Metropwr
metropwr.com

https://www.metropwr.com

Ver 1.0.5 / Fw 3.79

SUMMARY

SAFETY AND NORMS OF USE

Handle Metropwr FX771 with care. It is made of metal, glass and plastic and contains delicate electronic components. It may be damaged if it is dropped, incinerated, pierced or broken or if it comes into contact with liquids. Do not use Metropwr if it has been damaged, for example if the screen is broken, as it may cause injury. You can protect the Metropwr surface from any scratches using a case.

Repair Do not open the Metropwr FX771 and do not attempt to repair it yourself. Disassembly may damage the device or cause injury.

Avoid prolonged exposure to heat for long periods of time, in the event of malfunction turn it off immediately, and disconnect the power cord.

Crossed-out Wheeled Bin Symbol

Equipment marked with the Crossed-out Wheeled Bin Symbol complies with council directive 2002/96/EC (the "WEEE Directive") in European Union. For Products placed on the EU market after August 13, 2005, please contact your local representative at the end of the product's useful life to arrange disposal in accordance with your initial contract and

IMPORTANT INFORMATION Carefully read all operating instructions, safety tips, and warnings in the instruction manual. By identifying potential hazardous situations in time and by observing the appropriate safety rules, accidents will be avoided. Dangerous situations to be avoided in order to prevent all the hazards listed above. Never use the Metropwr FX771r in an inappropriate manner, but only as instructed in the user manual. The Manufacturer reserves the right to update the technical data contained in this manual without prior notice.

INTRODUCTION

The Metropwr FX771 is a digital wattmeter with a convenient touch screen interface, 3.1 color LCD display, and is fully managed by 2 powerful microprocessors including the first 32bit, 16bit ADCs that guarantee excellent performance and expandability through numerous external accessories. The strong point of the FX771 is expandability with the ability to interface the following accessories:
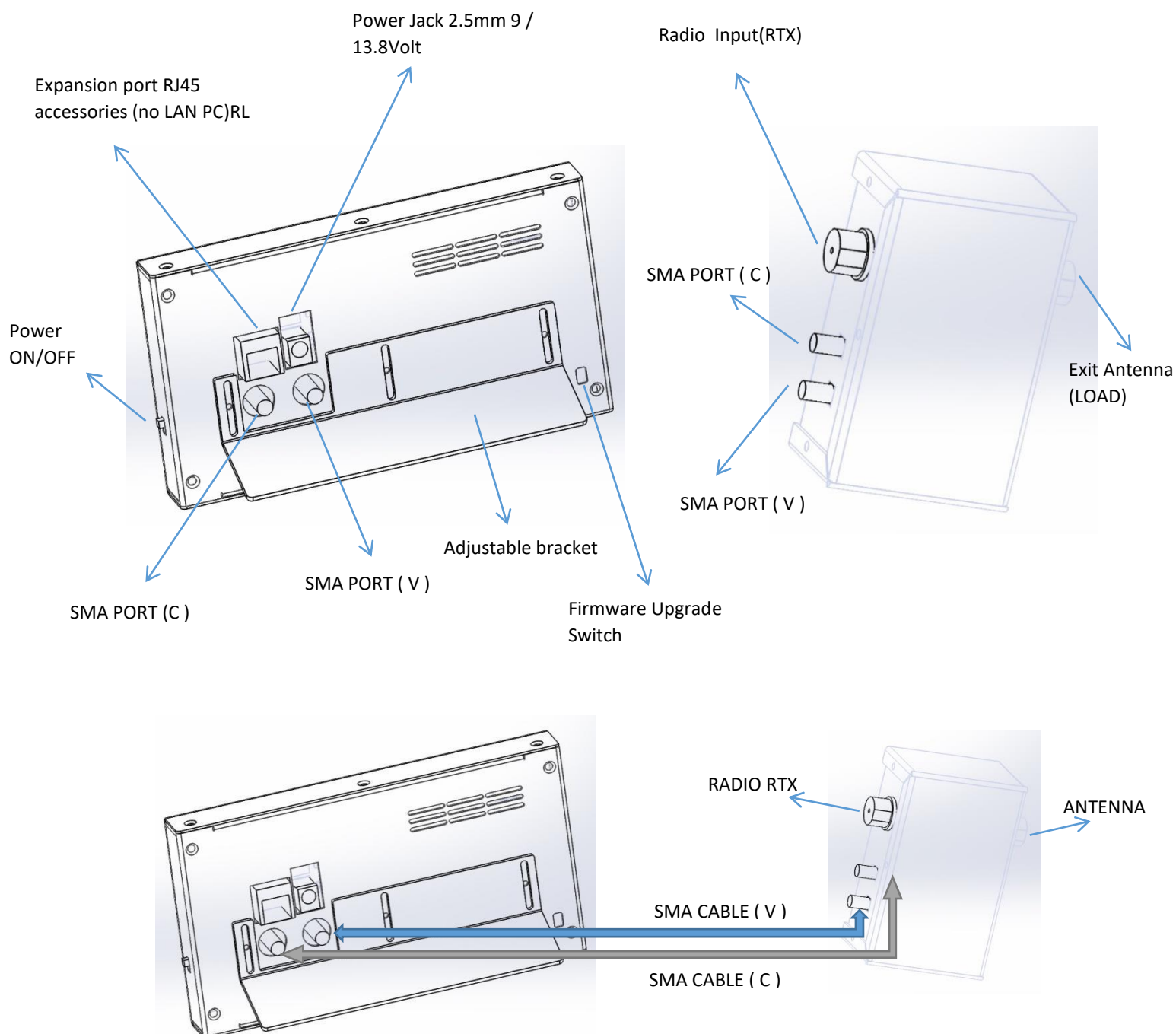
- FX3 Coupler HF/50MHz 3kW/PeP
- FX4 Antenna/Radio switch 1X4 positions
- FX43 Kit PeP for BIRD43
- FXVU Coupler VHF/UHF
- FX5 Coupler HF/50MHz 5kW/PeP

