



National Marine Electronics Association
International Marine Electronics Association

Technical Bulletin

Technical Corrigendum TC# 2000 20150328

NMEA 2000 PGN 129808 DSC Call Information

Introduction:

This Technical Corrigendum refers to PGN 129808. It was recently discovered that PGN 129808 in NMEA Network Message Database Version 2.100 February 2015 (NMEA 2000 Appendix B), has erroneous fields, data dictionary items and field names.

**THIS PGN 129808 IN THE NMEA NETWORK MESSAGE DATABASE
VERSION 2.100 FEBRUARY 2015 SHOULD NOT BE USED**

Manufacturers should revert to NMEA Network Message Database Version 2.000 and in conjunction use the NMEA Corrigendum TC 2000 20130720.

Change summary

Use:

NMEA Network Database Version 2.000 with
Corrigendum TC 2000 20130720 for DSC PGN
129808

DO NOT USE:

**NMEA Network Database Version 2.100 DSC PGN
129808**

**This is the Corrigendum to use
with the PGN 129808 in Network
Message Database (Appendix B)
Version 2.000 below**



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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 1st 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 PGN 129808 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	Format Specifier	Format Specifier
	120	Individual Station
	102	Geographic Area
	116	All ships
Field 3	Address(5)	
	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	First Telecommand	
	112	Distress Relay

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

ForMMSI

- 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.

ForGeographicArea(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).

ForaDSCMessage 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.

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

End of # 2000 20130720

DSC Call Information

**This is the PGN 129808 in Version Network Message Database
Appendix B) 2.000 to use with the Corrigendum above**

PGN: 129808
hex: 1FB10

This PGN provides Digital Selective Calling (DSC) data according to ITU M.493-9 with optional expansion according to ITU M.821-1. DSC is a paging system that is used to automate distress alerts sent over terrestrial communication systems such as VHF, MF and HF marine radio systems. DSC provides a mechanism to report significantly more information regarding a distress call rather than just the distress itself.

Products equipped with DSC will transmit and receive this information.

This PGN will be transmitted as and when required.

Calls to be transmitted should generally use the command Group Function Message (PGN 126208) in conjunction with this parameter group to ensure that the correct transmitter is selected.

This PGN will be transmitted as and when required.

Single Frame: **No** Priority Default: **4** Default Update Rate: milliseconds Frequency: **NA** cycles per second
Destination: **Global** Query Support: **Required** Command Support: **Optional** ACK Rqmnts:

Field #	Field Name					Original Reference ID # 61
1	DSC Format Symbol			Byte Field Size: 1	Request Parameter: Optional	
				Bit Field Size:	Command Parameter: Optional	
	DD011 DSC Symbol Definitions			Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.493 Table 3 for: Phasing and Unique Functions; Format Specifier; Category; Nature of Distress; First Telecommand; Second Telecommand		
	DF53 Integer, 8 bit unsigned	uint8	Range: 0 to 252	Resolution: 1 bit	Unit-less number	
2	DSC Category Symbol			Byte Field Size: 1	Request Parameter: Optional	
				Bit Field Size:	Command Parameter: Optional	
	DD011 DSC Symbol Definitions			Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.493 Table 3 for: Phasing and Unique Functions; Format Specifier; Category; Nature of Distress; First Telecommand; Second Telecommand		
	DF53 Integer, 8 bit unsigned	uint8	Range: 0 to 252	Resolution: 1 bit	Unit-less number	
3	DSC Message Address			Byte Field Size: char 5	Request Parameter: Optional	
				Bit Field Size:	Command Parameter: Optional	
	DD012 DSC Address or Geographic Area			Individual characters having only decimal values in the range 0 to 127 for the DSC symbols defined by ITU-R M.493 are used to code the address or geographic area as defined in ITU-R M.493-9 Section 5. This may represent an individual MMSI, a group MMSI, or a geographic area.		
	DF63 String, fixed	char8(n)	Range: 0 to 1,785 characters	Resolution: 1 char	0 to 1,785 bytes. Character count not included, length is specified by application in Data Dictionary. Unused characters shall be treated as not available, and filled with [0xFF] = Data not available.	
4	Nature Of Distress or 1st Telecommand			Byte Field Size: 1	Request Parameter: Optional	
				Bit Field Size:	Command Parameter: Optional	
	DD011 DSC Symbol Definitions			Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.493 Table 3 for: Phasing and Unique Functions; Format Specifier; Category; Nature of Distress; First Telecommand; Second Telecommand		
	DF53 Integer, 8 bit unsigned	uint8	Range: 0 to 252	Resolution: 1 bit	Unit-less number	

