



# SW RP03



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## Introduction

The Seiwa SW RP03 remote data repeater is capable of displaying over 200 standard NMEA 0183 and proprietary sentences. The T91.03 can monitor up to 4 separate data channels and can be trained to learn new sentences.

The SW RP03 is trainable to recognize and display new NMEA 0183 sentences not currently defined.

Up to 12 sentence ID.s can be stored in a list of often viewed sentences. You can select a sentence from this list quickly using the ▼ and ▲ keys to scroll through the selections. You can add and delete sentences to/from this list as often as desired.

Five levels of backlighting can be selected and remotely switched ON/OFF. All settings are automatically saved to non-volatile memory.

The SW RP03 works on both 12 and 24 VDC systems and with its large display digits draws only .035 amps and only .075 amps with full backlighting.

## Specifications

**Power supply:** 9.5 to 33 VDC, 35 mA nominal

**Operating temperature:** 32 to 122 F° ( 0 to 50 C°)  
**Size:** 4.3" x 4.3. x 3.5. deep (110 x 110 x 89 mm).  
**Display:** 4 digit LCD, 5 levels of backlighting.  
**Input Format:** NMEA 0183, standard and proprietary sentences.  
**Baud Rate:** 4800  
**Input Channels:** 4  
**Data Input voltage range:** 0 to 5 V Nominal, -20V to +20V maximum.  
**Data Memory:** Storage for 10 new sentences (may be overwritten).

## Installation

*Before starting the installation, please read this entire section first. Finger tighten the screws that mount the instrument bracket - It is not necessary or recommended to use tools.*

For mounting the instrument, see the Figure 1

| Connect the various wires as shown in Figure 2 and 3.

| Carefully check all your wiring against figures 2 and 3 and then mount the instrument in the hole. Use only finger tension to tighten the bracket hold-down nuts