This feature makes it unique in its genre and guarantees a great flexibility of use. It is designed for use with Radio Amateur thanks to its innovative and slim design, it can be placed in any position and through the adjustable rear bracket and it is possible to tilt it as desired or place it fixed at 90 °. The FX771 is really a complete tool and offers the possibility of multiple types of measure in a fast and precise way. Thanks to its Windows software it is possible to interface the Wattmeter to the PC through the USB port and monitor the main functions remotely. The tool offers the following features:

- Measure Power Watt/dBm autoranging
- Measure Power AVG (media) e PeP(di picco) e PeP/Hold
- Measure Power SWR, Return Loss
- Measure Power parameters SWR,R,Z,X
- Measure %Modulation
- Measure operating frequency / band
- Internal UTC analog time clock (optional)
- Possibility of interfacing Wattmeter BIRD43
- Dual Antenna Switch Manager with 1X4 positions
- Double coupler management HF/50 and VHF/UHF
- Alarm SWR high internal diagnostic
- Interfaceable to PC via USB port
- FW User Upgrade

All the instrument is handled by a convenient touch screen display and all operating parameters are monitored through ten LEDs that indicate ADC status, SWR alarms, RX / TX switching, and USB communication status.

INTERFACING COUPLER FX3/FX5

Power Jack 2.5mm 9 / 13.8Volt

Radio Input(RTX)

Expansion port RJ45 accessories (no LAN PC)RL

SMA PORT (C)

Power ON/OFF

Exit Antenna (LOAD)

SMA PORT (V)

Adjustable bracket

SMA PORT (V)

SMA PORT (C)

Firmware Upgrade Switch

RADIO RTX

ANTENNA

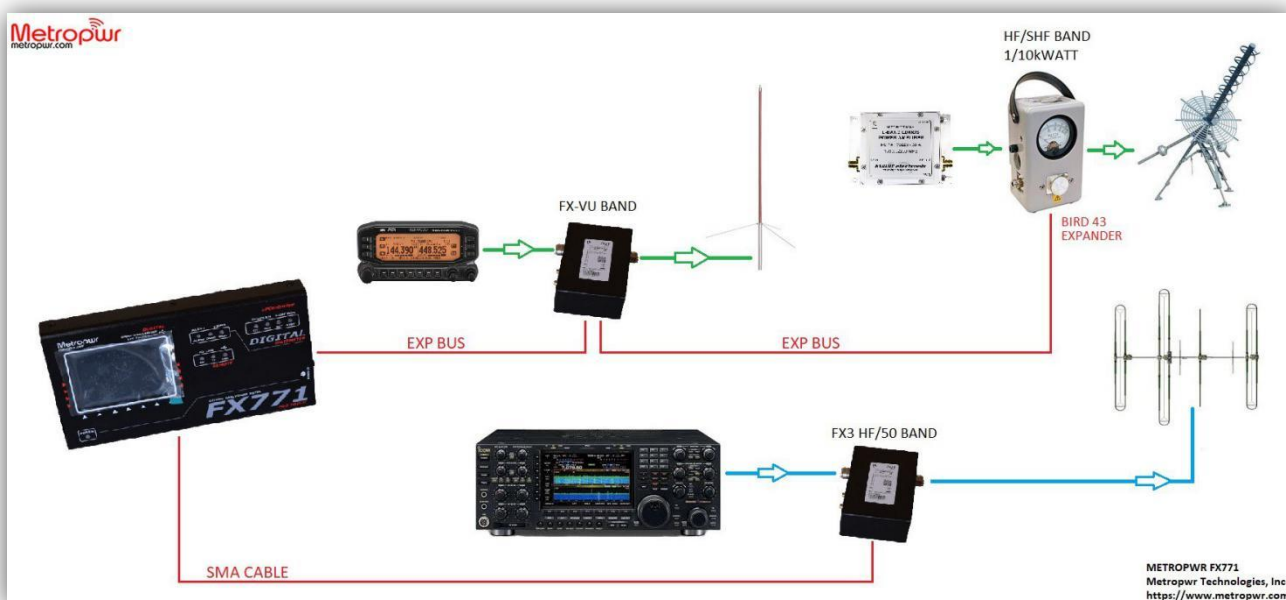SMA CABLE (V)

SMA CABLE (C)

Connector Coupler FX3: Connect the power coupler to the two supplied SMA cables in accordance with the V (voltage) and C (current) positions as in the picture.

