

## Encoding GE Star® ID's Greater than 9999

GE Star® Signaling actually has a maximum ID range to 16383. But if you are using the QE-2, QE-1 or CDEU-1 with ANIPROG programming software (or the old CPF hand-held), the largest ID acceptable is 9999. This application describes how to use ANIPROG to program the encoder for ID's between 10000 and 16383. The Cimarron Technologies C Plus can recognize and display all valid ID's.

### By The Bits

A GE Star® signal contains 21 bits in the "payload". When the signaling was first designed, eleven bits were dedicated to the ID, two were "tag bits", four were for status and 4 were for message description. With only eleven ID bits, the maximum ID was 2047. As the signaling evolved, ultimately, the two tag bits and one status bit was redefined for use as ID bits and programmers were modified to accept the maximum ID with four digits – 9999. But, with 14 bits available, the actual maximum number is 16383. Programmers still only permit a four digit ID, but there is a work-around.

### Making it Work

Today, nearly all GE Star® systems use GE Star® Format B. This uses all 14 bits for ID – but limits the high number to 9999. We will, instead, use format A which uses only 11 ID bits – but permits you to assign states to the T1, T2 and S1 bits. Here's how it works:

In ANIPROG software, go to the "Format Options" tab and change GE Star® Format to A:Custom and check the box to "Enable Manual Editing".

The screenshot shows the ANIPROG software interface for configuring GE Star® signaling. The 'Unit ID' is set to 0000. The 'Format Type' is 'G-STAR A: Custom' and the 'G-Star Format' is 'A: Custom'. The 'Enable Manual Editing' checkbox is checked. Below these options is a table with columns for Type, Low ID, Tag, Stat, and Msg. The 'Tag' and 'Stat' columns are highlighted with arrows pointing to callout boxes. The 'Low ID' column is also highlighted with an arrow pointing to a callout box.

Type	Low ID	Tag	Stat	Msg
PTT	0000000000	0 0	0 000	0001
Emergency ID	0000000000	0 0	0 000	0111
Man Down ID	0000000000	0 0	0 000	1111
Stuck Mic ID	0000000000	0 0	0 000	1001
Dual ID	0000000000	0 0	0 000	0001

Callout boxes indicate bit values to be added to the Unit ID:

- Bit Value, add 8192 (points to the 'Low ID' column)
- Bit Value, add 4096 (points to the left 'Tag' bit)
- Bit Value, add 2048 (points to the right 'Tag' bit)

Note that this area permits access to the two "Tag Bits" and the "Stat" bits. The figure above shows the value these bits signify if set to "1". Now to do the math.

Say you want to encode ID 12583. The number is larger than 8192 so subtract 8192 from 12583. This results in 4391. Change the left most Tag bit to a 1. Now 4391 is larger than 4096 so subtract 4096 from 4391. This results in 295. Change the right most Tag bit to a 1. Now 295 is smaller than 2048 so go to the Unit ID box and enter 0295. The "Low ID" bits will automatically change to match the binary value of 0295. Now go back to the "Program" tab and program your device.

Unit ID:

Option Summary  
Format Type:

MDC Compatible Signaling  
 G Star Compatible

G-Star Format:

Enable Manual Editing

Type	Low ID	Tag	Stat	Msg
PTT	<input type="text" value="00100100111"/>	<input type="text" value="1"/> <input type="text" value="1"/>	<input type="text" value="0"/> <input type="text" value="000"/>	<input type="text" value="0001"/>
Emergency ID	<input type="text" value="00100100111"/>	<input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="0"/> <input type="text" value="000"/>	<input type="text" value="0111"/>
Man Down ID	<input type="text" value="00100100111"/>	<input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="0"/> <input type="text" value="000"/>	<input type="text" value="1111"/>
Stuck Mic ID	<input type="text" value="00100100111"/>	<input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="0"/> <input type="text" value="000"/>	<input type="text" value="1001"/>
Dual ID	<input type="text" value="00000000000"/>	<input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="0"/> <input type="text" value="000"/>	<input type="text" value="0001"/>

The figure above shows the completed formatting. If your application also uses "Emergency" and/or "Man Down", change the appropriate bits to match the "PTT" definition.