



**National Marine Electronics Association**  
**International Marine Electronics Association**

**Technical Bulletin**

**Technical Corrigendum TC# 2000 20130720**

**NMEA 2000 PGN 129808 DSC Call Information**

**Introduction:**

There are four issues regarding PGN 129808 DSC Call Information.

1. PGN 129808 does not contain the proper field structure to support the mapping of the “Nature of Distress” for Distress Acknowledgements, Distress Relays, and Distress Relay Acknowledgments.
2. In PGN 129808, Field 3 “DSC Message Address” is overloaded and may have multiple interpretations to encode and decode the field.
3. In PGN 129808, Field 12 “MMSI Of Ship In Distress” may have multiple interpretations to encode and decode the field.
4. In PGN 129808, Field 22, “DSC Expansion Field Data,” and Field 24 “Variable Number Of Fields, Field 22 Repeated, Expansion Field Data” is overloaded and may have multiple interpretations to encode and decode the fields.

This Technical Corrigendum clarifies the mapping of Nature of Distress. This Technical Corrigendum also provides a single common method to be used for encoding and decoding the MMSI within Fields 3 and 12 and the expansion data Field 22 and Field 24.

This Technical Corrigendum provides the solution for interoperability of different manufacturers' equipment. NMEA has begun development of a new set of DCS PGNs to replace the current PGN 129808.

**Issue 1:**

The formats of the following DSC calls transmitted and received by a DSC radio are defined in ITU-R M.493-13 Annex 1 tables 4.1 - 4.4.

4.1 Distress Alerts

4.2 Distress Acknowledgements

4.3 Distress Relays

4.4 Distress Relay Acknowledgements

The mapping of distress information from a Distress Alert into PGN 129808 is clearly defined.

The mapping of the “Nature of Distress” field for Distress Acknowledgements, Distress Relays, and Distress Relay Acknowledgments into PGN 129808 is not clearly defined.

For a Distress Alert, Field #4 of PGN 129808 is used for “nature of distress”.

For Distress Acknowledgements, Distress Relays, and Distress Relay Acknowledgements Field #4 of PGN 129808 is used for 1<sup>st</sup> Telecommand. This leaves no field for “nature of distress”.

**Issue 1: Resolution**

Normally, Field #5 is used for “subsequent communication”.

For Distress Acknowledgements, Distress Relays, and Distress Relay Acknowledgements, Field #5 of PGN 129808 should be used for “nature of distress”.

Distress Acknowledgements, Distress Relays, and Distress Relay Acknowledgements can be distinguished from other DSC calls because they have a category of “distress” (symbol 112) which is in Field #2 of PGN 129808.

When “nature of distress” is placed in in Field #5, care must be taken so that the “subsequent communications” setting in the DSC radio is not inadvertently changed.

## Issue 2:

Field #3 “DSC Message Address” of PGN 129808 is an overloaded field that has different meanings depending on the type of the DSC distress relay message as reported in Field #1 “DSC Format Symbol” of PGN 129808.

## Issue 2: Resolution

In the ITU-R M.493-13 specification, tables 4-3 and 4-4, the Address column (column 5), may contain values for either a MMSI, a Geographic Zone, or designated as Not Applicable (N/A). Interpretation of the value in Field #3 of PGN 129808 is dependent upon the type of distress relay reported in Field #1 “DSC Format Symbol” of PGN 129808. Field #3 of PGN129808 may contain either a DSC Address or Geographic Area (Table 4.3 Distress Relay (ITU-R M.493-13).

This table indicates the relationship between the PGN 12980 Fields and the corresponding ITU-R M.493-13 specification table 4.3 and table 3:

PGN 129808	ITU493 Table 4.3	ITU 493 Table 3
Field 1	<b>Format Specifier</b>	<b>Format Specifier</b>
	120	Individual Station
	102	Geographic Area
	116	All ships
Field 3	<b>Address(5)</b>	
	MMSI	(if Format Specifier is 120: Individual Station)
	Zone (Geo Area)	(if Format Specifier is 102: Geographic Area)
	N/A (blank e.g. all 0's or 9's)	(if Format Specifier is 116: All Ships)
Field 4	<b>First Telecommand</b>	
	112	Distress Relay

In PGN # 129808 Field # 3 “DSC Message Address” shall be encoded as follows:

### For MMSI

- Each two decimal digits shall be encoded as the equivalent value in hexadecimal. As an MMSI number is nine (9) digits long a trailing zero will be added.
- So a MMSI of 123456789 shall be encoded as 0x0C (= 12 ), 0x22 (= 34 ), 0x38 (= 56 ), 0x4E (= 78 ) and 0x5A (= 90 ).
- When displaying the MMSI the trailing zero should be removed.