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5	Subsequent Communication Mode or 2nd Telecommand	<i>Byte Field Size:</i> 1	<i>Request Parameter</i> Optional
		<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional
	DD011 DSC Symbol Definitions	Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.493 Table 3 for: Phasing and Unique Functions; Format Specifier; Category; Nature of Distress; First Telecommand; Second Telecommand	
	DF53 Integer, 8 bit unsigned	uint8	<i>Range:</i> 0 to 252 <i>Resolution:</i> 1 bit Unit-less number
<hr/>			
6	Proposed Rx Frequency/Channel	<i>Byte Field Size:</i> char 6	<i>Request Parameter</i> Optional
		<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional
	DD017 Radio Tx or Rx Channel	MF/HF telephone channels to have first digit 3 followed by ITU channel numbers with leading zeros as required. MF/HF teletype channels to have first digit 4; the second and third digit give the frequency bands; and the fourth to sixth digits ITU channel numbers; each with leading zeros as required. VHF channels to have the first digit 9 followed by zero. The next number is "1" indicating the ship station's transmit frequency is being used as a simplex channel frequency, or "2" indicating the coast station's transmit frequency is being used as a simplex channel frequency, "0" otherwise. The remaining three numbers are the VHF channel numbers with leading zeros as required.	
	DF63 String, fixed	char8(n)	<i>Range:</i> 0 to 1,785 characters <i>Resolution:</i> 1 char 0 to 1,785 bytes. Character count not included, length is specified by application in Data Dictionary. Unused characters shall be treated as not available, and filled with [0xFF] = Data not available.
<hr/>			
7	Proposed Tx Frequency/Channel	<i>Byte Field Size:</i> char 6	<i>Request Parameter</i> Optional
		<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional
	DD017 Radio Tx or Rx Channel	MF/HF telephone channels to have first digit 3 followed by ITU channel numbers with leading zeros as required. MF/HF teletype channels to have first digit 4; the second and third digit give the frequency bands; and the fourth to sixth digits ITU channel numbers; each with leading zeros as required. VHF channels to have the first digit 9 followed by zero. The next number is "1" indicating the ship station's transmit frequency is being used as a simplex channel frequency, or "2" indicating the coast station's transmit frequency is being used as a simplex channel frequency, "0" otherwise. The remaining three numbers are the VHF channel numbers with leading zeros as required.	
	DF63 String, fixed	char8(n)	<i>Range:</i> 0 to 1,785 characters <i>Resolution:</i> 1 char 0 to 1,785 bytes. Character count not included, length is specified by application in Data Dictionary. Unused characters shall be treated as not available, and filled with [0xFF] = Data not available.

