



TELE SUPPLY AS

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5. JTM-30C NDB Operator User Manual		

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5. OPERATION AND MONITORING OF THE NDB TRANSMITTER TYPE JTM-30C

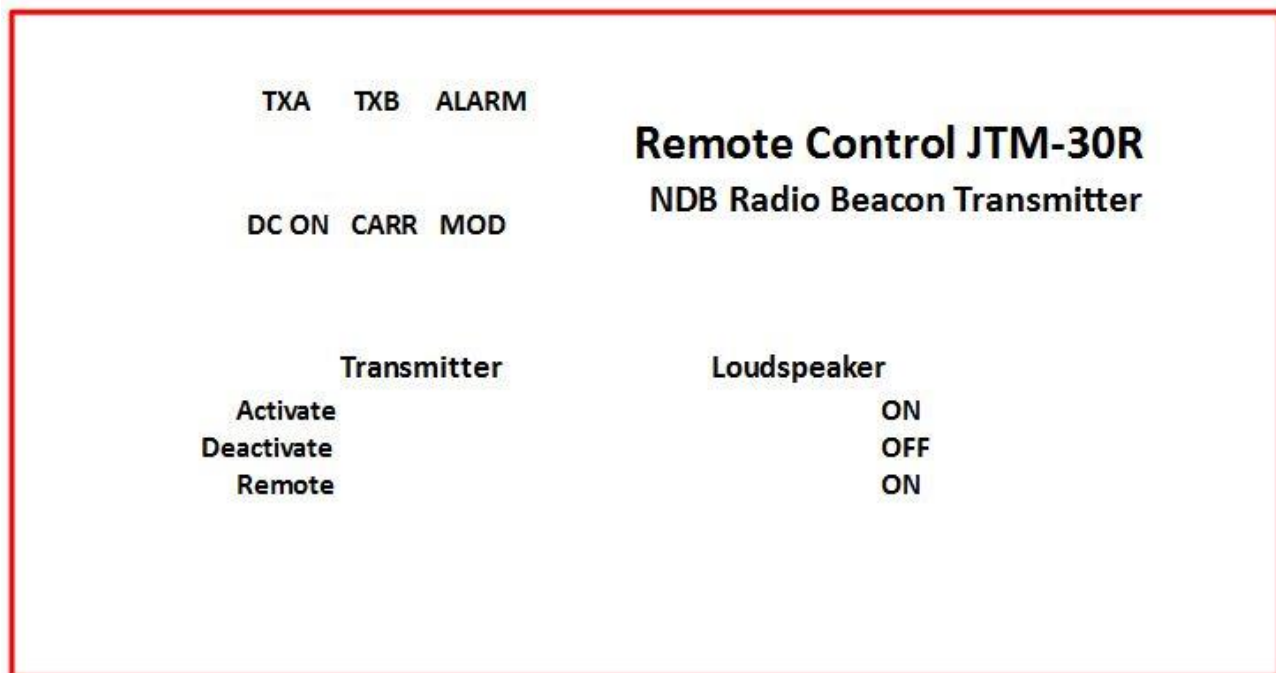
Operation and monitoring of the NDB Transmitter is possible with external mounted Remote Controls and/or operation for dedicated PC directly connected to the equipment, or from PC via Internet

5.1 Operation from Remote Control Units Type JTM-30R

- Switching the equipment ON (Activate), OFF (Deactivate) and Remote.
- Remote Control Units may be daisy chained.