CONNECTIONS AND INTERFACING
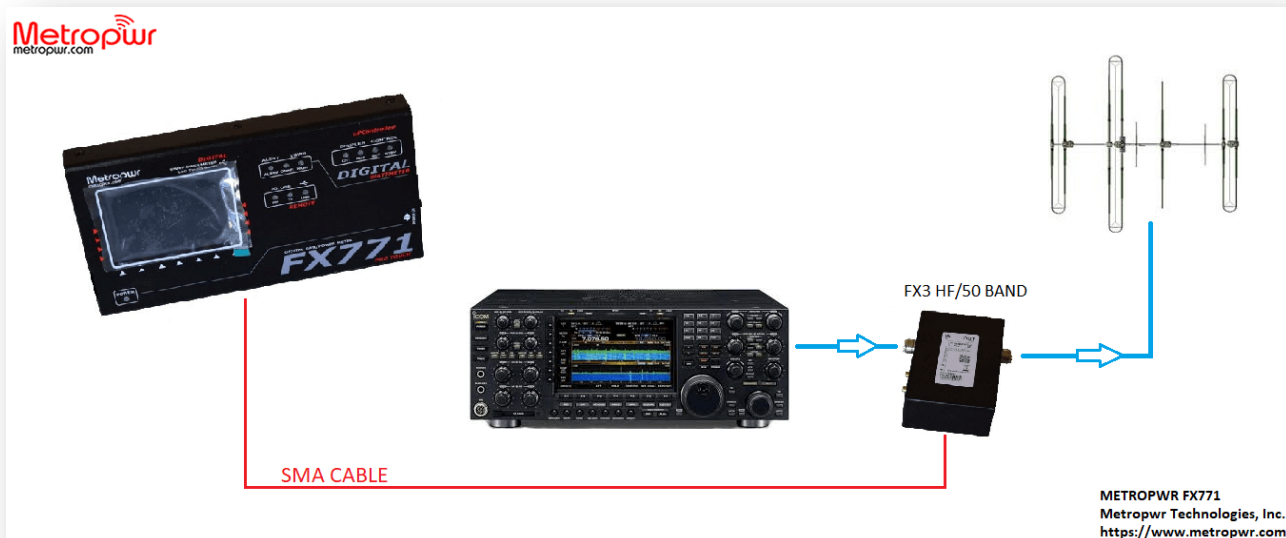
**FX3 connection:** base connection for HF / 50MHz band (use SMA cables).

FX3 / FXV-U / FX43 connection: connection diagram for HF / 50MHz + VHF / UHF + SHF bandwidth management. Through the SMA cables you can interface the Coupler FX3 and through the EXP bus bus you can connect the other two options in series. In this configuration, the FX771 can handle all bands and thanks to BIRD43 all frequencies.

SWITCH ANTENNA FX4 CONNECTION
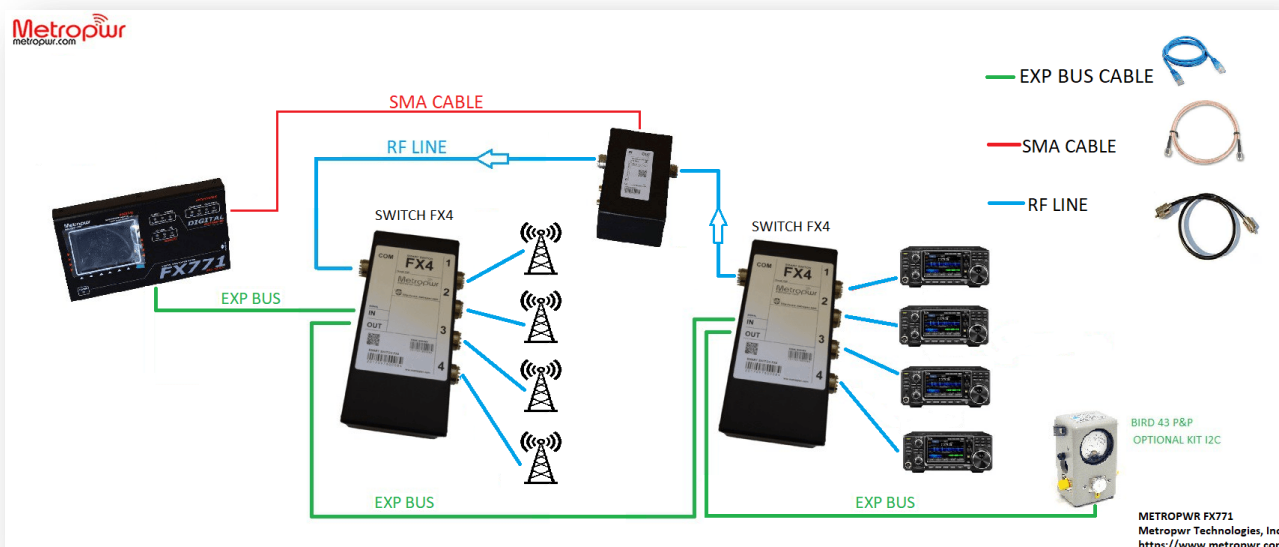
Double FX4 Antenna Switch Connection: You can interface up to two FX4 antenna switches to switch 4 radios and 4 antennas at the same time. Through its Wattmeter FX771 menu, you can manage it simultaneously. The FX4 must be connected in series via the IN / OUT port of the switches and the wattmeter end terminates on the RJ45 rear door. This port is not LAN for PC but proprietary, so do not connect any network HUBs or SWITCHs. The cable for interfacing all options is a simple RJ45 PC cable and the maximum length from the wattmeter to the last option can not exceed 5mt.
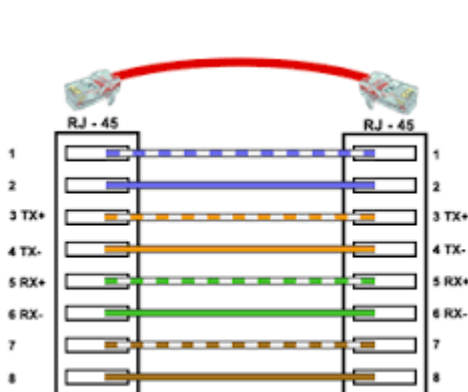
To connect the FX4 / FX43 accessories to the Wattmeter FX771, you can use a straightforward LAN cable. The maximum length is about 5 meters, and the pattern is the one on the left.

