Set sample level to "0" 5. **Example:** If Sample 1 delay is "10" and Level is "0", the rosette will start when the delay (10 min.) is elapsed. 6. You can add individual values for every delay 7. Once the programming is finished, press Save Data	
16	**Triggering by pressure transmitter:** 1. **Example:** If Sample 1 delay is "10" and Level is"100", the rosette will start when delay (10 min.) is elapsed and the depth is 100 m or more 2. When deployed, both values for delay as well as depth must be reached before triggering takes place 3. You can add individual values for every delay and or depth 4. Once the programming is finished, press Save Data	
17	Press the setup button, and the "General Setup" page is available. Test start of rosette, will only work if battery is connected.	

18	Once you are ready to deploy the sampler, start the time lapse trigger by inserting the programming plug.	

	Known issues for the software (Win 10)	
19	If the connection has been lost and the program shows "not connected", it's necessary to restart the program to open the connection again.	

	Maintenance	
20	After use or before storing: 1. Wash all parts thoroughly with fresh water. 2. For maintenance of the Subconn connectors, see pg. 8-11. 3. **Niskin bottles**: Wash the bottles and the rubber band inside the bottle; when the inside parts are all dry, you may close the lids by hand to achieve a soft release. 4. **The motor and battery cylinder:** Do not expose to direct sunlight for a long time 5. **Zinc anodes on top of the rack:** Replace once the material is eroded	

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SubConn®
Handling instructions

Follow these instructions carefully to ensure correct use of your SubConn® connectors.

Handling

■ Connectors must be greased with Molykote 44 Medium before every mating

■ Always grease O-rings on BH, BCR and FCR connectors with Molykote 111

■ Disconnect by pulling straight out, not at an angle

■ Do not pull on the cable and avoid sharp bends at cable entry

■ When using a bulkhead connector, ensure that there are no angular loads

■ Make sure to apply the recommended torque when tightening bulkhead nuts

■ SubConn® connectors should not be exposed to extended periods of heat or direct sunlight. If a connector becomes very dry, it should be soaked in fresh water before use

Scan to access
SubConn® greasing
and cleaning
instruction videos

Greasing products

| Molykote 44 Medium ✅ | WD-40 or similar products ❌ | Compound or similar greasing products ❌ |

Greasing and mating above water (dry mate)
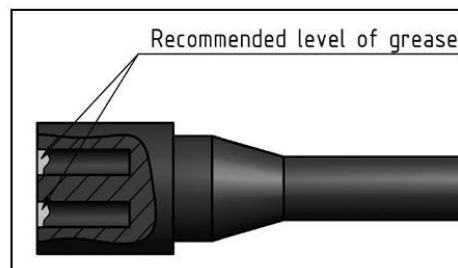
Recommended level of grease

- Connectors must be greased with Molykote 44 Medium before every mating

- A layer of grease corresponding to a minimum of 1/10 of the socket depth should be applied to the female connector

- The inner edge of all sockets should be completely covered, and a thin transparent layer of grease left visible on the face of the connector

- After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on all pins and in the sockets

- To confirm that grease has been sufficiently applied, de-mate and check for grease on every male pin. Then re-mate the connector

Greasing and mating under water (wet mate)

Recommended level of grease
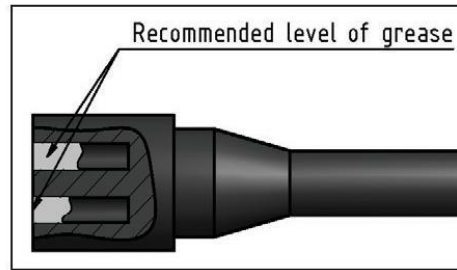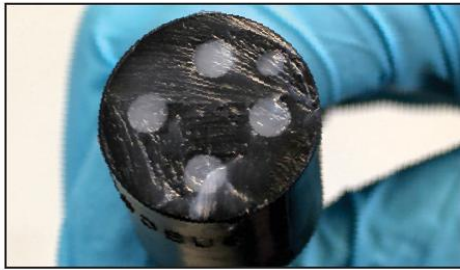
- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to approximately 1/3 of a socket depth should be applied to the female connector
- All sockets should be completely sealed, and a transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector and remove any excess grease from the connector joint

Cleaning products

See below *   Liquid soap and hot water   Acetone or similar products   Gasoline or similar products

- * General cleaning and removal of any accumulated sand or mud on a connector should be performed using spray based contact cleaner (isopropyl alcohol)
- New grease must be applied again prior to mating

Use of Loctite

- Always use Loctite 5910 to lock non-metallic (PEEK) connectors
- For locking metallic connectors, the use of Loctite 243 is recommended

COAX connector

- Only grease the rubber parts - do not grease coax pin and socket
- Do not mate under water. To be used with locking sleeves only

Bulkhead Connectors - Tightening force

Type	Material	Rec. Torque - Nm
3/8" - 24 UNF	Brass, aluminium	4.0
	Stainless steel, titanium	6.0
	PEEK	2.0
7/16" - 20 UNF	Brass, aluminium	10.0
	Stainless steel, titanium	14.0
	PEEK	4.2
1/2" - 20 UNF	Brass, aluminium	15.0
	Stainless steel, titanium	21.0
	PEEK	5.2
5/8" - 18 UNF	Brass, aluminium	29.0
	Stainless steel, titanium	41.0
	PEEK	10.0
3/4" - 16 UNF	Brass, aluminium	44.0
	Stainless steel, titanium	63.0
	PEEK	15.0
7/8" - 14 UNF	Brass, aluminium	60.0
	Stainless steel, titanium	80.0
	PEEK	20.0
1" - 14 UNF	Brass, aluminium	75.0
	Stainless steel, titanium	100.0
	PEEK	25.0

Recommended oil for pressure balanced systems

- MacArtney recommend DC-200/350 or PMX-200/350 in oil compensated systems

11-2018

Safety Regulations

KC Denmark A/S is not, and cannot be held, responsible for any damage(s) made to equipment or to operators who ignore safety precautions or because of misuse or wrong operation.

An expert maintenance technician fully familiar with the attendant hazards must only do all maintenance, inspection and repairs.

Persons charged with working on the winch and the accessories must be trained specially for the purpose with special abilities and experience in this area as well as being equipped with the appropriate tools and individual safety equipment. Failure to meet these requirements constitutes a risk to personal health and safety and economic damages.

When working on the unit in areas, which are difficult to access or hazardous, ensure to take adequate safety precautions for the operator and others in compliance with the provisions of law on health and safety at work.

Replace worn component with original spare parts. Use the lubricants (oil and grease) recommended by the manufacturer.

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