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8	Telephone Number		<i>Byte Field Size:</i> 8 or 16 n	<i>Request Parameter:</i> Required	
			<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional	
	DD015 DSC Symbol String		Individual characters having only decimal values in the range 0 to 127 for the DSC symbols defined by ITU-R M.493 are used to code: Telephone number as defined by ITU-R M.493 Section 8.2.3; DSC Expansion Data as defined by ITU-R M.821 Section 2.		
	DF50 String, variable, short	ch8or16(n)	<i>Range:</i> 0 to 250 ASCII or 0 to 125 Unicode Characters	<i>Resolution:</i> 1 ASCII or 1 Unicode Character	2 to 252 bytes. First byte in string (uint8) is the Count byte indicating the number of bytes in the string, including the Count and Control bytes. Second byte in string is the Control byte. The Control byte indicates if the string consists of ASCII characters (Char8) or Unicode characters (Char16). Control byte = 0 => Unicode characters Control byte = 1 => ASCII characters A string with no characters (total length of 2 bytes, i.e. Count = 2) is a null string.
16 ASCII characters maximum, no Unicode					
9	Latitude of Vessel Reported		<i>Byte Field Size:</i> 4	<i>Request Parameter:</i> Optional	
			<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional	
	DD022 Latitude, WGS-84		Latitude referenced to WGS-84. The resolution of the latitude and longitude fields shall be fixed at 1 decimal place of minutes (1/10 of a minute). If a higher resolution is provided to an AIS unit, the receiving AIS unit shall truncate to 1/10's of minute.		
	DF23 Latitude	int32	<i>Range:</i> +/- 90 deg	<i>Resolution:</i> 1x10E-7 deg	"-" = South, resolution ~1.1 cm
10	Longitude of Vessel Reported		<i>Byte Field Size:</i> 4	<i>Request Parameter:</i> Optional	
			<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional	
	DD023 Longitude, WGS-84		Longitude referenced to WGS-84. The resolution of the latitude and longitude fields shall be fixed at 1 decimal place of minutes (1/10 of a minute). If a higher resolution is provided to an AIS unit, the receiving AIS unit shall truncate to 1/10's of minute.		
	DF25 Longitude	int32	<i>Range:</i> +/- 180 deg	<i>Resolution:</i> 1x10E-7 deg	"-" = West, resolution ~1.1 cm
11	Time of Position		<i>Byte Field Size:</i> 4	<i>Request Parameter:</i> Optional	
			<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional	
	DD158 Generic time of day		24 hour clock, 0 = midnight, time is in UTC		
	DF06 Time of day	uint32	<i>Range:</i> 0 to 86,401 s	<i>Resolution:</i> 1x10E-4 s	~24 hours, 0 = midnight, range allows for up to two leap seconds per day

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12	MMSI Of Ship In Distress		<i>Byte Field Size:</i> char 5	<i>Request Parameter:</i> Optional	
			<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional	
	DD012 DSC Address or Geographic Area		Individual characters having only decimal values in the range 0 to 127 for the DSC symbols defined by ITU-R M.493 are used to code the address or geographic area as defined in ITU-R M.493-9 Section 5. This may represent an individual MMSI, a group MMSI, or a geographic area.		
	DF63 String, fixed	char8(n)	<i>Range:</i> 0 to 1,785 characters	<i>Resolution:</i> 1 char	0 to 1,785 bytes. Character count not included, length is specified by application in Data Dictionary. Unused characters shall be treated as not available, and filled with [0xFF] = Data not available.
13	DSC EOS Symbol		<i>Byte Field Size:</i> 1	<i>Request Parameter:</i> Optional	
			<i>Bit Field Size:</i>	<i>Command Parameter:</i> Optional	
	DD011 DSC Symbol Definitions		Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.493 Table 3 for: Phasing and Unique Functions; Format Specifier; Category; Nature of Distress; First Telecommand; Second Telecommand		
	DF53 Integer, 8 bit unsigned	uint8	<i>Range:</i> 0 to 252	<i>Resolution:</i> 1 bit	Unit-less number
14	Expansion Enabled		<i>Byte Field Size:</i>	<i>Request Parameter:</i> Optional	
			<i>Bit Field Size:</i> 2	<i>Command Parameter:</i> Optional	
	DD002 Generic status pair		MSB/LSB: 00 = [No, Off, Disabled, Reset, "0"], 01 = [Yes, On, Enabled, Set, "1"], 10 = Error, 11 = [Unavailable, Unknown]		
	DF52 Bit field	bit(n)	<i>Range:</i> Variable	<i>Resolution:</i> 1	Used to construct bit fields
15	NMEA Reserved		<i>Byte Field Size:</i>	<i>Request Parameter:</i>	
			<i>Bit Field Size:</i> resv 6	<i>Command Parameter:</i>	
	DD001 Reserved field		Variable number of reserved bits, all set to logic "1"		
	DF52 Bit field	bit(n)	<i>Range:</i> Variable	<i>Resolution:</i> 1	Used to construct bit fields
Used to align subsequent data on a byte boundary.					

