# ICOM

**DIGITAL**

# D-STAR System Introduction

INTERNET

D-STAR

POWER  H/L  SERVICE

# *F*ive Examples of Having Fun with D

Have you ever thought about if you could access the Internet from ham radios?
Or have you ever thought if you could communicate with a friend in another city or country using a simple handy radio?
Or want to send a simple text message, or know the call sign of whom is on the air right now?
The D-STAR system is such a magical system; you can easily realize these functions without using a tricky gadget or compli

### Application 1

## Digital voice (DV mode)

Analog audio is modulated to a digital signal and transmitted in the digital mode signal by the D-STAR radio.

**Voice is crisp and clear!**

**Repeater A**

### Internet connection*

**The Internet gateway allows linking of D-STAR repeater sites over the Internet. You can uplink to your local repeater and downlink from a remote repeater, even from a foreign country!**

### A

## IP

Yo
mo
fro

**Repeater E**

**INTERNET**

### Application 2

## Short data message (DV mode)

HELLO
DV

Call sign identification and short data messages are available.

**Repeater B**

**GPS satellite**

**Repeater C**

### Appl
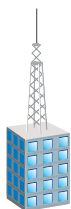
## Intern

In DD m
the Inter
Connect
browse v

**Repeater D**

### Application 3

## GPS tracking (DV mode)

With a GPS receiver, you can send your current position information to another radio.

* Some restrictions may app

## *D-STAR repeater*

**ID-RP2C:**
Repeater controller

One unit is required for each repeater station and connects up to 4 RF modules. Transfers the received signal to the specified RF module or the Internet gateway server.

**ID-RP2D:**
1.2GHz DD mode RF module

The ID-RP2D is the DD mode RF module for 1.2GHz. It provides 128kbps high speed data communication.

**ID-RP2V:** 1.2GHz DV mode RF module
**ID-RP2000V:** 144MHz DV mode RF module
**ID-RP4000V:** 430(440)MHz DV mode RF module

Photo shows ID-RP2V.

These are DV (digital voice) mode RF modules for the respective bands. With a combination of these RF modules, cross band operation with 144/430 (440)/1200MHz bands is available.

# *D-STAR*

cated facilities.

**Application 5**

**camera (DD mode)**

u can transmit live images in DD
de and watch real-time images
n a remote location.

**ication 4**

**et access (DD mode)***

mode operation, you can access to
net via a D-STAR Internet gateway.
a PC with the ID-1 and you can
web sites or check e-mail.

— Internet
•••• DV mode (4.8kbps)
•••• DD mode (128kbps)

y depending on specific countries' regulations.

**ICOM**

RS-RP2C
APPLICATION DISC
CD-0000000000-00

D-STAR Gateway Software

**RS-RP2C:**
Internet gateway software

The Internet gateway (GW) con-
nects the D-STAR repeater sta-
tion to the Internet and links multi-
ple D-STAR repeater stations via
the Internet.

---

# Q & A  Frequently Asked Questions About D-STAR

## Q What does "D-STAR" stand for?

**A** The "D-STAR" stands for Digital Smart Technologies for Amateur Radio. It is an open standard digital communication protocol established by JARL*. Please refer to http://www.jarl.com/d-star/shogen.pdf for technical details. * Japan Amateur Radio League

## Q What can I do with the D-STAR radio?

**A** 4.8kbps digital voice (DV) mode and 128kbps data* (DD) mode communications are available. When using DD mode with a PC and the D-STAR radio, high speed data communication is possible. * DD mode is available with ID-1 only.

## Q Can I send data with a voice transmission?   `DV mode only`

**A** Yes, you can. In DV mode operation, you can simultaneously send up to 950bps of data, such as call sign, short data message or GPS position with a voice transmission.

## Q Can I use the D-STAR repeater without connecting to the Internet?

**A** Yes, you can use a D-STAR repeater as a local repeater. You can also communicate with other D-STAR radios directly.