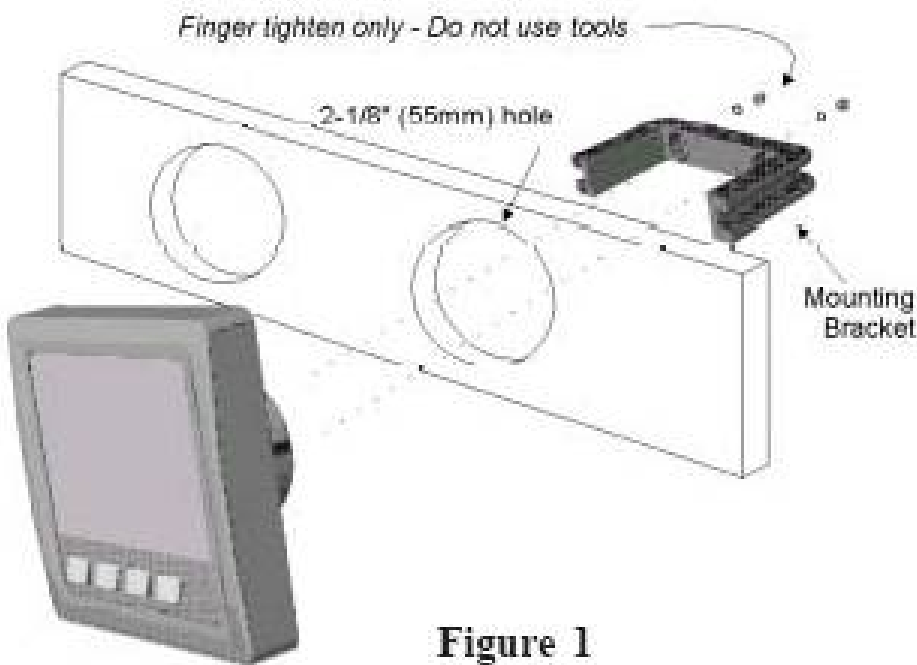


Figure 2

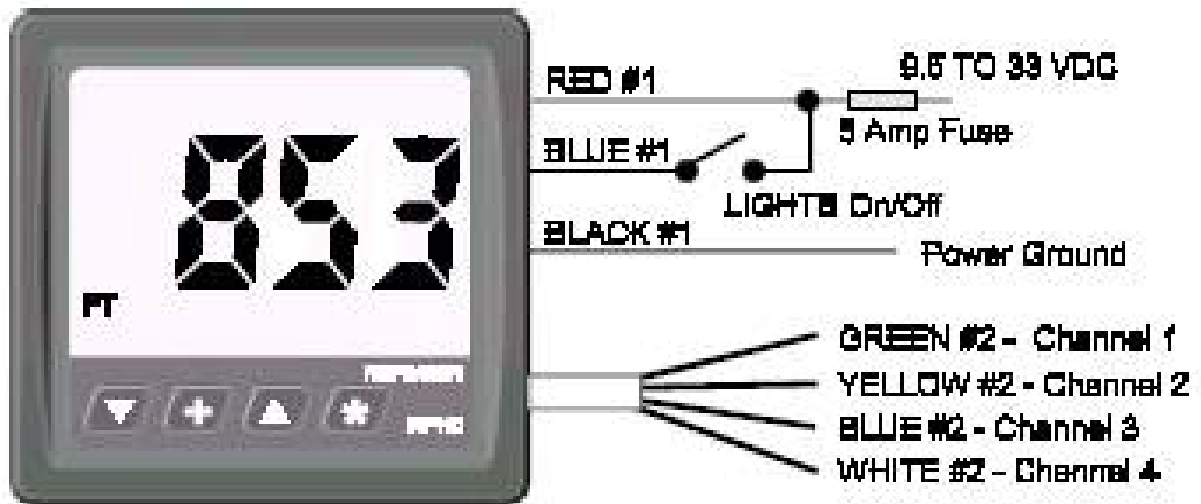
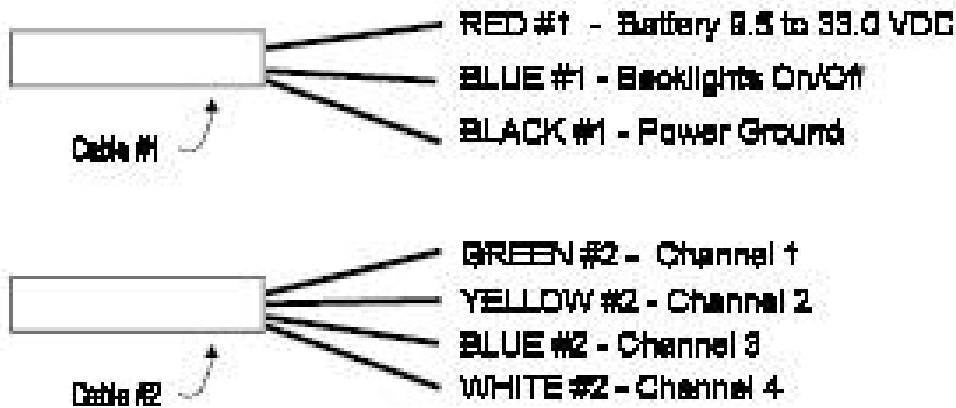


Figure 3

## Operation

## Key Functions

The ▼, + and ▲ keys are used to select and set backlight levels, and set/change constants such as which NMEA sentences to display, select a data channel, save and delete NMEA sentences from the favorites list and prepare the instrument to receive new sentences from a PC. New information is automatically saved to non-volatile memory.

## Backlight Intensity

Press + the key 1/2 second to adjust the backlight level for night viewing.

Each time you press the + key 1/2 second, the level will get brighter 1, 2, 3, 4, OFF, 1, 2, ... etc.

The blue wire be switched to +12/24V

for the backlights to work and offers external backlight ON/OFF control, if the ON/OFF control is not required, connect the blue wire to +12/24VDC permanently.

## Selecting a NMEA Sentence to Display

Up to 12 sentences can be stored in a list of often viewed sentences. You can select a sentence from the list using the ▼ and ▲ keys. SW RP03 comes pre-programmed with the following list:

```
142 $SDDBT DEPTH RELATIVE TO TRANSDUCER MTRS
163 $VWVHW SPEED KNOTS
160 $VWMTW WATER TEMPERATURE DEGREES
 98 $GPRMC COURSE OVER GROUND DEGREES TRUE
 36 $AGWNC DISTANCE WAYPT TO WAYPT N.MILES
125 $PBVE T-30 TEMPERATURE DEG. FAHRENHEIT
129 $PBVE OP-30 PRESSURE P.S.I.
124 $PBVE RH-30 ENGINE RPM
```

You can add and delete sentences to/from this list as often as desired. Pressing the ▼ or ▲ key will step you through the list. "- - -" will be displayed until the selected sentence is found on one of the channels.

