



OPERATION MANUAL

CMX-1,2,3

All time multi media monitor

Features:

1. Meter Section and RF-Sensor is separated. Because of mini-sizing of meter Section, much free setting is realized both for mobile and base station. The distance of separation is available by 5m maximum, using optional extension cable.
2. The newly developed Cross meter indicates FWD, REF and V.SWR at the same time
3. The RF-Sensor is designed compactly and has extremely low loss circuit.
4. The front panel of the meter is designed for easy out-reading and has clear illumination; when connected to power supply.

Remarks before operation:

The multi media monitor is perfectly tuned before delivery.

- * Please refrain from taking off the panels, nor touching to inside mechanics.
- ** Please do not use the monitor at the excessive voltage then 15VDC, which may cause serious damage.

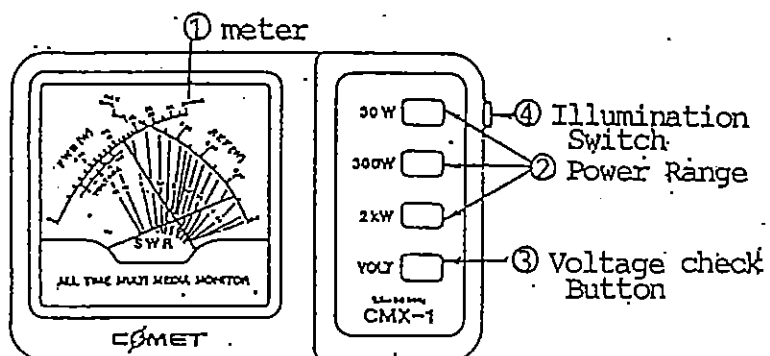
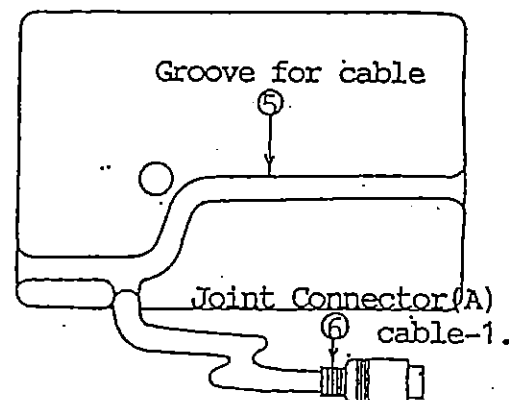
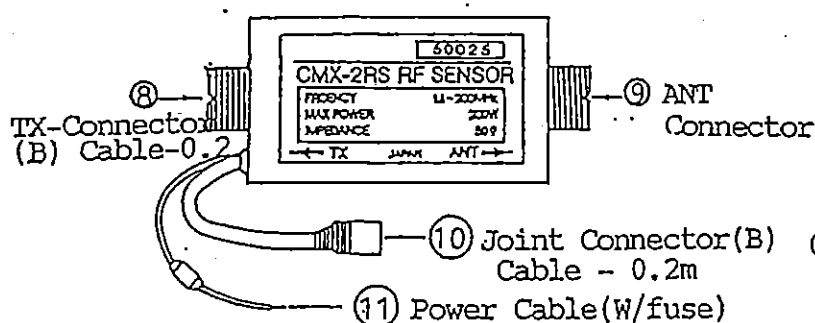
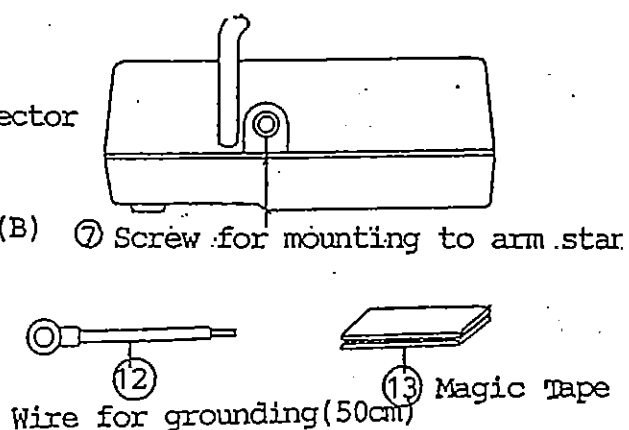
Specification:

