

**YAESU DR-1X is a C4FM digital/Conventional FM dual mode repeater for the VHF and UHF amateur radio bands. Replacing your conventional FM repeater with the DR-1X will provide continued use of FM communication and also enable intercommunication between members using either mode through the unique AMS feature.**



144/430 MHz DUAL BAND C4FM/FM DIGITAL REPEATER

## DR-1X

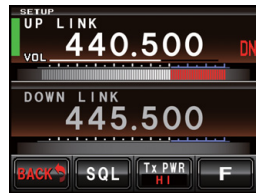
**DR-1X:** US and Asia **DR-1XE:** Europe and Australia  
Supplied Accessories: AC cable (USA, Asia only), DC cable, PC connection cable SCU-20, Rubber Feet (4)

### DR-1X Features

- Modulation Modes: Conventional FM, C4FM Digital
- AMS (Automatic Mode Select) function automatically recognizes the received signal as C4FM digital or conventional FM signal
- User Friendly 3.5-inch Full Color Touch Panel Display
- Extremely reliable, high RF Output Power: 50 W/20 W/5 W
- Emergency Operation: Supported by auto-switched backup battery power operation (US and Asia)
- Front panel microphone connector is provided for repeater transmitter testing and enables base station operation

### 3.5-inch Full Color Touch Panel Operation

Settings and adjustments are all displayed in High-resolution on the full-color TFT liquid crystal screen. The settings and status are displayed in an easy-to-understand format. The various operations can be performed by simply touching on the screen.



Setup screen

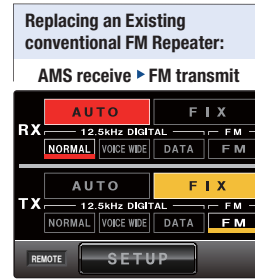


Frequency setting screen

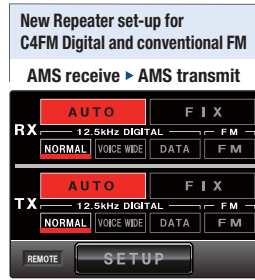


CTCSS setting screen

### Examples of Repeater Installations Set-up



Receiving: AMS(AUTO) Transmit: Conventional FM



Receiving: AMS(AUTO) Transmit: AMS(AUTO)

### Specifications (DR-2X/DR-2XE/DR-1X/DR-1XE)

General		Transmitter	
Frequency range	144 to 148 MHz (DR-2X/DR-1X), 144 to 146 MHz (DR-2XE/DR-1XE) 430 to 450 MHz (DR-2X/DR-1X), 430 to 440 MHz (DR-2XE/DR-1XE)	RF Power Output	50/20/5 W
Emission type	F1D, F2D, F3E, F7W	Modulation Type	F1D, F2D, F3E: Variable Reactance Modulation / F7W: 4FSK (C4FM)
Frequency stability	±2.5 ppm (-4°F to +140°F, -20°C to +60°C)	Spurious Emission	At least 60 dB below
Antenna impedance	50 Ω	Receiver	
Supply Voltage	AC 100 to 240 V (USA and Asian versions) DC 11.7 to 15.8 V, negative ground	Circuit Type	Double conversion super-heterodyne
Operating temperature	-4°F to +140°F (-20°C to +60°C) -4°F to +131°F (-20°C to +55°C) (European version)	Intermediate Frequencies	1st: 47.25 MHz, 2nd: 450 kHz
Dimensions (WxHxD)	19" x 3.5" x 15" (482 x 88 x 380 mm)	Receiver Sensitivity	0.3 μV (Digital 2 m/70 cm) BER 1% 0.2 μV (FM 2 m/70 cm) 12 dB SINAD
Weight (approx.)	[DR-2X] 20.72 lbs (9.4 kg) [DR-2XE] 18.52 lbs (8.4 kg) [DR-1X] 22.05 lbs (10 kg) [DR-1XE] 19.40 lbs (8.8 kg)	Adjacent Channel Selectivity	Better than 65 dB TYP (20 kHz offset)
		Selectivity	FM 12 kHz/35 kHz (-6 dB / -60 dB)
		Intermodulation	Better than 65 dB TYP (20/40 kHz offset)
		Audio Output	4 W @ 4 Ω for 10% THD @ 13.8 V) Internal Speaker

### Options (DR-2X/DR-2XE/DR-1X/DR-1XE)

DTMF Microphone <b>MH-48A6JA</b>	Normal Microphone <b>MH-42C6J</b>	Voice Guide Unit <b>FVS-2</b>	LAN Unit <b>LAN-01A</b> (DR-2X/DR-2XE only)
-------------------------------------	--------------------------------------	----------------------------------	---

About this brochure: we have made this brochure as comprehensive and factual as possible. We reserve the right, however, to make changes at any time in equipment, optional accessories, specifications, model numbers, and availability. Precise frequency range may be different in some countries. Some accessories shown herein may not be available in some countries. Some information may have been updated since the time of printing; please check with your Authorized Yaesu Dealer for complete details.