## Adding A Sentence To the List

Press and hold the + and ▲ keys for 10 seconds until a long beep is heard. "c011" is displayed. Use the ▼ and ▲ keys to select a sentence from Table 1. Once the desired table entry is

displayed, hold down the + key for 1/2 second to save the sentence to the list. The SW RP03 will immediately start searching for the new sentence on all four channels.

If "FULL" is displayed in place of "c011", a sentence will first

have to be deleted from the list (see "Deleting A Sentence From the List").

#### Deleting A Sentence From the List

If all 12 list positions are full, one sentence will have to be deleted.

Press and hold the ▼ and + keys for 10 seconds. Use the ▼ and ▲ keys to scroll through the list. When the sentence to be deleted is displayed, press the + key for 1/2 second.

#### Manually Selecting A Data Channel

The SW RP03 searches each of the four data channels for the desired sentence. When a matching sentence is found the SW RP03 stops at that channel and displays the data. To select between two or more data channels containing the same

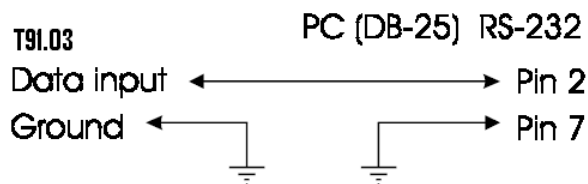
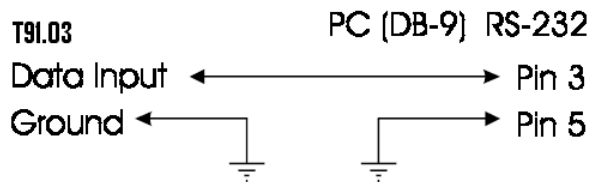
sentence, press and hold the + key for 3 seconds. The SW RP03 will search the other channels for the sentence. If the sentence is only available on the one channel, it will return back to the original.

#### Downloading New NMEA Sentences

You can add up to 10 new sentences to Table 1 using a PC and a serial data cable connected to channel 4 on the back of the SW RP03 as shown in Figure 4. To upload a new sentence to the SW RP03, press and hold the ▼ and ▲ keys for 10 seconds. The instrument is ready for data transfer when "rdY" is displayed.

Now run the SW RP03 program software.

When a beep is heard check the display for the status of the transfer, if "good" is displayed, the process was successful. If "bAd" is displayed, the process was unsuccessful, try the download process again.