The Remote Control is provided with following indicators and switches:

- LED indicating DC Voltage input to the Transmitter «DC ON»
- LED indicating which transmitter in operation «TXA» or «TXB»
- LED Indicating sufficient «RF Output» from the Transmitter «CARR»
- LED indicating Morse signal «MOD»
- LED indicating Alarm «ALARM»
- Switch for switching the Transmitter ON/OFF/Remote «Activate/Deactivate/Remote»
- Switch for switching the local Loud Speaker ON or OFF



Front Panel view

5.1.1 LED indication DC Voltage input to the Transmitter «DC ON».

- If this LED is lit it indicates that there is DC supply voltage (nominal 24V DC) into the NDB Transmitter, and that the Fuse F1 inside the Transmitter cabinet is ON

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LED indication which transmitter in operation «TXA» or «TXB»

- If LED marked «TXA» is lit it indicates that the Main Transmitter is in operation. As DUAL Transmitter the equipment starts with «TXA» in operation and change-over to «TXB» if the RF output is too low, or if failure
- The change-over will take place approx. after 1 minute, if failure
- If LED marked «TXB» is lit it indicates that the Reserve Transmitter is in operation. As SINGLE Transmitter, only «TXB» is in operation

5.1.2 LED indication «RF Output» from the Transmitter «CARR»

- If LED marked «CARR» is lit it indicates that the transmitter is generating sufficient RF output energy to the Antenna.
- If the RF Output, for transmitter in operation, fails the «CARR» LED will be unlit

5.1.3 LED indication Morse signal «MOD»

- The LED marked «MOD» will be blinking as the Morse signal progresses
- If this LED is not blinking it is an indication that the Transmitter is not sending any Morse signal

5.1.4 LED indication Alarm «ALARM»

- If both Transmitters («TXA» and «TXB»), for some reason, stops sending Morse and/or do not generate sufficient RF carrier output the LED marked «ALARM» will be lit
- The equipment will now either switch itself OFF or continue to transmit with low power depending on the Exciter programming

5.1.5 Switch for switching the Transmitter ON/OFF/Remote Activate/Deactivate/Remote»

- If the Transmitter is in operation and turning this switch from Deactivate to Activate nothing will happen
- If the Transmitter is in operation and turning this switch from Activate to Deactivate the Transmitter will switch OFF
- If the switch is set in position «Remote» the next Remote Control takes over

5.1.6 Switch for switching the local Loudspeaker ON/OFF

- The Remote Control has a built-in loudspeaker
- If this switch is in position ON you will hear the Morse signal in this internal loudspeaker
- If the RF Output is very low (change-over or Alarm situation) you may not hear Morse signal in this loudspeaker

5.2 Operation from PC

Operation and monitoring of the NDB Transmitter is possible from a dedicated PC directly connected to the equipment, or from PC via Internet.

As operator you have two alternatives. “Monitoring only” or “Operator”.



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It is only possible to Monitor or Operate the Transmitter from one (1) PC ONLY.
Once a PC is connected to the Transmitter directly, connected to the Transmitter or via Internet, no other PC may Monitor or Operate the Transmitter.
From the Remote Control Panels connected to the Transmitter, you may at any time switch OFF or switch ON the Transmitter irrespective the status of the PC connection.
From PC you may Monitor or Operate a SINGLE Transmitter or any of the other Transmitters via the MULTI Site selection.

As OPERATOR you only have «Priority 1» access.

5.2.1 MONITORING ONLY (level 0)

This function is meant for monitoring only of one (“Single Site”) or several (“Multi Site”) NDB Transmitters over Internet from PC.

The equipment may be monitored from an external PC via one pair of wires
+ ground cable connected to a RS-485 /USB Interface box at the PC.

When logged in to the PC as “**General user**” (level **0**) you may only monitor the equipment such as:

- Monitoring which Transmitter in operation (Main or Reserve)
- Monitoring RF Output power
- Monitoring DC input Current to the equipment
- Monitoring temperature at the High Power Amplifier (HPA)
- Monitoring Tuning Condition (VSWR)
- Monitoring ambient temperature (temperature inside transmitter cabinet)
- Monitoring if the equipment gives an alarm
- Check RF Power Output and other conditions on both Transmitter
- Reading event log that records all system events, such as restart, parameter changes and error events

5.2.2 OPERATOR (Level 1)

The equipment may be fully controlled and monitored from an external PC via one pair of wires
+ ground cable connected to a RS-485 /USB Interface box at the PC.