	CMX - 1	CMX - 2	CMX - 3
Frequency Range	1.8-60MHz	1.8-200MHz	140-525MHz
Measurable Power Range	0-2KW	0-200W	0-200W
Power Range	30/300/2KW	20/50/200W	20/50/200W
Input Loss	Less than 0.2dB	Less than 0.2dB	Less than 0.3dB
Min. Power for SWR Measurement	Approx. 6W	Approx. 4W	Approx. 4W

- * Power Measurement Accuracy $\pm 10\%$
- * Connector : M-J(SO-239)
- * Power : DC11 - 15V, 350mA
- * Dimensions(RF-Sensor) : W82(112)xH29xD50(54)mm
- * Weight(meter) : Approx. 230g
- * Accessories : manual, magic tapes, Wire for grounding
- * Option : Extension cable 3m between meter & RF-Sensor
- * Impedance : 50 Ω
- * SWR Measurement : 1 - ∞
- * Dimensions(meter) : W120xH80xD43mm
- * Weight(sensor) : Approx 170g

Comparison of SWR to REF Ratio:

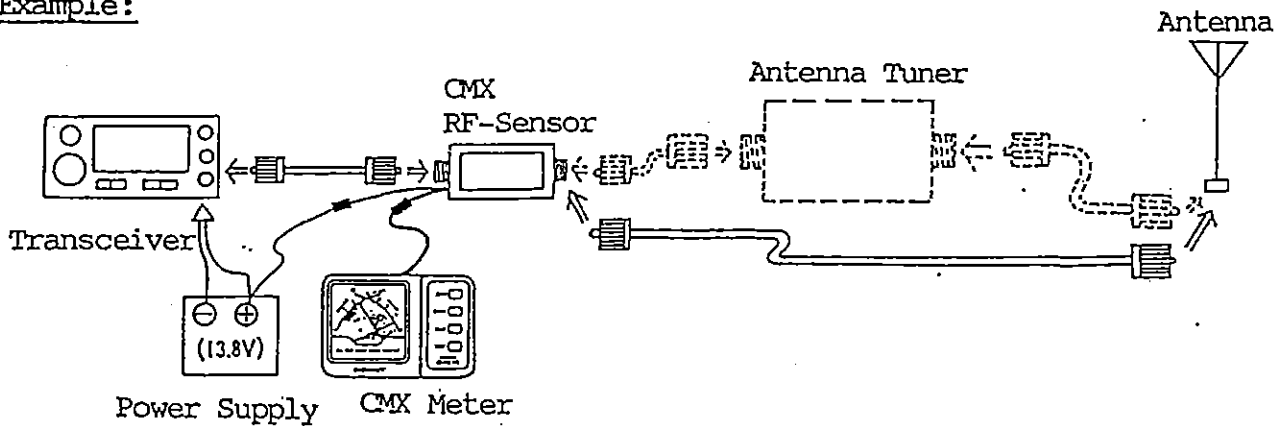
SWR Figure	1.0	1.1	1.2	1.5	2.0	2.5	3.0
REF Wave ratio	.0	0.22	0.8	4.0	11.1	18.4	25.0

Parts name & Function:Front PanelBack PanelRF SensorBottom of meter

- 1 Meter for indicating FWD, REF, SWR and Voltage.
- 2 Power Range Buttons for Changing the max Power of FWD wave.
- 3 Voltage Check Button. Can confirm voltage of Batteries etc, while pressing the Button.
- 4 Illumination Switch On-off switch for illumination.
- 5 Groove for fixing the cable.
- 6 Joint Connector (A) for jointing meter & RF-Sensor.
- 7 Screw for mounting meter onto the arm-stand.
- 8 TX - Connector To be connected to Transceiver, Please use 50Ω Coax cable.
- 9 ANT. Connector To be connected to antenna, or Dummy Load. Please use 50Ω coax, cable.
- 10 Joint - Connector (B) for connecting RF-Sensor and meter. Length is 0.2m.
- 11 Power Supply Cable (W/fuse) for illumination and Voltage check.
- 12 Wire for Grounding. Lead wire for grounding, fixing to RF-Sensor Screw. Grounding is required when using different power supply to transceiver.
- 13 Magic Tapes (3pcs, set), for Fixing meter and/or RF-Sensor, * When Optional Extension cable is connected additionally, distance between meter and RF-Sensor is 5m.