## NMEA 0183 Sentences - TABLE 1

1 USER PROGRAMMED  
2 USER PROGRAMMED  
3 USER PROGRAMMED  
4 USER PROGRAMMED  
5 USER PROGRAMMED  
6 USER PROGRAMMED  
7 USER PROGRAMMED  
8 USER PROGRAMMED  
9 USER PROGRAMMED  
10 USER PROGRAMMED  
11 \$AGAAM WAYPOINT ARRIVAL ALARM RADIUS  
12 \$AGAPB MAGNITUDE OF CROSSTRACK ERROR  
13 \$AGAPB BEARING ORIGIN TO DESTINATION  
14 \$AGAPB BEARING PRESENT TO DESTINATION  
15 \$AGAPB HEADING TO STEER TO DESTINATION  
16 \$AGBEC BEARING DEGREES TRUE  
17 \$AGBEC BEARING DEGREES MAGNETIC  
18 \$AGBEC DISTANCE NAUTICAL MILES  
19 \$AGBOD BEARING TRUE  
20 \$AGBOD BEARING MAGNETIC  
21 \$AGBWC BEARING TO WAYPOINT DEGREES TRUE  
22 \$AGBWC BEARING TO WAYPOINT DEGREES MAG.  
23 \$AGBWC DISTANCE NAUTICAL MILES  
24 \$AGBWC BEARING TO WAYPOINT DEGREES TRUE  
25 \$AGBWR BEARING TO WAYPOINT DEGREES MAG.  
26 \$AGBWR DISTANCE NAUTICAL MILES  
27 \$AGBWW BEARING WAYPOINT TO WAYPOINT TRUE  
28 \$AGBWW BEARING WAYPOINT TO WAYPOINT MAG.  
29 \$AGHSC COMMANDED HEADING DEGREES TRUE  
30 \$AGHSC COMMANDED HEADING DEGREES MAG.  
31 \$AGVBW LONGITUDNAL WATER SPEED KNOTS  
32 \$AGVBW TRANSVERSE WATER SPEED KNOTS  
33 \$AGVBW LONGITUDNAL GROUND SPEED KNOTS  
34 \$AGVBW TRANSVERSE GROUND SPEED KNOTS  
35 \$AGWCV WAYPOINT CLOSURE VELOCITY KNOTS  
36 \$AGWNC DISTANCE WAYPT TO WAYPT N.MILES  
37 \$AGWNC DISTANCE WAYPOINT TO WAYPOINT KM.  
38 \$APAAM WAYPOINT ARRIVAL ALARM RADIUS  
39 \$APAPB MAGNITUDE OF CROSSTRACK ERROR  
40 \$APAPB BEARING ORIGIN TO DESTINATION  
41 \$APAPB BEARING PRESENT TO DESTINATION  
42 \$APAPB HEADING TO STEER TO DESTINATION  
43 \$APBEC BEARING DEGREES TRUE  
44 \$APBEC BEARING DEGREES MAGNETIC  
45 \$APBEC DISTANCE NAUTICAL MILES  
46 \$APBOD BEARING TRUE  
47 \$APBOD BEARING MAGNETIC  
48 \$APBWC BEARING TO WAYPOINT DEGREES TRUE  
49 \$APBWC BEARING TO WAYPOINT DEGREES MAG.  
50 \$APBWC DISTANCE NAUTICAL MILES  
51 \$APBWR BEARING TO WAYPOINT DEGREES TRUE  
52 \$APBWR BEARING TO WAYPOINT DEGREES MAG.  
53 \$APBWR DISTANCE NAUTICAL MILES  
54 \$APBWW BEARING WAYPOINT TO WAYPOINT TRUE  
55 \$APBWW BEARING WAYPOINT TO WAYPOINT MAG.  
56 \$APHSC COMMANDED HEADING DEGREES TRUE  
57 \$APHSC COMMANDED HEADING DEGREES MAG.  
58 \$APVBW LONGITUDNAL WATER SPEED KNOTS  
59 \$APVBW TRANSVERSE WATER SPEED KNOTS  
60 \$APVBW LONGITUDNAL GROUND SPEED KNOTS  
61 \$APVBW TRANSVERSE GROUND SPEED KNOTS  
62 \$APWCV WAYPOINT CLOSURE VELOCITY KNOTS  
63 \$APWNC DISTANCE WAYPT TO WAYPT N.MILES