Distance between Transmitter and PC may be as long as required (up to 500m).

When logged in to the PC as “**General user**” (level **1**) you only may perform normal Operation and monitoring of the equipment such as :

- Switching the equipment ON or OFF
- Monitoring which Transmitter in operation (Main or Reserve)
- Monitoring RF Output power
- Monitoring DC input Current to the equipment
- Monitoring temperature at the High Power Amplifier (HPA)
- Monitoring Tuning Condition (VSWR)
- Monitoring ambient temperature (temperature inside transmitter cabinet)
- Monitoring if the equipment gives an alarm
- Check RF Power Output and other conditions on both Transmitter
- Reading event log that records all system events, such as restart, parameter changes and error events

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5.2.3 ADMINISTRATOR (Level 2)

NOTE ! This is for information ONLY.
Level 2 access shall only be available for administrator in connection with configuration of the Transmitter during Commissioning

When logged in to the PC as “**Administrator**” you may, in addition to “General user” as specified above, have full access and ability to configure and make adjustment and monitoring of the Transmitter such as :

- Setting Carrier frequency
- Setting RF power output
- Setting Modulation type - Morse, Audio or MSK (option)
- Setting Modulation depth
- Setting Morse tone frequency and Morse sequence (ID)
- Setting Keying rate
- Setting of four (4) different Morse messages
- Selection of type of timer and setting of time
- RESET of Main or Reserve Transmitter, if failed (Alarm)
- Setting User name and Pass words and selection of mode for Reserve Transmitter
- Reading event log that records all system events, such as restart, parameter changes and error events.

(The JTM-30C has a built-in non-volatile memory sufficient for storage of the entire transmitter configuration, and enabling stand-alone un-attended operation. Saving the configuration in solid-state memory is controlled via the PC interface).

5.3 Color and number information on the PC

Readings in the PC windows.

The numbers in the windows are not absolute values, but approx. information only for quick status overview.

5.3.1 Power (WPEP)

The “Power (WPEP)” window is an indication to check that the Transmitter is generating RF output to the Antenna. When the Transmitter is switched ON and under normal condition the background of the window is **GREEN**, and will be **GREEN** as long as the RF Power output is 70% or higher than programmed “RF pow. (%)”.

E.g. if “RF pow. (%)” is configured to 50% and the number in the “Power (WPEP)” window is above approx. 35 the background is GREEN, but the background will turn to **YELLOW** if the number in this window is below approx. 35.

The equipment is still operational if the background is **YELLOW**, but RF output is reduced due to poor Antenna tuning and/or due to poor cleaning of the Antenna Insulators.



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5.3.2 Current /A)

This window shows the DC current supplied to the Transmitter.

Under normal condition the window is white, and will be white as long as the DC current is less than 15 Amp. If the DC current is higher than 15 Amps the background turns **RED** indicating excess DC current indicating that the DC drain current to the Transmitter is too high.

5.3.3 Power Amplifier Temp (C)

This window shows the temperature (C°) at the Output RF Transistors

When transmitter is switched ON the background of the window is white and will indicate the temperature on the Output Transistors. During operation the temperature will increase, but normally not exceed 65 C°.

If the temperature for some reason should increase above 80 C° the background becomes **RED**.

The RF Output Amplifier will operate normally up to 90 C°. If exceeding 90 C° the RF Amplifier will shut-down. When after the RF Amplifier has cooled down to temperature below 70 C° the RF Amplifier will operate normally again.

5.3.4 Antenna VSWR

This window is inserted to have control over the impedance matching and Antenna Tuning. During ideal conditions the VSWR should show less than 1,5.

The Transmitter is considered operating correctly as long as the VSWR shows below 2,5. After finishing fine tuning of the Antenna Tuning Coil adjust the Impedance matching to minimum VSWR.