## Q Can I make a call with foreign countries?

**A** Yes, you can*. The Internet gateway allows you to relay your call to a remote D-STAR repeater over the Internet. The D-STAR repeater call sign and IP address must be registered to the gateway server. * Some restrictions may apply depending on specific countries' regulations.

## Q Can I receive a call only when the call is intended for me?

**A** Yes, you can. The call sign squelch function opens the squelch only when your call sign is received.

## Q How do I set a repeater call sign when I make a call to a desired station using a D-STAR repeater?

**A** When you communicate with other D-STAR stations using a D-STAR repeater, it is necessary to set the repeater's call sign in RPT1/RPT2 as well as the desired station call sign and your own call sign.

For example, when you make a call in the same zone (without using the Internet gateway), set the uplink repeater call sign in RPT1 and the downlink repeater call sign in RPT2. Set "CQCQCQ" for the desired station call sign, when you make a CQ call.

When you make a call in another zone using the Internet gateway, set the uplink repeater call sign in RPT1 and the gateway call sign in RPT2. The gateway repeater has "G" setting for the 8th-digit. Set "/" plus downlink repeater call sign at the desired station call sign, when you make a CQ call.

| Call type | UR (Your call sign) | RPT1 (Uplink repeater) | RPT2 (Downlink or gateway) | MY |
|---|---|---|---|---|
| Desired station in the same zone | Receiver's call sign | Uplink repeater's call sign | Downlink repeater's call sign | Own call sign |
| Desired station in another zone | Receiver's call sign | Uplink repeater's call sign | Gateway repeater's call sign plus "G" | Own call sign |
| CQ call in the same zone | CQCQCQ | Uplink repeater's call sign | Downlink repeater's call sign | Own call sign |
| CQ call in another zone | "/ " plus downlink repeater call sign | Uplink repeater's call sign | Gateway repeater's call sign plus "G" | Own call sign |

# Icom's D-STAR Compatible Transceiver Line-up

UT-123

**1.2GHz Transceiver** `10w`

### ID-1

- Both DV and DD modes available
- PC remote control software included
- Separate remote controller and speaker

**144/430(440MHz) Dual Band Transceivers** `50w`

### IC-2820H + UT-123

### IC-E2820 + UT-123

- 50W output power (VHF/UHF)
- Wideband receiver with V/V, U/U dualwatch capability
- D-STAR + GPS receiver capability (UT-123 required)

**144/430(440)MHz Dual Band Transceiver** `55/50W`

### ID-800H

- 55/50W output power (VHF/UHF)
- Wideband receiver
- Detachable front panel

UT-121

**144/430(440MHz) Dual Band Transceivers** `5W`

### IC-91AD

### IC-91A + UT-121

### IC-E91 + UT-121

- 5W (typ.) output power (VHF/UHF)
- V/V, U/U dualwatch receive capability
- Optional PC remote control software

UT-118

**144MHz FM Transceiver** `7W`

### IC-V82 + UT-118

**430(440)MHz FM Transceiver** `5W`

### IC-U82 + UT-118

- 7W output power (IC-V82)
- 5W output power (IC-U82)
- 200 memory channels

UT-118

**144MHz FM Transceiver** `65W`

### IC-2200H + UT-118

- 65W output power
- 207 memory channels
- Simple operation

## Repeater compatibility chart with ICOM digital transceivers

| | ID-1 | IC-2820H + UT-123 or IC-E2820 + UT-123 | ID-800H | IC-91AD, IC-91A + UT-121 or IC-E91 + UT-121 | IC-V82 + UT-118 | IC-U82 + UT-118 | IC-2200H + UT-118 |
|---|---|---|---|---|---|---|---|
| **ID-RP2000V** | – | ✔ | ✔ | ✔ | ✔ | – | ✔ |
| **ID-RP4000V** | – | ✔ | ✔ | ✔ | – | ✔ | – |
| **ID-RP2V/ID-RP2D** | ✔ | – | – | – | – | – | – |

*Repeater access using radio frequency. Cross band operation between ID-RP2000V/RP4000V/RP2V is also possible.

**Count on us!**

Your local distributor/dealer: