

This Information Is Provided By
CBTricks.com

Daiwa NS-660P Owner's Manual

Liability of damages to any equipment is the sole responsibility of the user! Downloading, viewing, or using any information provided on these pages automatically accepts the user to the terms of this agreement!

Modifications are provided for information purposes only!

Supporters of CBTricks.com paid for the hosting so you would have this file.

CBTricks.com is a non-commercial personal website was created to help promote the exchange of service, modification, technically oriented information, and historical information aimed at the Citizens Band, GMRS (CB "A" Band), MURS, Amateur Radios and RF Amps.

CBTricks.com is not sponsored by or connected to any Retailer, Radio, Antenna Manufacturer or Amp Manufacturer, or affiliated with any site links shown in the links database. The use of product or company names on my web site is not endorsement of that product or company.

The site is supported with donations from users, friends and selling of the Site Supporters DVD's to cover some of the costs of having this website on the Internet instead of relying on banner ads, pop-up ads, commercial links, etc. Thus I do not accept advertising banners or pop-up/pop-under advertising or other marketing/sales links or gimmicks on my website.

ALL the money from donations is used for CBTricks.com I didn't do all the work to make money (I have a day job). This work was not done for someone else to make money also, for example the ebay CD sellers.

All Trademarks, Logos, and Brand Names are the property of their respective owners.

This information is not provided by, or affiliated in any way with any radio or antenna Manufacturers.

Thank you for any support you can give.

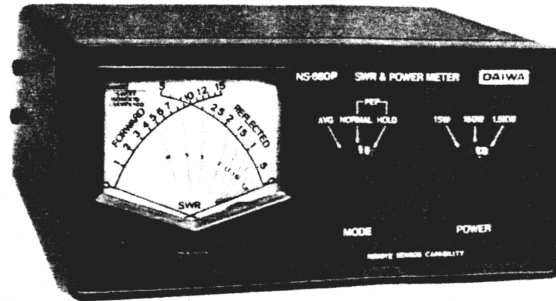
For information on how to Support CBTricks.com

<http://www.cbtricks.com/support/>

INSTRUCTION MANUAL

SWR & PEAK POWER METER

MODEL NS-660P SERIES



このたびDAIWAのNS-660PシリーズSWR & PEAK POWER METERをお買い上げ頂きありがとうございました。
 本機を有効にご活用頂くために、下記の取扱説明書をご一読ください。
 本機は同一ケース内に2組のメータ機能部を封入することにより、前進電力、反射電力およびSWRを直読できます。メータは自照式です。また、本機は内蔵センサ以外に、別売のリモートセンサを買いたして頂くことにより、メータ部を共用することができるリモートセンサ用端子が付いております。そして、本機はピーク指示回路を有しており、SSB運用時のピーク電力が測定できます。
 ※ リモートセンサ (U-66H、U-66VおよびU-66S1)、センサ切換器 (SS-2) および延長ケーブル20m (SC-20)を別売しています。

OPTIONAL(REMOTE SENSORS)

	U-66H	U-66V	U-66S1
Frequency	1.8 – 150MHz	140 – 525MHz	900 – 1300MHz
Power rating	3kWCW	300WCW	60WCW
Connectors	M(SO-239)	M or N	N

※ All sensor can be connected to all NS-660 series meters.

SPECIFICATIONS

	NS-660P	NS-660PA	NS-663P	NS-663PA
Frequency	1.8 – 150MHz		140 – 525MHz	
Power range : Forward	15/150/1.5kW	30/300/3kW	1.5/15/150W	3/30/300W
Maximum power (both CW and PEP)	1.5kW	3kW	150W	300W
Tolerance	(AVG) $\pm 10\%$ at full scall		(PEP) $\pm 15\%$ at full scall	
SWR measurement	1 : 1 – 1 : ∞			
SWR detection sensitivity	4Wmin.	8Wmin.	0.4Wmin.	0.8Wmin.
Input/Output impedance	50ohms			
Input/Output connectors	M type (SO-239)		M or N type	
DC power supply	DC6-24V (PEP) 7mA at 13.8V DC power			
Meter releasing time (PEP Mode)	(NORMAL) Full scale to zero 3sec. (HOLD) Full scale to -3dB down 30sec.			
Dimensions and weight	184W x 95H x 152Dm/m, 1.2kg			
Accessories	Battery clamp (for 0.06P), A lead with DC plug			

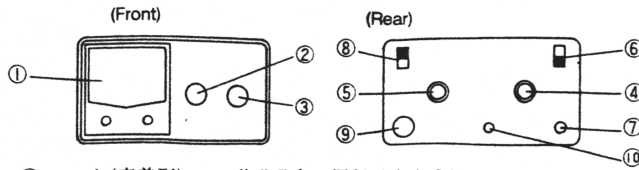
The NS-660/660P is a high quality instrument with unique features which make tedious measurements of SWR and Power during antenna tests, matching and tuning of transmitters a very easy task.

SWR and Power indicators are installed in one meter unit. One scale will indicate Forward Power, another scale Reflected Power and SWR is indicated at the crossing point of the 2 needles. This unique feature makes it possible to read Forward Power, Reflected Power and SWR all at the same time.

The meter unit has built-in illumination which provides improved readability. In addition to the built-in RF power sensor, an optional remote sensor can be used via EXT Sensor socket on the rear panel. The NS-660P can also measure PEP Peak Power in SSB operation.

※ To connect with NS-660/660P, remote sensor units (U-66H, U-66V and U-66S1), sensor changeover switch (SS-2), and extension cable 20 meters (SC-20) are provided separately.