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<p>16 Calling Rx Frequency/Channel</p> <p>DD017 Radio Tx or Rx Channel</p> <p>DF63 String, fixed</p>	<p><i>Byte Field Size:</i> char 6</p> <p><i>Bit Field Size:</i></p> <p>char8(n) <i>Range:</i> 0 to 1,785 characters <i>Resolution:</i> 1 char</p>	<p><i>Request Parameter:</i> Optional</p> <p><i>Command Parameter:</i> Optional</p> <p>MF/HF telephone channels to have first digit 3 followed by ITU channel numbers with leading zeros as required. MF/HF teletype channels to have first digit 4; the second and third digit give the frequency bands; and the fourth to sixth digits ITU channel numbers; each with leading zeros as required. VHF channels to have he first digit 9 followed by zero. The next number is "1" indicating the ship station's transmit frequency is being used as a simplex channel frequency, or "2" indicating the coast station's transmit frequency is being used as a simplex channel frequency, "0" otherwise. The remaining three numbers are the VHF channel numbers with leading zeros as required.</p> <p>0 to 1,785 bytes. Character count not included, length is specified by application in Data Dictionary. Unused characters shall be treated as not available, and filled with [0xFF] = Data not available.</p>
<p>17 Calling Tx Frequency/Channel</p> <p>DD017 Radio Tx or Rx Channel</p> <p>DF63 String, fixed</p>	<p><i>Byte Field Size:</i> char 6</p> <p><i>Bit Field Size:</i></p> <p>char8(n) <i>Range:</i> 0 to 1,785 characters <i>Resolution:</i> 1 char</p>	<p><i>Request Parameter:</i> Optional</p> <p><i>Command Parameter:</i> Optional</p> <p>MF/HF telephone channels to have first digit 3 followed by ITU channel numbers with leading zeros as required. MF/HF teletype channels to have first digit 4; the second and third digit give the frequency bands; and the fourth to sixth digits ITU channel numbers; each with leading zeros as required. VHF channels to have he first digit 9 followed by zero. The next number is "1" indicating the ship station's transmit frequency is being used as a simplex channel frequency, or "2" indicating the coast station's transmit frequency is being used as a simplex channel frequency, "0" otherwise. The remaining three numbers are the VHF channel numbers with leading zeros as required.</p> <p>0 to 1,785 bytes. Character count not included, length is specified by application in Data Dictionary. Unused characters shall be treated as not available, and filled with [0xFF] = Data not available.</p>
<p>18 Time of Receipt/Transmission</p> <p>DD158 Generic time of day</p> <p>DF06 Time of day</p>	<p><i>Byte Field Size:</i> 4</p> <p><i>Bit Field Size:</i></p> <p>uint32 <i>Range:</i> 0 to 86,401 s <i>Resolution:</i> 1x10E-4 s</p>	<p><i>Request Parameter:</i> Optional</p> <p><i>Command Parameter:</i> Optional</p> <p>24 hour clock, 0 = midnight, time is in UTC</p> <p>~24 hours, 0 = midnight, range allows for up to two leap seconds per day</p>
<p>19 Date of Receipt/Transmission</p> <p>DD039 Generic date</p> <p>DF41 Date, day count</p>	<p><i>Byte Field Size:</i> 2</p> <p><i>Bit Field Size:</i></p> <p>uint16 <i>Range:</i> 0 to 65,532 days <i>Resolution:</i> 1 day</p>	<p><i>Request Parameter:</i> Optional</p> <p><i>Command Parameter:</i> Optional</p> <p>Days since January 1, 1970, Date is relative to UTC Time.</p> <p>0 = January 1, 1970, max = ~179 years</p>