64 \$APWNC DISTANCE WAYPOINT TO WAYPOINT KM  
65 \$DEDCN POSITION UNCERTAINTY N.MILES  
66 \$DFAPB BEARING ORIGIN TO DISTANCE  
67 \$DFAPB BEARING PRESENT TO DESTINATION  
68 \$DFAPB HEADING TO STEER TO DESTINATION  
69 \$DFABE BEARING DEGREES TRUE  
70 \$DFBEC BEARING DEGREES MAGNETIC  
71 \$DFBEC DISTANCE NAUTICAL MILES  
72 \$DFBOD BEARING TRUE  
73 \$DFBOD BEARING MAGNETIC  
74 \$DFBWC BEARING TO WAYPOINT DEGREES TRUE  
75 \$DFBWC BEARING TO WAYPOINT DEGREES MAG.  
76 \$DFBWC DISTANCE NAUTICAL MILES  
77 \$DFBWR BEARING TO WAYPOINT DEGREES TRUE  
78 \$DFBWR BEARING TO WAYPOINT DEGREES MAG.  
79 \$DFBWR DISTANCE NAUTICAL MILES  
80 \$DFBWW BEARING WAYPOINT TO WAYPOINT TRUE  
81 \$DFBWW BEARING WAYPOINT TO WAYPOINT MAG.  
82 \$DFHDG MAGNETIC SENSOR HEADING DEGREES  
83 \$DFHDT HEADING DEGREES TRUE  
84 \$DFWCV WAYPOINT CLOSURE VELOCITY KNOTS  
85 \$DFWNC DISTANCE WAYPT TO WAYPT N.MILES  
86 \$DFWNC DISTANCE WAYPOINT TO WAYPOINT KM  
87 \$GPBWC BEARING WAYPT TO WAYPT DEG. TRUE  
88 \$GPBWC BEARING WAYPT TO WAYPT DEG. MAG.  
89 \$GPBWC DISTANCE NAUTICAL MILES  
90 \$GPBWR BEARING WAYPT TO WAYPT DEG. TRUE  
91 \$GPBWR BEARING WAYPT TO WAYPT DEG. MAG.  
92 \$GPBWR DISTANCE NAUTICAL MILES  
93 \$GPRMB CROSS TRACK ERROR NAUTICAL MILES  
94 \$GPRMB RANGE TO DESTINATION NAUT. MILES  
95 \$GPRMB BEARING TO DESTINATION DEG. TRUE  
96 \$GPRMB DESTINATION CLOSING VELOCITY KTS  
97 \$GPRMC SPEED OVER GROUND KNOTS  
98 \$GPRMC COURSE OVER GROUND DEGREES TRUE  
99 \$HCBOD BEARING TRUE  
100 \$HCBOD BEARING MAGNETIC  
101 \$HEBOD BEARING TRUE  
102 \$HEBOD BEARING MAGNETIC  
103 \$HNBOD BEARING TRUE  
104 \$HNBOD BEARING MAGNETIC  
105 \$IIXDR,A ANGULAR DISPLACEMENT DEGREES  
106 \$IIXDR,C TEMPERATURE DEGREES CELCIUS  
107 \$IIXDR,D LINEAR DISPLACEMENT METERS  
108 \$IIXDR,F FREQUENCY HERTZ  
109 \$IIXDR,G GENERIC  
110 \$IIXDR,H HUMIDITY PERCENT  
111 \$IIXDR,I CURRENT AMPERES  
112 \$IIXDR,N FORCE NEWTONS  
113 \$IIXDR,P PRESSURE PASCAL OR BAR  
114 \$IIXDR,R FLOW RATE LITERS/SECOND  
115 \$IIXDR,S SWITCH OR VALVE  
116 \$IIXDR,T TACHOMETER RPM  
117 \$IIXDR,U VOLTAGE VOLTS  
118 \$IIXDR,V VOLUME CUBIC METERS  
119 \$INBOD BEARING TRUE  
120 \$INBOD BEARING MAGNETIC  
121 \$PBVE RH-30 ELAPSED TIME HOURS  
122 \$PBVE RH-30 ELAPSED TIME MIN. AND SEC.  
123 \$PBVE RH-30 ENGINE HOURS AND MINUTES  
124 \$PBVE RH-30 ENGINE RPM  
125 \$PBVE T-30 TEMPERATURE DEG. FAHRENHEIT  
126 \$PBVE CH-30 WINDLASS BATTERY VOLTAGE  
127 \$PBVE CH-30 RHODE OUT  
128 \$PBVE CT-30 TIME 24 HOURS