### For Geographic Area (Zone)

- Each two decimal digits shall be encoded as the equivalent value in hexadecimal. A Geographic Area number is 10 digits long.
- So a Geographic Area of 1234567890 shall be encoded as 0x0C (= 12 ), 0x22 (= 34 ), 0x38 (= 56), 0x4E (= 78 ) and 0x5A (= 90 ).

### **For a DSC Message that has no destination address**

- Some DSC Calls are address to All Ships (Everyone). In this case Field 3 is not applicable and the 5 characters in field 3 shall be encoded as 0xFF, 0xFF, 0xFF, 0xFF, and 0xFF.

### **Issue 3:**

In PGN 129808, Field 12, “MMSI Of Ship In Distress” may have multiple interpretations to encode and decode this field.

### **Issue 3: Resolution**

Field 12 (“MMSI of Ship in Distress”) shall be encoded as follows :

- Each two decimal digits shall be encoded as the equivalent value in hexadecimal. As an MMSI number is 9 digits long a trailing zero will be added.
- So a MMSI of 123456789 shall be encoded as 0x0C (= 12 ), 0x22 (= 34 ), 0x38 (= 56 ), 0x4E (= 78 ) and 0x5A (= 90 ).
- When displaying the MMSI the trailing zero should be removed.
- The MMSI of the ship in distress shall always be in Field 12 regardless of the type of distress message (Distress, Distress Relay, Distress Ack and Distress Relay Ack ).

### **Issue 4:**

In PGN 129808, Field 22, “DSC Expansion Field Data,” and Field 24 “Variable Number Of Fields, Field 22 Repeated, Expansion Field Data” is overloaded (i.e. Enhanced Position Resolution, Speed, Course, Number of People) and may have multiple interpretations to encode and decode the fields.

For instance, if Field 21 or 23 contains a value of 100 indicating Enhanced Position Resolution then the expansion field data in Field 22 and Field 24 contains the fractional part of Lat and Lon minutes.

### **Issue 4: Resolution**

Field 22 and Field 24 (Expansion Data Field) shall be encoded as follows:

- The first byte (8 bits) in the string is the count byte indicating the number of bytes in the string including the count and control bytes.
- The second byte (8 bits) in the string is the control byte indicating if the rest of the string consists of ASCII (Char8) or Unicode (Char16). A control byte value of 1 shall be the only value permitted, indicating the string is ASCII.
- The remaining bytes of the character string contain the data of the transmitted/received DSC expansion message encoded as ASCII based on the contents of the control byte.

Example with ASCII encoding:

Enhanced Position: If the position 27°, 54.0572' N and 82°, 42.5933' W was to be transmitted or received, the extra position message field transmitted or received over DSC VHF Data Link (consisting of the tenths, hundredths, thousandths and ten thousandths of minutes) would consist of five characters (representing 10 digits) total after the expansion specifier 100, as follows: 100 05 72 59 33.

In PGN 129808, the value of 100 would be placed in Field 21 or Field 23 as an unsigned 8-bit integer.

The 05 72 59 33 would be placed in the third through tenth bytes of Field 22 or Field 24 as shown in the Table below.

	<b>Binary Value</b>	<b>Decimal Value</b>	<b>ASCII Character</b>	
<b>Byte 1</b>				Count Byte = 10 bytes in string
<b>Byte 2</b>				Control Byte = 1 (ASCII)
<b>Byte 3</b>	0011 0000	48	0	tenths of Latitude
<b>Byte 4</b>	0011 0101	53	5	hundredths of Latitude
<b>Byte 5</b>	0011 0111	55	7	thousands of Latitude
<b>Byte 6</b>	0011 0010	50	2	ten thousands of Latitude
<b>Byte 7</b>	0011 0101	53	5	tenths of Longitude
<b>Byte 8</b>	0011 1001	57	9	hundredths of Longitude
<b>Byte 9</b>	0011 0011	51	3	thousands of Longitude
<b>Byte 10</b>	0011 0011	51	3	ten thousands of Longitude

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