

# **VE2DX**

**From CANADA (VE) 2 the WORLD (DX)**

## **VE2DX Easycomm Reference**

August 2023

Version 2.1.0

Author: Richard G. Desaulniers Sr., VE2DX

© 2023 Electronic Design VE2DX Inc. All rights reserved

3 August 2023	VE2DX	Data acquisition and document structuring.	1.0.0 to 2.0.0

- Introduction ..... 4
- Goal ..... 5
- Technical Information. .... 5
- Command Set. .... 5
  - EasyComm 1 ..... 5
  - EasyComm 2 ..... 6
  - EasyComm 3 ..... 8
- References..... 10
- About the author..... 11
- About VE2DX Electronic Design Inc..... 12

## o Introduction

In this document, we will put together a reference to the EasyComm rotor control protocol.

EasyComm interface is based on Chris Jackson's, (G7UPN) EasyComm protocol. EasyComm is a simple ASCII character-based protocol for controlling rotors and radios. The benefit was that a new protocol did not have to be created, it is easy for programmers to write for and interface to.

There were very few implantations of Easycomm in radio control, most manufacturers instead stayed with their CAT protocols. There were multiple rotor control implantations of Easycomm, and even if Easycomm is blind (Push and Pray the command worked approach!) many have applied return protocols that were never standardized officially.

Copyright © 2023 VE2DX Electronics Design Inc. All Rights Reserved.

- **Goal**

Our goal in this reference document is to introduce the reader to Easycomm.

- **Technical Information.**

- **Command Set.**

- **EasyComm 1**

Easycomm 1 was the original command set release and is very basic offering very simple commands mostly oriented toward Ham Radio satellite operations.

The EasyComm 1 standard is a simple ASCII character-based standard for controlling antennas and rotators.

The host PC issues a single-line command as follows -:

AZaaa.a ELeee.e UPuuuuuuuuu UUU DNddddddddd DDD

The Az and El values (aaa.a and eee.e) are not fixed widths. They are in degrees and include 1 decimal place.

The Up and Dn frequencies are in Hz.

UUU and DDD are the uplink and downlink modes.

There were very few implantations of this variation, but you will encounter them randomly.

<b><u>Command</u></b>	<b><u>Description</u></b>
AZaaa.a	Azimuth - numeric data with the decimal place (no fixed width)
ELeee.e	Elevation - numeric data with the decimal place (no fixed width)
UPuuuuuuuuu	Uplink frequency in Hertz
DNddddddddd	Downlink frequency in Hertz
UUU	Uplink mode (ASCII - e.g. SSB, AM, or FM)
DDD	Downlink mode (ASCII - e.g. SSB, AM, or FM)

## ○ EasyComm 2

EasyComm 2 standard is an enhanced protocol variation of Easycomm1 to allow full station control and also feedback from external systems.

The PC issues commands to the controller by sending a 2-character command identifier followed by the command value. Commands are separated by either a space or carriage return or line feed. The two fields "AZ" and "EL" will have a total length of 30 characters each.

For normal operation, only 5 characters in the format "XXX.X" will be used by the program, where X must be a number from 0 to 9.

After you have set AZ/EL, you can add more commands to the field if necessary, beginning with the prefix of that command.

The Easycomm2 the host can issue the following commands -:

<u>Command</u>	<u>Description</u>	<u>Parameter</u>
AZ	Azimuth	number - 1 decimal place [deg]
EL	Elevation	number - 1 decimal place [deg]
UP	Uplink freq	in Hertz
DN	Downlink freq	in Hertz
DM	Downlink Mode	ascii, eg SSB, FM
UM	Uplink Mode	ascii, eg SSB, FM
DR	Downlink Radio	number
UR	Uplink Radio	number
ML	Move Left	
MR	Move Right	
MU	Move Up	
MD	Move Down	
SA	Stop azimuth moving	

<u>Command</u>	<u>Description</u>	<u>Parameter</u>
----------------	--------------------	------------------

SE	Stop elevation moving	
AO	AOS	
LO	LOS	
OP	Set output	number
IP	Read an input	number
AN	Read analog input	number
ST	Set time	YY:MM:DD:HH:MM:SS
VE	Request Version	

For those commands that require a response, the response is an echo of the command followed by the response. If the command specifies a field number (eq. AN or IP), then the two numbers are delimited with a comma.

eg.

- To read an analog value, the host sends ANx where x is the analog channel number.
- In response, the controller will reply with ANx,yyy where yyy is the value read on the analog port.

eg.

- To find the controller version number, the host sends VE.
- In response, the controller sends VExxx where xxx is an ASCII string containing the version number.