129 \$PBVE OP-30 PRESSURE P.S.I.  
130 \$PBVE FU-30 FUEL REMAINING LTRS OR GALS  
131 \$PBVE FU-30 FUEL USED LITRES OR GALLONS  
132 \$PBVE FU-30 CONSUMPTION LTRS OR GAL./HR  
133 \$SDDBK DEPTH BELOW KEEL FEET  
134 \$SDDBK DEPTH BELOW KEEL METERS  
135 \$SDDBK DEPTH BELOW KEEL FATHOMS  
136 \$SDDBS DEPTH BELOW SURFACE FEET  
137 \$SDDBS DEPTH BELOW SURFACE METERS  
138 \$SDDBS DEPTH BELOW SURFACE FATHOMS  
139 \$SDDBT DEPTH BELOW TRANSDUCER FEET  
140 \$SDDBT DEPTH BELOW TRANSDUCER METERS  
141 \$SDDBT DEPTH BELOW TRANSDUCER FATHOMS  
142 \$SDDPT DEPTH RELATIVE TO TRANSDUCER MTRS  
143 \$TIROT RATE OF TURN DEGREES/MINUTE  
144 \$TIRPM SPEED RPM  
145 \$TIRPM PROPELLER PITCH % OF MAX  
146 \$VDMTW WATER TEMPERATURE DEGREES CELCIUS  
147 \$VDVHW HEADING DEGREES TRUE  
148 \$VDVHW HEADING DEGREES MAGNETIC  
149 \$VDVHW SPEED KNOTS  
150 \$VDVHW SPEED KM/HOUR  
151 \$VDVLW TOTAL DISTANCE N.MILES  
152 \$VDVLW DISTANCE SINCE RESET N.MILES  
153 \$VMMTW WATER TEMPERATURE DEGREES CELCIUS  
154 \$VMVHW HEADING DEGREES TRUE  
155 \$VMVHW HEADING DEGREES MAGNETIC  
156 \$VMVHW SPEED KNOTS  
157 \$VMVHW SPEED KM/HOUR  
158 \$VMVLW TOTAL DISTANCE N.MILES  
159 \$VMVLW DISTANCE SINCE RESET N.MILES  
160 \$VWMTW WATER TEMPERATURE DEGREES CELCIUS  
161 \$VWVHW HEADING DEGREES TRUE  
162 \$VWVHW HEADING DEGREES MAGNETIC  
163 \$VWVHW SPEED KNOTS  
164 \$VWVHW SPEED KM/HOUR  
165 \$VWVLW TOTAL DISTANCE N.MILES  
166 \$VWVLW DISTANCE SINCE RESET N.MILES  
167 \$WIMDA BAROMETRIC PRESS. INCH. OF MERCURY  
168 \$WIMDA BAROMETRIC PRESSURE BARS  
169 \$WIMDA AIR TEMPERATURE DEGREES CELCIUS  
170 \$WIMDA RELATIVE HUMIDITY %  
171 \$WIMDA ABSOLUTE HUMIDITY %  
172 \$WIMDA DEWPOINT DEGREES CELCIUS  
173 \$WIMDA WIND DIRECTION DEGREES TRUE  
174 \$WIMDA WIND DIRECTION DEGREES MAGNETIC  
175 \$WIMDA WIND SPEED KNOTS  
176 \$WIMDA WIND SPEED METERS/SECOND  
177 \$WIMWD WIND DIRECTION DEGREES TRUE  
178 \$WIMWD WIND DIRECTION DEGREES MAGNETIC  
179 \$WIMWD WIND SPEED KNOTS  
180 \$WIMWD WIND SPEED METERS/SECOND  
181 \$WIMWV WIND ANGLE DEGREES  
182 \$WIVWR RELATIVE WIND DIRECTION DEGREES  
183 \$WIVWR SPEED KNOTS  
184 \$WIVWR SPEED METERS/SECOND  
185 \$WIVWR SPEED KM/HOUR  
186 \$YXDBK DEPTH BELOW KEEL FEET  
187 \$YXDBK DEPTH BELOW KEEL METERS  
188 \$YXDBK DEPTH BELOW KEEL FATHOMS  
189 \$YXDBS DEPTH BELOW SURFACE FEET  
190 \$YXDBS DEPTH BELOW SURFACE METERS  
191 \$YXDBS DEPTH BELOW SURFACE FATHOMS  
192 \$YXDBT WATER DEPTH BELOW TRANSDUCER FT.  
193 \$YXDBT WATER DEPTH BELOW TRANSDUCER MTRS

194 \$YXDBT WATER DEPTH BELOW TRANSDUCER FATH  
195 \$YXDPT DEPTH RELATIVE TO TRANSDUCER MTRS  
196 \$YXXDR,A ANGULAR DISPLACEMENT DEGREES  
197 \$YXXDR,C TEMPERATURE DEGREES CELCIUS  
198 \$YXXDR,D LINEAR DISPLACEMENT METERS  
199 \$YXXDR,F FREQUECY HERTZ  
200 \$YXXDR,G GENERIC  
201 \$YXXDR,H HUMIDITY PERCENT  
202 \$YXXDR,I CURRENT AMPERES  
203 \$YXXDR,N FORCE NEWTONS  
204 \$YXXDR,P PRESSURE PASCAL OR BAR  
205 \$YXXDR,R FLOW RATE LITRES/SECOND  
206 \$YXXDR,S SWITCH OR VALVE  
207 \$YXXDR,T TACHOMETER RPM  
208 \$YXXDR,U VOLTAGE VOLTS  
209 \$YXXDR,V CUBIC METERS  
210 TO BE DEFINED

### **Other Seiwa Products:**

Is possible to connect to SW RP03, all the multifunction Seiwa chartplotters and equipments, like:

- The smart GPS antenna.
- BB FF 50/200, fish finder plus the trasducer.
- All trasducers whith NMEA 0183 exit.
- SW RP05 deep sounder (plus trasducer)