⚠ **Be careful not to connect to the RJ45 port behind the Wattmeter FX771 network equipment such as hubs, switches, ip telephones or LAN network points.**

WATTMETRO FX771 FUNCTIONS

On the front of the FX771 there are 11 LEDs that indicate all the instrument's operating functions. Specifically, each led indicates:

- ALARM Indicates any anomalies of the instrument
- ONAIR signals the switching of the radi on Transmission
- VSWR High indicates overrun of the user-set SWR threshold
- CH1 operation ADC CH1
- ADC operation ADC CH0
- ACT activity micro1/2 ok
- STBY standbye mode
- RX/TX/Link activity I/O USB
- POWER

# DISPLAY TOUCH SCREEN E MENU INTERNI

All the FX771 wattmeter is handled via a convenient touch interface. All menus are easily accessible by the user through a simple touch on the screen. When the user transmits the wattmeter switches directly to the WATTMETER main menu. Through this menu it is possible:

- View the power AVG/PeP/PeP Hold
- SWR
- View power dBm
- Parameters Rloss,R,Z,X
- Operating frequency
- Smeter power / %modulation
- Supply Voltage

Simply touch the fields (--.--) to switch between the various types of measurements such as AVG (average), PeP (Peak), PeP / H (peak and hold) or SWR / Power in dBm
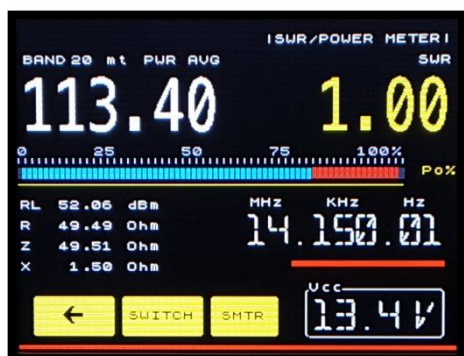
MENU WATTMETER: Left digit AVG (average) power in Watt to right SWR. Smeter displays Po% (modulation percentage). Tap switches to autorange power.
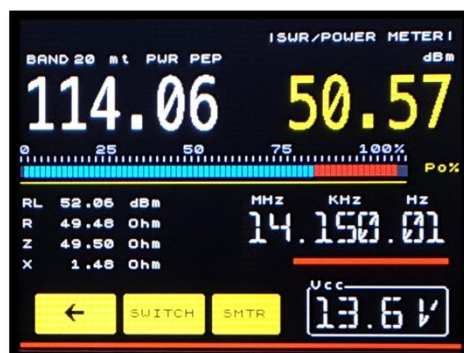

MENU WATTMETER: Left digit PeP power (peak) in Watt to right power in dBm. Smeter displays Po% (modulation percentage). Tap switches to autorange power.
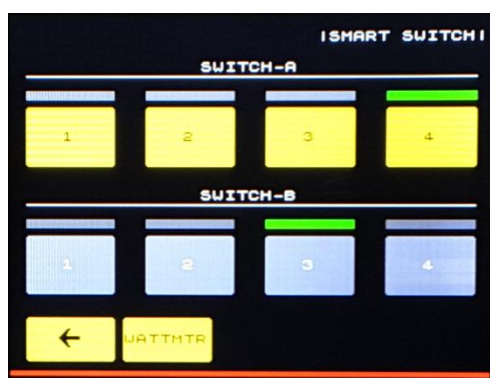
MENU WATTMETER/SMTR & SWITCH