If the VSWR figures exceed approx. 3,5 the background first turns **YELLOW**, which is an indication the Antenna Tuning and/or Impedance matching is not optimal.

The equipment is still operational if the background is **YELLOW**, but RF output may be reduced due to poor Antenna tuning and/or due to poor cleaning of the Antenna Insulators.

If the figure exceeds approx. 5,0 it is an indication the equipment then the Antenna Tuning is not correct and/or problem with the Antenna or Antenna Insulators.

5.3.5 Ambient Temp (C)

This window shows the temperature (C°) at the Exciter (temperature inside Transmitter cabinet).

5.4 Operation from PC locally or via Internet (Single Site Mode)

When starting the PC program

- This in order to avoid possible unwanted change of configuration, which was set during commissioning of the equipment, it is of importance to dedicate a separate User Name for the OPERATOR.

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- As OPERATOR you are allowed to switch the equipment ON and OFF and to monitor all transmitter settings.

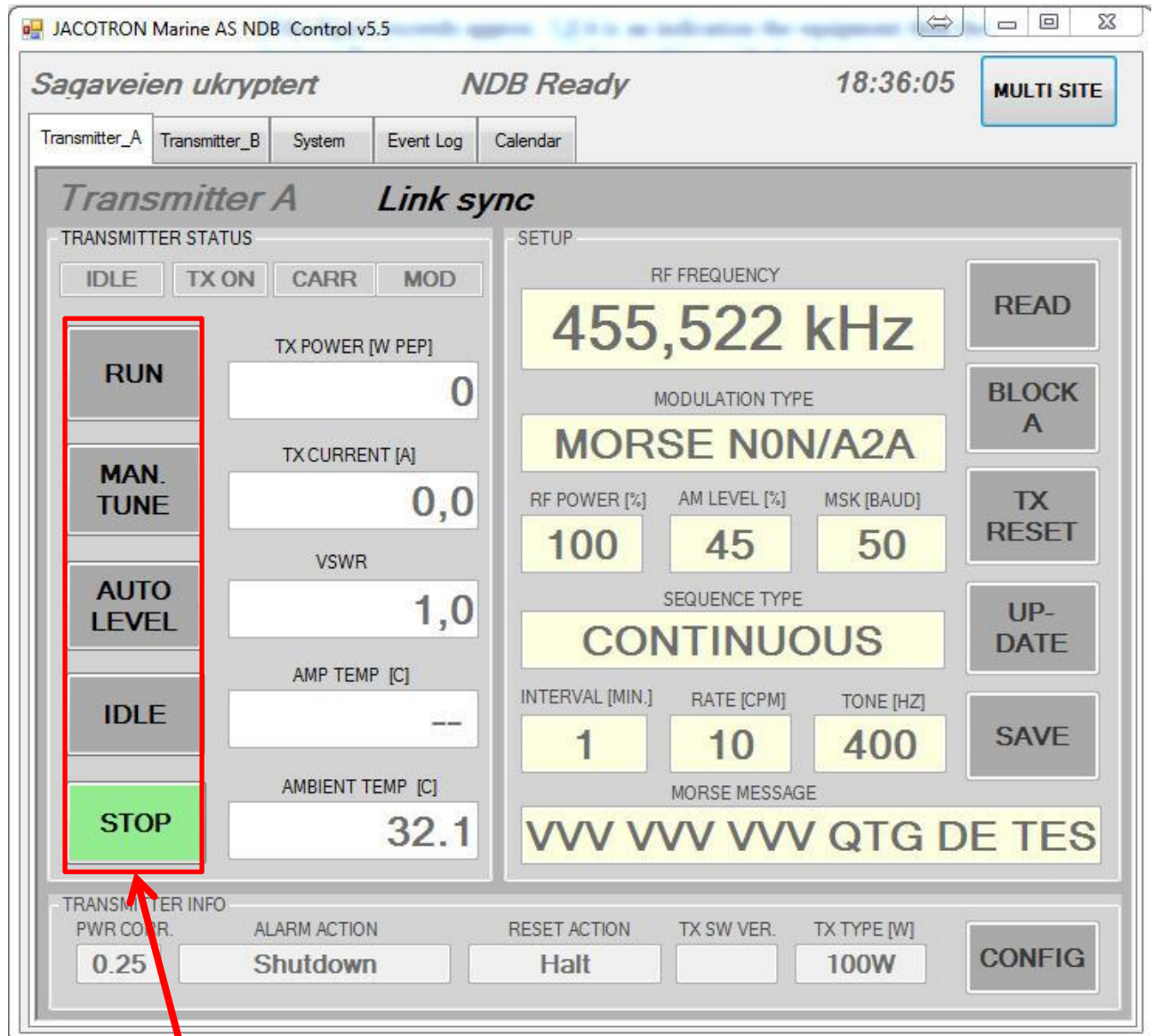
The PC program is in SINGLE Site mod when the upper right button indicate “Multi Site”.