■ CONTROLS



- ① メータ (交差形) : 前進電力、反射電力と SWR を指示します。
 ② MODE SW : "AVG" 平均電力を指示します。
 "NORMAL" SSB 送信における、音声電力のピーク値に応じた指示をします。
 "HOLD" SSB 送信における音声電力の最大ピーク値を指示します。
 ③ POWER SW : 電力レンジを切り換えます。
 ④ INPUT (TR) : 送信機またはトランシーバと同軸ケーブル (50 Ω) で接続します。
 ⑤ OUTPUT (ANT) : アンテナと同軸ケーブル (50 Ω) で接続します。
 ⑥ LAMP SW : メータ照明用ランプを ON-OFF します。
 ⑦ DC 電源端子 : メータ照明用ランプおよびピーク回路駆動用電源を接続します。
 ⑧ SENSOR SW : "INT" 内蔵センサ使用時に設定します。
 "EXT" リモートセンサ使用時に設定します。
 ⑨ EXT SENSOR : リモートセンサの検出用ケーブルを接続します。
 ⑩ BATTERY 押え : バッテリー (006P) 固定用金具の取付孔です。

■ 操作 方法

平均電力の測定は MODE SW を "AVG" に設定してください。
 操作方法は裏ページの操作準備と操作方法の項を参照してください。






○ PEP 電力の測定

- DC 電源端子に DC 電源 (6-24V)、または、バッテリー (006P) を付属のケーブルを使って接続してください。
- MODE SW を "NORMAL"、または "HOLD" に設定してください。
- トランシーバを動作させますと、"NORMAL" では、SSB 送信中の音声電力のピーク値に応じてメータ指示が変動します。"HOLD" では、SSB 送信中の音声電力の最大ピーク値を指示します。

* SSB 送信においては、下表のように "AVG" と "PEP" ではメータ指示値が異なります。したがって、SSB 送信中に MODE SW を "AVG" から "NORMAL" に切り換える時は、送信電力値に十分注意してください。メータ指針が振りきれられる場合があり、メータ故障の原因となります。

RF POWER FOR VARIOUS MODULATION MODES

(VOLTAGES SHOWN VARIOUS VOLTAGES FOR 50OHMS DUMMY LOAD)

	Carrier Power (W)	Average Power (W)	PEP (W)
AM/FM CARRIER 	100	100	100
AM Single Tone (100% modulation) 	100	150	400
SSB Single Tone Modulation 	—	100	100
SSB Two Tone Modulation 	—	50	100
SSB Voice Modulation 	—	20-25	100

- Table -

■ 注 意 事 項

- PEP 測定時は反射電力は表示しません。
- バッテリー使用時、メータランプを点灯していると、バッテリーの消耗を速めます。
- 寿命切れのバッテリーを使われますと、メータ指針が異常に振れたり、動作しなくなったりします。
- ピーク HOLD を繰り返し使用する時は、MODE SW を "NORMAL" か "AVG" に切り換え、メータ指針を零復帰させてからご使用ください。

- ① Meter (Cross needle type) : Indicates SWR, Forward and Reflected Power.
- ② Mode Switch : Used to select meter reading of AVG (average power), Normal (normal PEP power) or HOLD (PEP peak power).
- ③ Power Switch : Used to select the power measuring range.
- ④ Input (TR) : Connect with 50ohms coaxial cable to transmitter or transceiver.
- ⑤ Output (ANT) : Connect with 50ohms coaxial cable to antenna system.
- ⑥ Lamp Switch : Used to switch on/off the built-in lamp.
- ⑦ DC Power socket : Connect to a 6-24V DC power supply to measure PEP Peak Power and to illuminate the lamp. Observe correct polarity, or damage will occur.
- ⑧ Sensor Switch : The built-in sensor is used at the "INT" position, and the optional remote sensor at the "EXT" position.
- ⑨ EXT Sensor : Connect to the remote sensor cable.
- ⑩ Battery clamp : Used to hold a 006P battery.

■ OPERATION

AVG : Indicates RMS power of FM or continuous wave signal and SWR.

NORMAL : Indicates Peak Power of SSB signal.

HOLD : Indicates Peak Power of SSB and meter needle holds at Peak Power for about 30sec.

(Battery, 006P 9V, or DC power must be connected for meter to function PEP operation.)

- Select the Mode switch to "AVG" position.
- Please refer to OPERATION of NS-660 series meters.

○ Measuring PEP power

- Connect the DC power socket to a DC power supply (6-24V) using the cable provided.
- Select the Mode switch to either "NORMAL" or "HOLD" position.
- In the Normal position, the meter indicates the PEP output in SSB operation. In the Hold position, the voice signal peak power is displayed for approx. 30seconds.

* During the various SSB transmission modes, as shown in the table left, the meter reading of AVG and PEP will differ. Therefore, when in the SSB transmit mode, before switching the mode switch from AVG to PEP (NORMAL/HOLD), make certain that the meter power setting is correct. Otherwise, the meter needle will go off-scale, resulting in damage to the instrument.

■ CAUTIONS

- * The meter movements are highly sensitive. Prevent mechanical shock and vibration.
- * Measuring power with a poorly matched antenna or disconnecting the output of the bridge while operating may damage the meter.
- * Reflected power is not displayed while measuring PEP power.
- * Do not leave the meter lamp on if the meter is powered by battery. Weak battery may cause measuring error or other malfunctions.
- * Reset meter needle by changing the Mode switch to the "NORMAL" and back to "HOLD" position if you wish to use the HOLD position repeatedly. (NS-660P only)