MENU HOME: The main menu from which access the submenus to the setup and the info regarding the hw version and the firmware. If external accessories are connected, they will be displayed in the top bar.
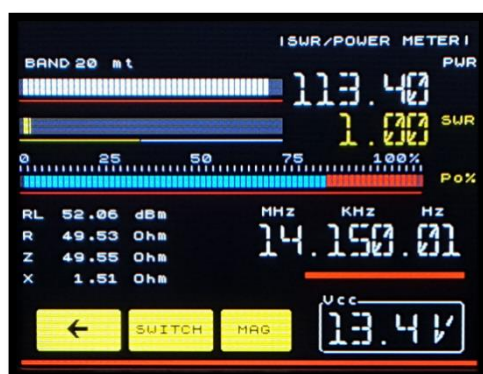
MENU SMTR: other wattmeter menu where three smeter graphs are present respectively represent:

- POWER autoranging
- SWR
- % modulation

MENU SWITCH: through this menu, the FX4 Antenna switches are handled. If two switches are connected, two key files, one for switch A and the other switch B. are displayed. If only one FX4 is connected, only one row of keys will be displayed. The green LED above indicates the currently selected one and retains the position even after turning off and on the wattmeter.

If there is no FX4 antenna switch, this menu will not display any virtual keys. First activate the FX4 switches from the SETUP menu.
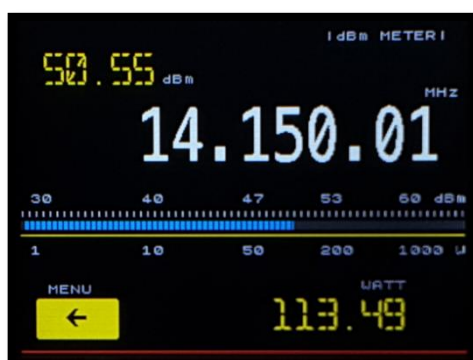
MENU V/U , RZXSWR , dBmMTR
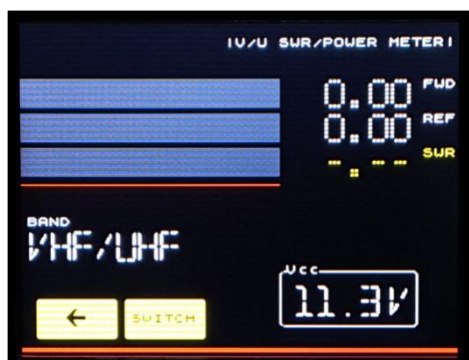
*MENU V/U: this menu is used to measure FWD (direct), REF (reflected) power, SWR requires the optional FXV-U coupler. Usable bandwidth is 145 / 430MHz.

MENU RZX: this menu works with FX3 connected and measured on HF / 50 MHz bands:

- SWR,Power AVG
- R (resistive part)
- Z (impedance)
- X(reactive part)

MENU dBm: This menu shows the AVG power values in dBm and watts. There is also the operating frequency always on the HF / 50MHz bands. There is also a dBm scale smetter.

⚠️ *** Requires FXV-U coupler connected via ACC RJ45 port.**

MENU ACLOCK , DCLOCK

The Wattmeter FX771 also features a digital clock with a perpetual calendar. This function (is optional) on some wattmeter models. Through the ACLOCK munu it is also possible to set the time and the internal date.
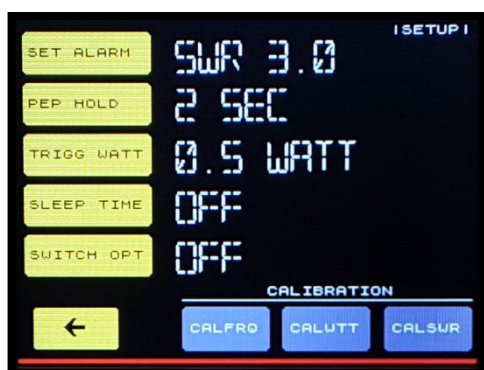

ACLOCK: This menu displays the current time and date. Use the SET button to set the date and time of the system.
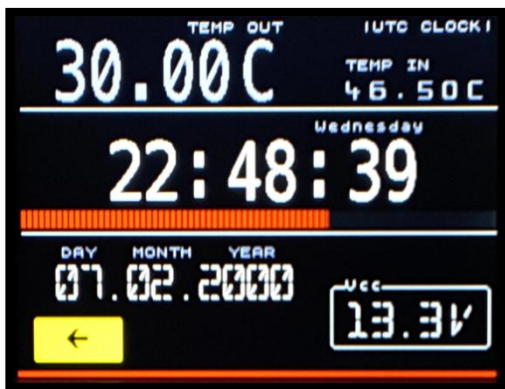
MENU DCLOCK: same clock menu but with digital time and date display. There is also a perpetual calendar. Set the parameters first through the aclock menu.