# System Fusion

*The Best Solution for the Future*  
*Providing total integration and compatibility of both digital and conventional FM communications*

**AMS**  
Automatic Mode Select

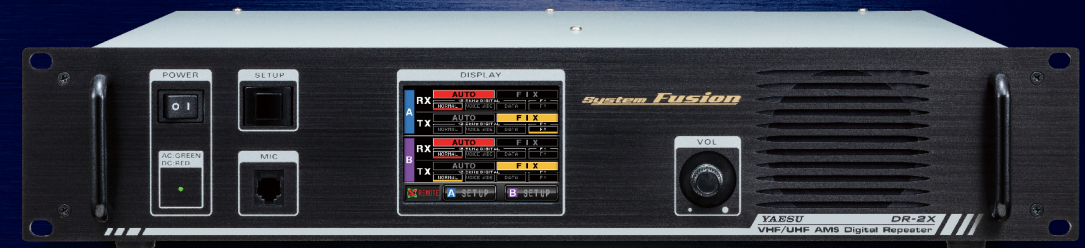


**C4FM**  
Digital ClearVoice  
Clear and Crisp Voice Technology

## DR-2X

**DR-2X:** US and Asia **DR-2XE:** Europe and Australia

144/430 MHz DUAL BAND DUAL RECEIVE C4FM/FM DIGITAL REPEATER



## DR-1X

**DR-1X:** US and Asia **DR-1XE:** Europe and Australia

144/430 MHz DUAL BAND C4FM/FM DIGITAL REPEATER





# YAESU DR-2X is a C4FM/FM digital & conventional Dual- Mode transmit and Receive VHF and UHF amateur band repeater.

## The DR-2X Repeater combines conventional FM operation with the C4FM digital communication by using the unique Yaesu AMS capability.



144/430 MHz Dual Band Dual Receive C4FM/FM Digital Repeater

## DR-2X

DR-2X: US and Asia DR-2XE: Europe and Australia  
 Supplied Accessories: AC cable (USA, Asia only), DC cable, PC connection cable SCU-20, Rubber Feet (4)

### DR-2X Features

- Modulation Modes: Conventional FM, C4FM Digital
- AMS (Automatic Mode Select) function automatically recognizes the received signal as C4FM digital or conventional FM signal
- User Friendly 3.5-inch Full Color Touch Panel Display
- Extremely reliable, high RF Output Power: 50 W/20 W/5 W
- Emergency Operation: Supported by auto-switched backup battery power operation (US and Asia)
- Front panel microphone connector is provided for repeater transmitter testing and enables base station operation

### DR-2X Exclusive Advanced Features:

- Dual Receive Operation
- Digital Group ID Feature supports simple Groupings Set-up and Comfortable Operation
- IMRS (Internet-linked Multi-site Repeater System) enables expanded area coverage via the Internet (Optional)
- Stable High Power Output with Large Heat sink
- Commercial grade components for long-term reliable operation

### C4FM provides Excellent Audio Quality and Reliable Communication



C4FM digital has better BER (Bit Error Rate) characteristics when compared to other Digital modulation systems, and guarantees reliable long distance Communication. The YAESU C4FM digital clear voice technology with 12.5 kHz bandwidth permits high quality voice communication.

### FM friendly Digital with AMS (Automatic Mode Select)



System Fusion enables communication between all users with different modes. This is made possible in System Fusion by AMS. The AMS function automatically recognizes a received C4FM digital or a conventional FM signal, then the DR-2X repeater retransmits the signal in the preset communication mode.

### Dual Receive Feature provides Flexible Operation

The unique simultaneous Dual Receive Repeater DR-2X allows the control operator to assign an additional frequency for controlling the repeater, transmitting emergency messages, or simply a second up-link frequency. The control operator may also assign separate Down-link frequencies according to the Up-link frequencies.

### Enhanced Digital Group ID Feature

The Revolutionary Yaesu Group ID feature allows tracking multiple resources quickly and efficiently by displaying the telemetry and signal strength information of the members that share the same Digital Group Identification number.

#### DG-ID (Digital Group Identification)

A Group ID of 0 to 99 can be designated for use by the operators that participate in the group communications. Also, the Multi-Site Repeater transmissions can be controlled by the DG-ID.

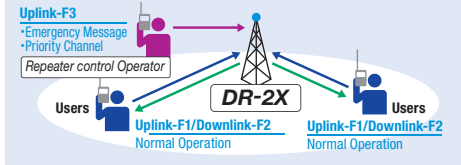
#### DP-ID (Digital Personal Identification)

For Secure repeater operation, a unique ID can be registered to the repeater for individual operator identification. The DP-ID feature can be utilized to limited repeater access to the registered ID members.