- * First, connect Power cable of transceiver to TX-connector of RF-Sensor. Then, connect antenna cable (or Dummy Load) to ANT-Connector. When using antenna tuner, please locate the RF-Sensor, between transceiver and Ant. Tuner. (See below Fig.)
- * Connect Joint Connector (A) of meter to Joint Connector (B) of RF-Sensor.
- * For the Illumination and Voltage-check, connect the power cable to power Supply of DC 13.8V (11V-15V). When same power supply is used both transceiver and RF-Sensor, no grounding works will be necessary. But, if different power supply is used, attach the ground wire to the RF-Sensor by its screw and connect to ⊖ terminal of power supply.

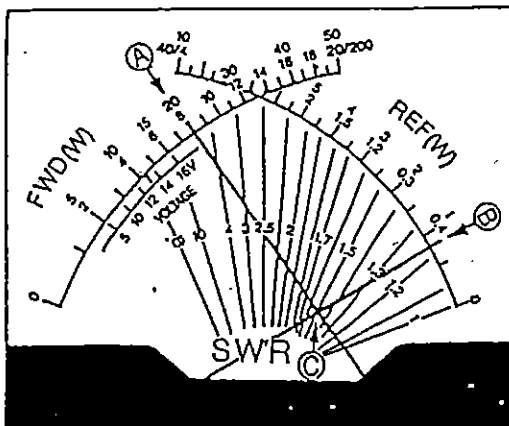
Example:



How to operate

- * Select the Power Range Button, according to power of transceiver. Press the Illumination Switch if necessary.
- * When set the transceiver TX, FWD meter indicates Forwarding Wave Power, REF meter indicates Reflecting Wave Power. The Cross point of 2 needles indicates SWR.

Example:



- (1) Left Fig, 50W Range
 - 1. FWD Power - 20W (A)
 - 2. REF Power - 0.8W(B)
 - 3. SWR Ratio - 1.5 (C)
- (2) 200W Range
 - 1. FWD Power - 80W (A)
 - 2. REF Power - 3.2W(B)
 - 3. SWR Ratio - 1.5 (C)

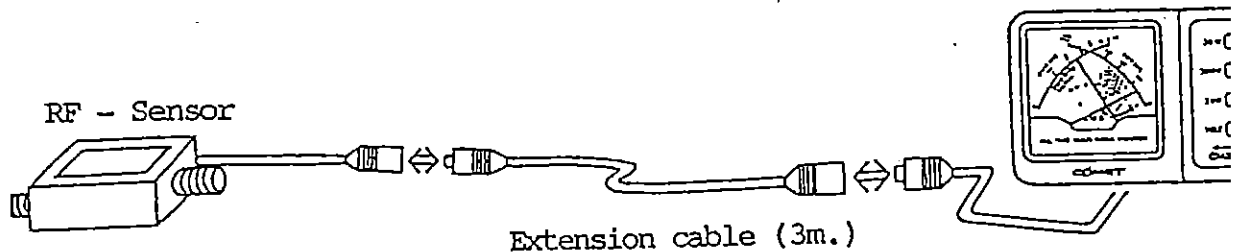
Remarks

- 1). Extremely bad SWR may give damage to the meters.
- 2). Please do not give excessive shock to the RF-Sensor, which has high sensitive circuit.
- 3). The meter should be positioned perfectly vertical.
- 4). The max measurable Frequency Power is as indicated on the Panel, in case of few second measuring, However, if wave is FM, AM, CW, FAX, RTTY, max continuous measurable power will change as listed below. The excessive continuous power may damage the mechanics of CMX.

CMX - 1	-	1.2KW
CMX - 2	-	150W (1.8 - 30MHz.) 120W (Over 50MHz.)
CMX - 3	-	150W (140 - 220MHz.) 120W (Over 400MHz.)

Example of Extra use:-

When Separate type transeiver is installed in the trunk, CMX RF-Sensor can be installed to the trunk, using optional Extension cable of 3m.



Note : Extension cable is usable only 1pce.

(Remarks before Operation)

For long period and safe use of RF-Sensor, please note the below remarks:

1. Please locate the Sensor, away from direct sun-shine and/or any heating equipments.
2. Be careful about water or moisture, because both RE-Sensor and connector are not water-proved.
3. When the meter is illuminated, and/or extention cable is used, the indication of Voltage will show little difference. However, because the accuracy is within the limit, please continue using the units.
4. Please do not take off the cover of the Sensor, nor touch the inside mechanics.
5. When using the magic tape for mounting, please provide complete cleaning of the place, removing the dust, oily dirt etc.
6. For cleaning, please refrain from using thinner or benzine. The thin neutral detergent with water would be best for the cleaning.