# MENU SETUP AND CALIBRATIONS SWR , FREQ , POWER


SETUP: Setup menu to set:

- ALARM threshold of intervention SWR high
- PEP HOLD time keeping digit value
- TRIGGER WATT threshold for switching tx
- SLEEP TIME time off display
- SWITCH OPT Activation FX4 Antenna Switch

CALFREQ: through this menu you can calibrate the internal frequency meter. Trasmit on 10MHz and set the correct frequency display to 10,000,000 MHz with the +/- ++ / - keys at the end to store the parameter using the SAVE key.
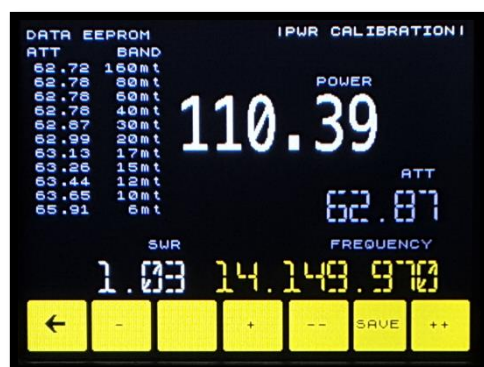
CALWTT: through this menu you can recalibrate AVG power on all 11 bands. The procedure is simple, transmit with 100 watts to * dummy load, connect a precision external wattmeter in series to the FX4 coupler and use the +/- ++ / - keys to match the power read by the Wattmeter FX771 with that of the wattmeter outside reference. After saving with SAVE, repeat operation for all 11 bands.
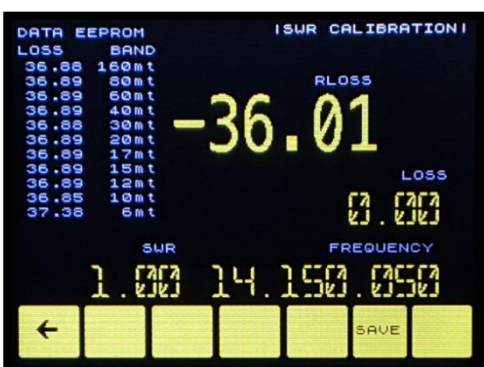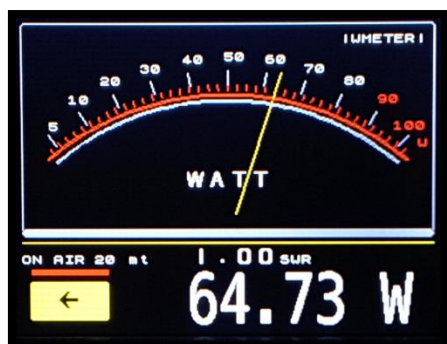

CALSWR: through this menu you can recalibrate the SWR part. Connect the radio and set 10W to transmit without connecting any aerial. Warning operation could damage the radio fines and then give a small load of load and simultaneously press the SAVE key. Repeat this operation on all 11 bands.

⚠️ *** Use 50 ohm dummy load**

MENU WMETER , FREQMTR , SWR , DIAG , TABS

WMETER: menu where the power is represented in graphic mode. Through a smetter with useful index for precision measurements. There is also the numeric value and SWR.

FREQMTR: through this menu you can find the operating frequency. Useful to recalibrate radio VFOs or to monitor the frequency stability of a transmitter
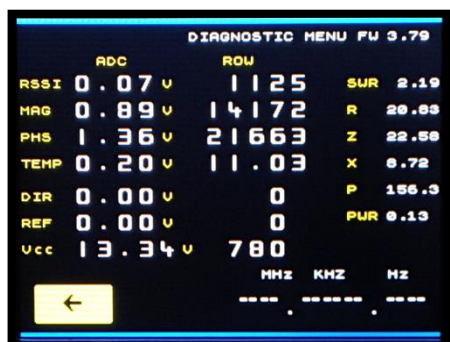
DIAG,INFO: through these menus you can detect the firmware version and detect the operating parameters of the instrument.
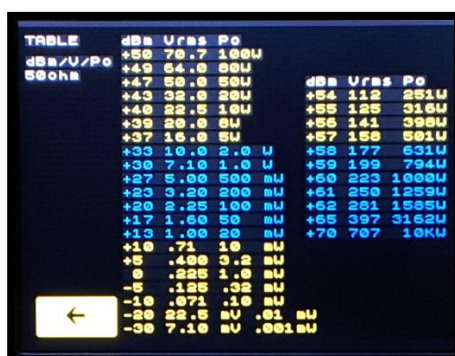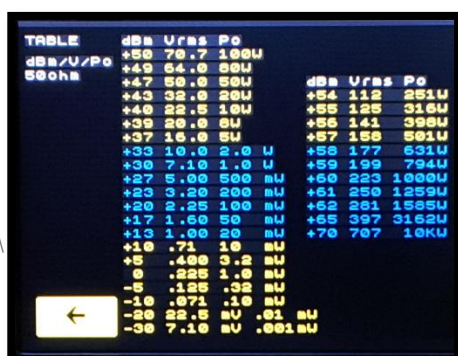
TABLE: through these menus you can get some conversions between dBm Vrms or Returnloss / dB power.