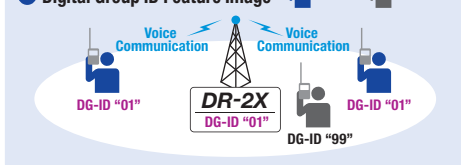
### AMS Digital Repeater



### Dual Receive image



### Digital Group ID Feature Image

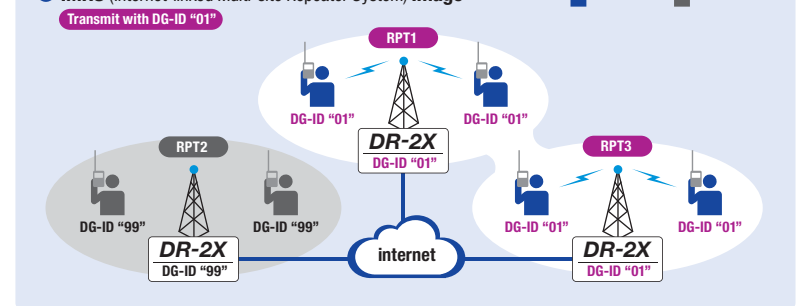


### IMRS (Internet-linked Multi-site Repeater System) for Wide Coverage Operation (Optional)\*1

The IMRS (Internet-linked Multi-site Repeater System) allows the repeater operator to link multiple repeaters over a Wide-Area-Network (WAN) or a Local-area-network (LAN). Because of the reliability shortcomings inherent with WAN (Wide Area Network) connections, such as the internet, the new DR-2X incorporates direct connectivity between repeaters, permitting a variety of networking environments, and provides high quality Digital communication, even when "All Else Fails" The Repeater activation can be controlled using a Digital Group Identification number.

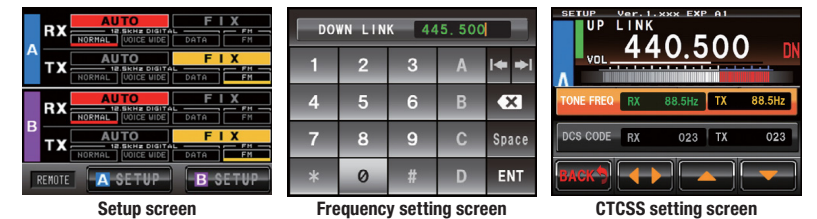
\*1 Requires optional LAN unit (LAN-01A)

### IMRS (Internet-linked Multi-site Repeater System) Image



### User Friendly Set-up (3.5-inch Full Color Touch Panel Display)

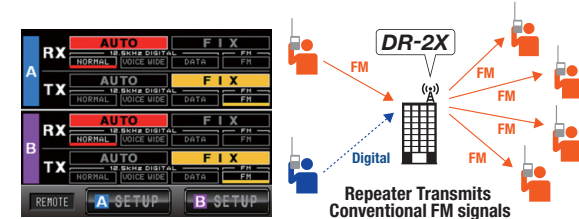
The Full color large touch-panel screen permits convenient configuration of the frequency settings and functions.



### Examples of Repeater Installations Set-up:

#### Repeater Set-up for conventional FM Transmit only

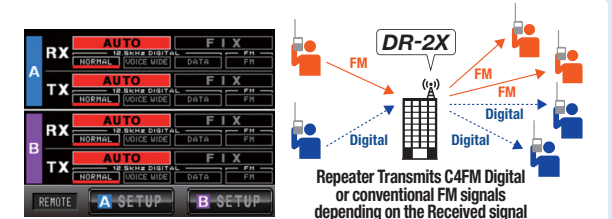
When replacing an existing conventional FM repeater, set AMS on the receiver side to AUTO mode and set the transmit to FM FIX mode. If the DR-2X repeater receives C4FM Digital signals, it converts them, and retransmits them in conventional FM automatically.\*2



\*2 C4FM digital signals are converted to FM signals in the repeater. Therefore, digital information such as GPS data included in the C4FM digital signals is not transmitted.

#### Repeater Set-up for C4FM Digital and conventional FM Transmit

Set AMS to AUTO mode on both the receive and transmit sides. DR-2X transmits received conventional FM signals unchanged as conventional FM signals, and transmits received C4FM digital signals unchanged as C4FM digital signals.



### Advanced Operation

The rear panel Control I/O port may be connected to an "S-COM 7330" repeater controller. This controller can manage up to three (3) DR-2X units, providing control of the programmable beep, the timer, access mode, and other features.

### Useful Features

- Internal AC power supply (USA and Asia)
- High Stability  $\pm 2.5$ ppm TCXO
- DSQ (Digital Squelch Code) Signaling
- CTCSS and DCS Signaling
- ID announcement (Voice Mode: Requires FVS-2)
- Base Station Operation
- TOT (Time Out Timer)
- 19" Rack Mount design