Select which Transmitter (Transmitter A or Transmitter) to be controlled or monitored.

When PC is connected to the Transmitter for supervision and control you may use this PC to switch the Transmitter ON or OFF.

- As OPERATOR you will only have access to switch the Transmitter ON or OFF
- This shall be the case also if acting as OPERATOR via Internet
- As OPERATOR you will, however, see all configuration of the equipment on the PC

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As OPERATOR you only have access to these Control buttons

5.4.1 RUN

When activating “RUN” you switch ON the Transmitter for normal operation. Carrier ON and sending Morse signals. All monitoring circuits are activated.

5.4.2 MAN TUNE

When activating “MAN TUNE” you switch on the Transmitter with the Carrier ON only.

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5.4.3 AUTO LEVEL

When activating “AUTO LEVEL” you switch ON the Transmitter and start an internal test and adjustment. When activating you will see that the window “Pwr correction” first turns **YELLOW** and becomes **GRAY** after finishing adjustment of the RF Power Output. This is an operation which only may be needed when changing the frequency considerably and/or if replacing the RF Amplifier. Typical value in the “Pwr correction” window is 35 to 40. **With RF Amplifier Type JTM-30HPA or JTM-30HPA2 this function is not needed.**

5.4.4 IDLE

When activating “IDLE” you switch ON the Transmitter, but without generating RF input/output from the RF Amplifier. This knob is only to check that the Idle current setting of the RF Power Output Transistors. Typical reading in the “Current (A)” window is approx. 0,6 to 0.9.

5.4.5 STOP

When activating “STOP” you switch OFF the Transmitter.

5.4.6 READ

When activating “READ” you ask the Exciter to send updated information on configured information to the PC.

5.4.7 BLOCK A/B

When activating “BLOCK A/B” you stop the operation on Transmitter in operation. E.g. if Transmitter “A” is in operation and initiation “BLOCK A” you force the transmitter to switch over to Transmitter “B”.