All strings sent in either direction are not of fixed length.

The controller can also send unsolicited information back to the host. This information may be used by the host for alarms or just for control feedback. All of the above commands may be sent by the controller for information, and in addition, the following may also be sent

ALxxx            Alarm, where xxx is an ASCII string with the alarm info.

## ○ EasyComm 3

EasyComm 3 was created to add features to the original Easycomm 2.

<u>Command</u>	<u>Meaning</u>	<u>Parameters</u>	<u>Hamlib Token</u>
VL	Velocity Left	number [mdeg/s]	
VR	Velocity Right	number [mdeg/s]	
VU	Velocity Up	number [mdeg/s]	
VD	Velocity Down	number [mdeg/s]	
CR	Read config	register [0-x]	1
CW	Write config	register [0-x]	2
GS	Get status register		3
GE	Get error register		4
VE	Request Version		5
IP	Read an input	number	6
OP	Set output	number	7
AN	Read analog	input number	8

Several status and error bits can be combined.

<u>Status</u>	<u>Meaning</u>
1	Idle
2	Moving
4	Pointing
8	Error



<u>Error</u>	<u>Meaning</u>
1	Sensor Error
2	Jam
4	Homing Error

Mapping of configuration registers:

<u>Register</u>	<u>Meaning</u>	<u>Value</u>
0	MaxSpeed	number
a	Overshoot	0/1/-
b	Jamming	0/1/-
c	Endpoints	0/1/-
d	Unstick	0/1/-

## ○ References

- Chris Jackson, G7UPN
- Alexander Schultze : github pages.
- dh1ngp : qsl.net reference

## ○ About the author

Richard G. Desaulniers Sr. VE2DX is an avid Amateur Radio operator and experimenter since the mid-'70s. First licensed in Quebec, Canada as VE2STN in 1991, he upgraded his license soon after and changed his callsign to VE2DX in 1995.

Richard was involved in local, Provincial, and National Amateur Radio Emergency Services, in such events as the 1996 Saguenay inundations, the 1997 and 1998 Quebec Ice Storms, the 2010 Haiti Earthquake, and many other minor events. He was RAQUI RUG Assistant Emergency Coordinator from 1996 to 1999 and in 1999 was named RAC Section Manager for Quebec.

Richard was also involved with Amateur Radio Manufacturers like Easy Rotor Control and Ham Radio Deluxe as a beta tester helping in the development of their products.

On the professional side, Richard was working for USA-based electronic manufacturers and service companies as International Support Specialist and for the Canadian Government as a project manager at the Montreal port authorities, from 1998 till 2020. After retiring in 2020, he started VE2DX Electronic Design Inc. intending to offer Amateur Radio operators a series of low-cost products to help their day-to-day operations.

## ○ About VE2DX Electronic Design Inc.

VE2DX Electronic Design Inc. Is a privately owned Canadian-based company, incorporated in Quebec and based out of Laval, Quebec. The official contact is Richard G. Desaulniers Sr., VE2DX via email at [ve2dx@hotmail.com](mailto:ve2dx@hotmail.com), phone at 450-689-4591, or our website [WWW.VE2DX.COM](http://WWW.VE2DX.COM).

VE2DX Electronic Design Inc. was founded in January 2020 by Richard G. Desaulniers Sr., VE2DX, it is a pioneer in CAT and CI-V devices and other Amateur Radio station interfaces and automation.

we are proud of the out-of-the-box features of our products, like adding magnets to the bottom of our enclosures to help the user position the device where needed, RF filtering of all of our IOs and controls, advanced technologies like our High Isolation SO2R 2X6 remote antenna switch, and our newest technology introduction TrueTTL/TrueCIV/TrueCAT.

It started with the introduction of the VE2DX CT17B CI-V hubs that went through multiple evolutions since the early versions, including the introduction of the CT17B-6BT a 5 port CI-V hub with Bluetooth interface, first created to help the clients in isolating the PC side of the station from the RF side, the introduction in 2021 of the IC-705 showed a badly needed missing feature, there were no CI-V ports on the radio, this was resolved by using the CT17B-6BT as an external CI-V hub for the IC-705 using a Bluetooth link. VE2DX Electronic Design Inc. Also offers Yaesu Bluetooth interface, SO2R 2X6 Remote antenna switch with very high isolation, VE2DX ICOM Meters that can support more than 23 different ICOM radios from older to newly introduced models, and its little brother the VE2DX ICOM HDMI Meter, basically the same radio support and functionality as the VE2DX ICOM Meters but instead of the 2inch display it interfaces using HDMI output for full HD output to any monitor.

73 De Richard VE2DX 😊