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20	DSC Equipment Assigned Message ID			Byte Field Size:	2	Request Parameter	Required	
				Bit Field Size:		Command Parameter:	Optional	
	DD007	Generic numeric ID, medium			Number of route, waypoint, event, mark, etc.			
	DF54	Integer, 16 bit unsigned	uint16	Range:	0 to 65,532	Resolution:	1 bit	Unit-less number

If this field is not specified in the "Command Request" or an ISO Request is made of this PGN, the response will with the current ID. Otherwise if this field is specified only the units with a matching ID will respond with this PGN.

21	DSC Expansion Field Symbol			Byte Field Size:	1	Request Parameter	Optional	
				Bit Field Size:		Command Parameter:	Optional	
	DD014	DSC Expansion Symbol Definitions			Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.821 Table 1.			
	DF53	Integer, 8 bit unsigned	uint8	Range:	0 to 252	Resolution:	1 bit	Unit-less number

22	DSC Expansion Field Data			Byte Field Size:	8 or 16 n	Request Parameter	Optional	
				Bit Field Size:		Command Parameter:	Optional	
	DD015	DSC Symbol String			Individual characters having only decimal values in the range 0 to 127 for the DSC symbols defined by ITU-R M.493 are used to code: Telephone number as defined by ITU-R M.493 Section 8.2.3; DSC Expansion Data as defined by ITU-R M.821 Section 2.			
	DF50	String, variable, short	ch8or16(n)	Range:	0 to 250 ASCII or 0 to 125 Unicode Characters	Resolution:	1 ASCII or 1 Unicode Character	2 to 252 bytes. First byte in string (uint8) is the Count byte indicating the number of bytes in the string, including the Count and Control bytes. Second byte in string is the Control byte. The Control byte indicates if the string consists of ASCII characters (Char8) or Unicode characters (Char16). Control byte = 0 => Unicode characters Control byte = 1 => ASCII characters A string with no characters (total length of 2 bytes, i.e. Count = 2) is a null string.

The meaning and size of this field is determined by the DSC Expansion symbol in field 21. String length 38 ASCII characters maximum, no Unicode.

23	Variable Number Of Fields, Field 21 Repeated, Expansion Field Type			Byte Field Size:	1	Request Parameter	Optional	
				Bit Field Size:		Command Parameter:	Optional	
	DD014	DSC Expansion Symbol Definitions			Integer numbers within the range 000 to 127 representing DSC Symbols defined by ITU-R M.821 Table 1.			
	DF53	Integer, 8 bit unsigned	uint8	Range:	0 to 252	Resolution:	1 bit	Unit-less number

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24	Variable Number Of Fields, Field 22 Repeated, Expansion Field Data	Byte Field Size: 8 or 16 n	Request Parameter: Optional	
		Bit Field Size:	Command Parameter: Optional	
DD015	DSC Symbol String	Individual characters having only decimal values in the range 0 to 127 for the DSC symbols defined by ITU-R M.493 are used to code: Telephone number as defined by ITU-R M.493 Section 8.2.3; DSC Expansion Data as defined by ITU-R M.821 Section 2.		
DF50	String, variable, short	ch8or16(n) Range: 0 to 250 ASCII or 0 to 125 Unicode Characters	Resolution: 1 ASCII or 1 Unicode Character	2 to 252 bytes. First byte in string (uint8) is the Count byte indicating the number of bytes in the string, including the Count and Control bytes. Second byte in string is the Control byte. The Control byte indicates if the string consists of ASCII characters (Char8) or Unicode characters (Char16). Control byte = 0 => Unicode characters Control byte = 1 => ASCII characters A string with no characters (total length of 2 bytes, i.e. Count = 2) is a null string.

The meaning and size of this field is determined by the DSC Expansion symbol in field 23.
String length 38 ASCII characters maximum, no Unicode.