5.4.8 TRANSMITTER RESET

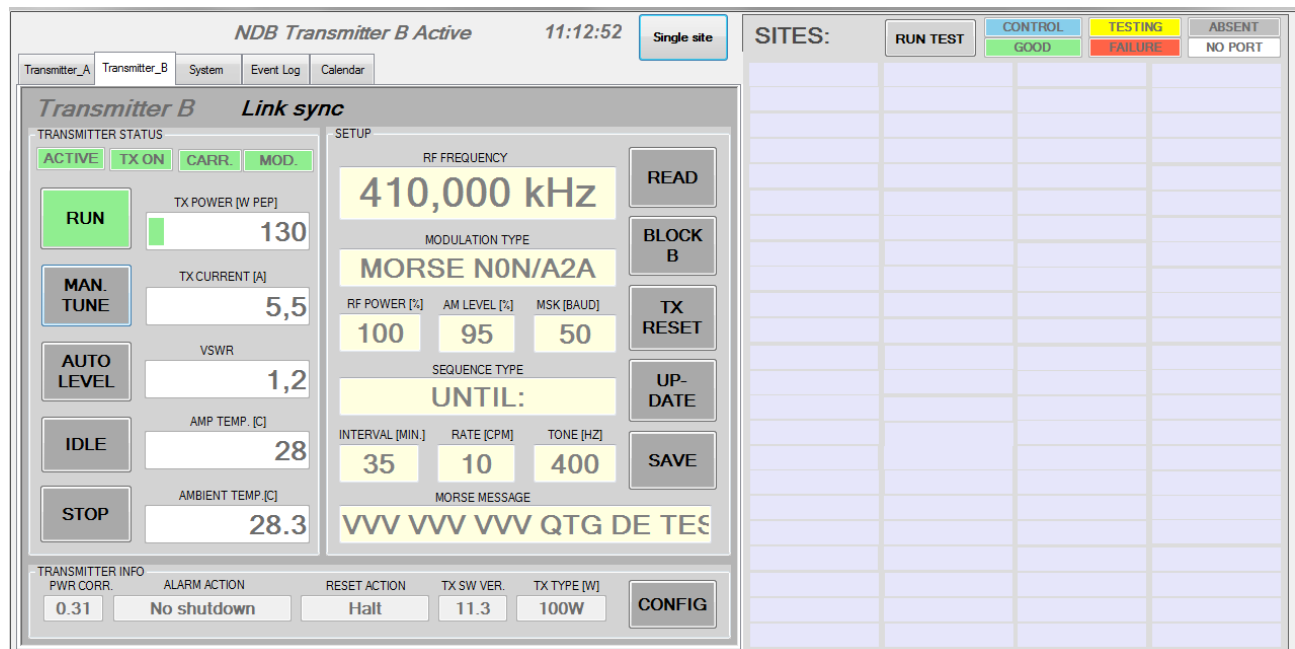
If the Transmitter in operation (A or B) stops operation and switches over the upper window of “TRANSMITTER STATUS” turns RED and indicates Alarm. If you want to reset the Transmitter, or Alarm status, activate “TRANSMITTER RESET” and the Transmitter will be reset back to normal operation again.

5.5 Operation from PC locally or via Internet (Multi Site Mode)

For “Multi Site Mode” operation activate “Multi Site” block located on upper right PC window and you will see **”Main Window”** to the left and **”Multi Site Window”** to the right.



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Main Window

Multi Site Window

The new “Multi Site” window enabling monitoring of up to 90 remote located JTM NDB Transmitters over Internet.

Prior to start monitoring of these NDB Transmitters each one of them needs to be configured.

When all Remote located JTM NDB Transmitters, you want to monitor, has been configured the name of the station will be displayed and you can start to monitor these stations by activating block “RUN TEST”.

The scanner program starts to scan one station at the time in series and the status result for each station (NDB Transmitters) will be displayed.

The program will scan each individual NDB stations one after the other.

Result of this test will be indicated as **“CONTROL”**, **“TESTING”**, **“ABSENT”**, **“GOOD”**, or **“FAILURE”**.

“CONTROL” indicates which NDB Station shown in the Main Window.

“TESTING” indicates which NDB Transmitter which is under testing at the moment.