MENU BIRD & KIT PeP FX43

The Wattmeter FX771 allows you to interface the instrument with a BIRD43 via the FP43 optional PeP kit. This unique feature of its kind allows to:

- Equip the BIRD43 of an additional function to measure the PeP power directly on the bird (also without Wattmeter FX771). It is possible to disable the function via the side switch and return to reading the AVG power.
- Interact the BIRD 43 to the Wattmeter FX771 to have the numeric value directly on the display. In addition, the wattmeter returns the value in dBm and is also equipped with a graph Smeter. From the same menu you can manage all types of SLUGs.
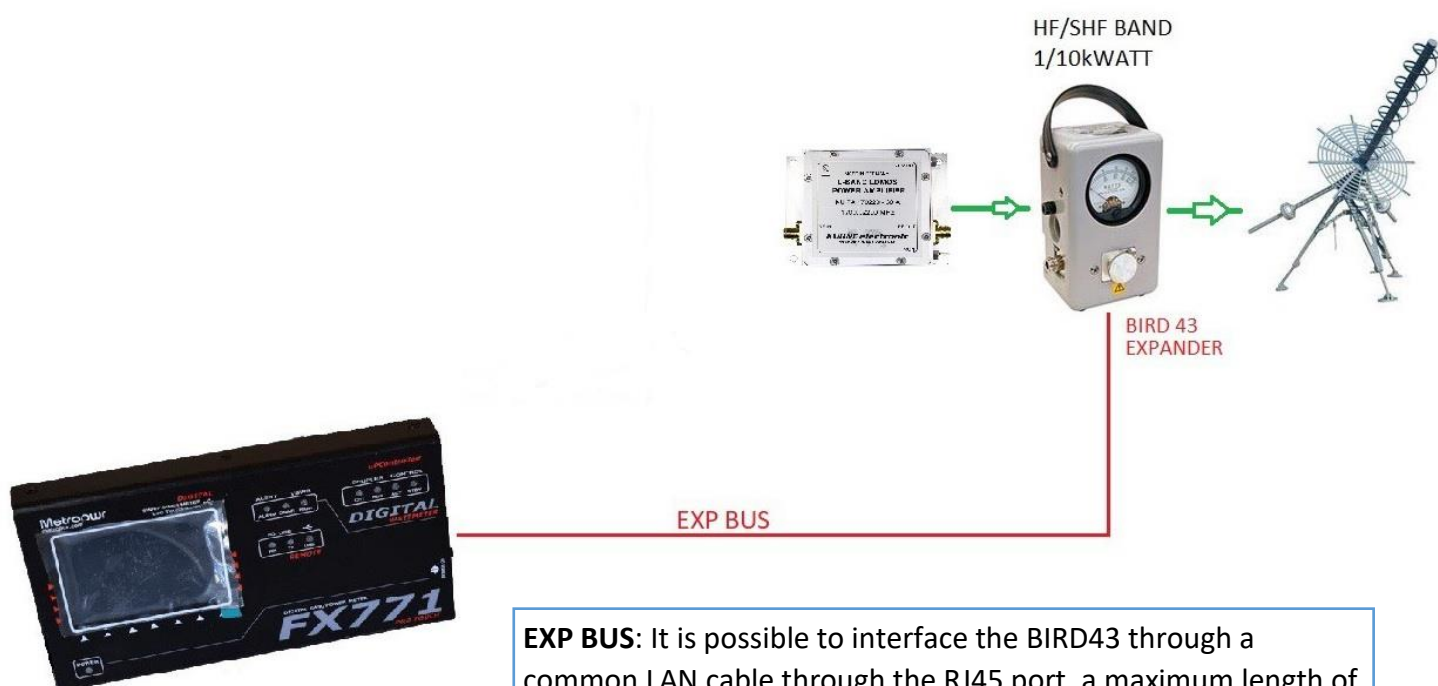

BIRD: through these menus you can view the power read by BIRD43. You can also set the type of SLUG:

- FACT type slug

- MULT multiplication factor

KIT PeP FX43

EXP BUS: It is possible to interface the BIRD43 through a common LAN cable through the RJ45 port, a maximum length of 5mt.

FIRMWARE UPDATE & WIN APP

It is possible to upgrade the Wattmeter FX771 through a firmware upgrade. The upgrade is very simple. The first step is to position the rear switch in the lower position. Then simply connect the tool to the pc, install its driver, detect through the windows control panel the created serial port, example COM10, launch the utility on the pc. Select sample COM10 at the prompt and press submit. Within 1 minute the Wattmeter will be updated. Then reposition the rear switch to the top. It is very important to disable each antivirus before copying the upgrade file to your pc and launching the application.
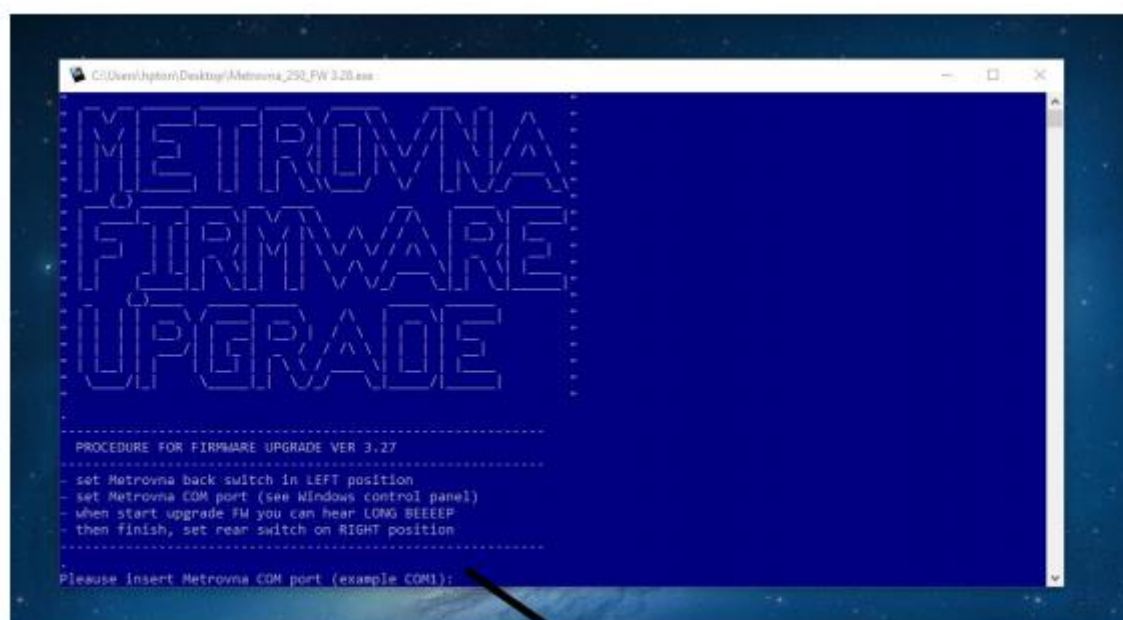
Selezionare la porta Seriale esempio COM10

It is possible to handle the Wattmeter remotely by connecting the instrument to the PC through the USB port. You must check before Java is installed on your pc. Launch the utility, select its COM port using the UP / DOWN keys and activate the program with the ON button.
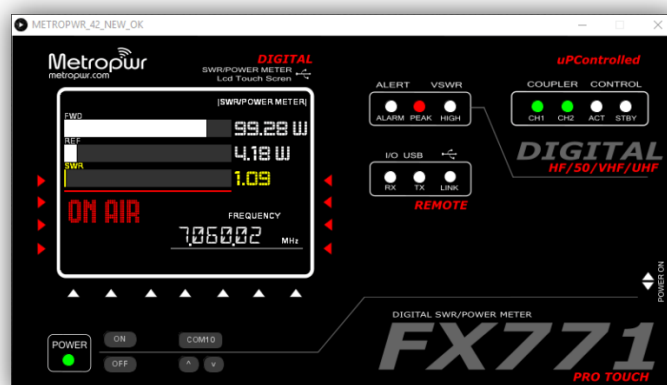
NOTES:

ACCESSORI & OPTIONAL

Fx4 Antenna/Radio Switch FX4
- Coverage 1.8/55 MHz 160/6mt
- Power 1kW PeP
- 1X4 Positions So259
- Flatness 0.1 dB
- In/out EXP Bus (Easy Lan Conector)
- Max Distance to Wattmeter 5mt
- No need ext. supply

FX3 HF/50MHz Coupler
- Coverage 1.8/55 MHz 160/6mt
- Power 20mW/3kW PeP
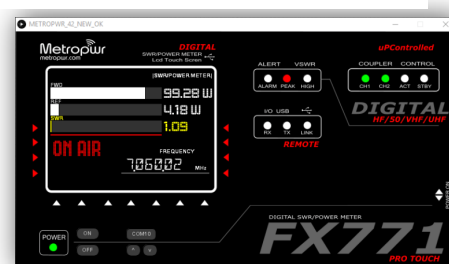- Directivity 30dB
- Flatness 0.1 dB
- Connector so259 + SMA

FX-VU Coupler VHF/UHF
- Coverage 2mt/70cm
- Power 200W
- Accuracy Power/Swr 5%
- Flatness 0.1 dB
- Connector N

FX-43 PeP Kit per BIRD43
- Port USB
- ADC 16bit
- Error < 0.5%
- Battery 4xAA
- Connector RJ45

TECHNICAL FEATURES METROPWR FX771

- Coverage 1.8/55 MHz 160/6mt + VHF/UHF
- HF/55MHz Measure Power AVG, PeP, dBm, R, Z, |X| , SWR, ReturnLoss, Frequency
- Wide Autoranging Power range 20mW/5kW
- V/U Measure SWR/Power/FWD/REF
- HF/50MHz Optional Couplers 20mW /3kW (FX3) – 20mW/5kW (FX5)
- VHF/UHF Optional Coupler 200W (FX-VU)
- Accuracy SWR <5%
- Directivity Coupler 30dB
- Accuracy Power Better 5%
- Operating voltage 13.8V
- Dimensions 178X100X20 mm
- Weight 200gr

FUNCTIONAL CHARACTERISTICS

- Display TFT 3.1" 16 K color Touch screen
- uP 32bit + Coprocessor
- 16 Internal Menus
- Internal Analog/Digital UTC Clock
- PC USB port
- ADC resolution 16bit
- Fast EXP Port
- updating Firmware through USB