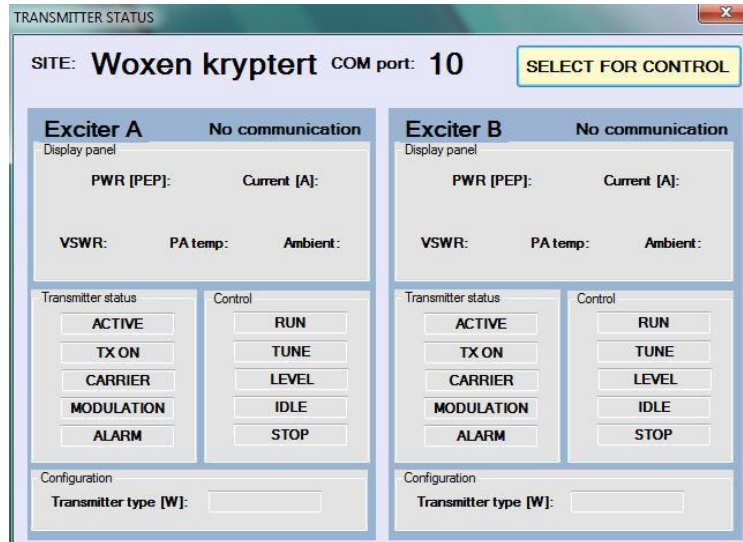
“ABSENT”, indicates no data (Internet) connection with this NDB Transmitter

“GOOD” indicates that the test result with this station is positive. It indicate that the NDB Transmitter operate as instructed.

“FAILURE” indicates that the result from the test with this station indicate that either Transmitter “A” or “B” display ALALM.

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If you want to check more parameter in details of this new station, or start to take control or monitor selected station under Multi Site window, select the station and a window pops up. See below.



TRANSMITTER STATUS

SITE: **Woxen kryptert** COM port: **10** SELECT FOR CONTROL

Exciter A No communication

Display panel

PWR [PEP]: Current [A]:

VSWR: PA temp: Ambient:

Transmitter status

ACTIVE

TX ON

CARRIER

MODULATION

ALARM

Control

RUN

TUNE

LEVEL

IDLE

STOP

Configuration

Transmitter type [W]:

Exciter B No communication

Display panel

PWR [PEP]: Current [A]:

VSWR: PA temp: Ambient:

Transmitter status

ACTIVE

TX ON

CARRIER

MODULATION

ALARM

Control

RUN

TUNE

LEVEL

IDLE

STOP

Configuration

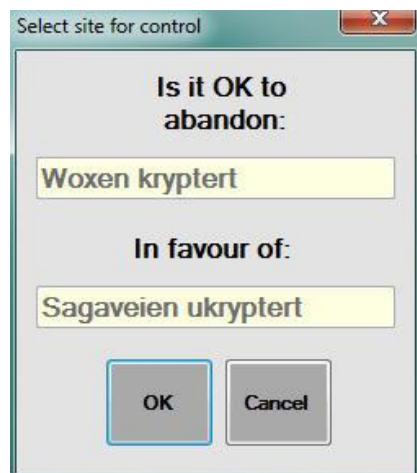
Transmitter type [W]:



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Activate “SELECT FOR CONTROL” and a new Pop-up window.

NOTE! This pop-up window will only be displayed if Multi site TEST is NOT running



You will be asked if is OK to abandon station now under control/monitoring in the main window in favor of the new selected station in Multi site window.

If activating “OK” the program will from now on use the new selected this station to be displayed in the Main window and this station will be marked **“CONTROL”** in the Multi site window.

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5.6 FCC Statements for Power Supply assembly HWS300-24

5.6.1 Compliance Statement (Part 15.19.)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

The Power Supply Assembly Conducted & Radiated EMI complies to :

- EN55011 / EN55022, FCC VCCI Class B

5.6.2 Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

5.6.3 FCC Interference Statement (Part 15.105 (b))

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



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5.7 IC Statements for Power Supply assembly HWS300-24

5.7.1 English

This device complies with Industry Canada's Licence-Exempt RSSs. Operation is subject to the following two conditions:

- 1) this device may not cause interference, and*
- 2) this device must accept any interference, including interference that may cause undesired operation of the device.*

CAN ICES-3 (B) / NMB-3 (B)

5.7.2 French

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3 (B) / NMB-3 (B)