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Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles —

Part 3: Application layer for equipment other than brakes and running gear

AMENDMENT 1

Véhicules routiers — Échange d'informations numériques sur les
connexions électriques entre véhicules tracteurs et véhicules tractés —

Partie 3: Couche d'application pour les équipements autres que les
équipements de freinage et les organes de roulement

AMENDEMENT 1

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Foreword

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Amendment 1 to ISO 11992-3:2003 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

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Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles —

Part 3: Application layer for equipment other than brakes and running gear

AMENDMENT 1

Page iv, Foreword, 7th paragraph

Replace the list of parts with the following.

- *Part 1: Physical and data-link layers*
- *Part 2: Application layer for brakes and running gear*
- *Part 3: Application layer for equipment other than brakes and running gear*
- *Part 4: Diagnostics*

Page 1, Clause 2

Replace the entire list of normative references with the following new list.

ISO 11898 (all parts), *Road vehicles — Controller area network (CAN)*

ISO 11992-1, *Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles — Part 1: Physical and data-link layers*

Page 5, 6.2, 5th paragraph, 2nd sentence

Delete the following sentence: “To avoid any transmission conflict during the dynamic address assignment phase (power-up), the PDU 2 type message shall have even PS (GE) in the predecessor transmission direction and odd PS (GE) in the successor transmission direction”.

Page 7, 6.3, Figure 9

Replace the existing figure with the following new figure.

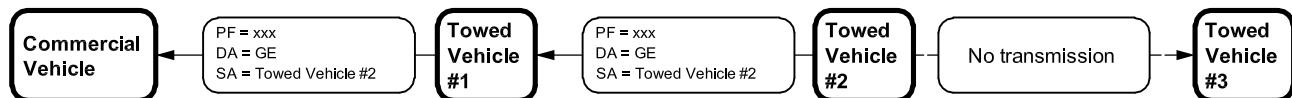


Figure 9 — Example of PDU 2 type message from towed vehicle #2

Page 25

Insert the following new subclauses immediately after 6.4.2.88.

6.4.2.89 Seconds

Part of a parameter used to represent time.

Data length:	1 byte
Resolution:	0,25 s/bit, 0 s offset
Data range:	0 s to 59,75 s
Type:	Measured

6.4.2.90 Minutes

Part of a parameter used to represent time.

Data length:	1 byte
Resolution:	1 min/bit, 0 min offset
Data range:	0 min to 59 min
Type:	Measured

6.4.2.91 Hours

Part of a parameter used to represent time.

Data length:	1 byte
Resolution:	1 h/bit, 0 h offset
Data range:	0 h to 23 h
Type:	Measured

6.4.2.92 Day

Part of a parameter used to represent a calendar date.

Data length:	1 byte
Resolution:	0,25 days/bit, 0 day offset
Data range:	0 day to 31,75 days
Type:	Measured

NOTE 1 A value of 0 for the date is null. The values 1, 2, 3, and 4 are used to identify the first day of the month; 5, 6, 7 and 8 identify the second day of the month; etc.

NOTE 2 This parameter does not influence or change the hours parameter above.

6.4.2.93 Month

Part of a parameter used to represent a calendar date.

Data length:	1 byte
Resolution:	1 month/bit, 0 offset
Data range:	1 month to 12 months
Type:	Measured

NOTE A value of 0 for the month is null. The value 1 identifies January; 2 identifies February; etc.

6.4.2.94 Year

Part of a parameter used to represent a calendar date.

Data length:	1 byte
Resolution:	1 year/bit, 1 985 years offset
Data range:	1985 to 2 235 years
Type:	Measured

NOTE A value of 0 for the year identifies the year 1985; a value of 1 identifies 1986; etc.

6.4.2.95 Local Minute Offset

Local offset in minutes from a reference time.

Data length:	1 byte
Resolution:	1 min/bit, -125 min offset
Data range:	- 59 min to + 59 min
Type:	Measured

6.4.2.96 Local Hour Offset

Local offset in hours from a reference time.

Data length: 1 byte
Resolution: 1 h/bit, -125 h offset
Data range: - 24 h to + 23 h
Type: Measured

6.4.2.97 Trailer left-hand stop light(s) command

Command signal to activate the trailer left-hand stop light(s).

00 — Trailer left-hand stop light(s) off
01 — Trailer left-hand stop light(s) on
Type: Status

6.4.2.98 Trailer right-hand stop light(s) command

Command signal to activate the trailer right-hand stop light(s).

00 — Trailer right-hand stop light(s) off
01 — Trailer right-hand stop light(s) on
Type: Status

6.4.2.99 Trailer left-hand direction indicator light(s) command

Command signal to activate the trailer left-hand direction indicator light(s).

00 — Trailer left-hand direction indicator light(s) off
01 — Trailer left-hand direction indicator light(s) on
Type: Status

6.4.2.100 Trailer right-hand direction indicator light(s) command

Command signal to activate the trailer right-hand direction indicator light(s).

00 — Trailer right-hand direction indicator light(s) off
01 — Trailer right-hand direction indicator light(s) on
Type: Status

6.4.2.101 Trailer left-hand rear light(s) command

Command signal to activate the trailer left-hand rear light(s).

00 — Trailer left-hand rear light(s) off

01 — Trailer left-hand rear light(s) on

Type: Status

6.4.2.102 Trailer right-hand rear light(s) command

Command signal to activate the trailer right-hand rear light(s).

00 — Trailer right-hand rear light(s) off

01 — Trailer right-hand rear light(s) on

Type: Status

6.4.2.103 Trailer left-hand rear fog light(s) command

Command signal to activate the trailer left-hand rear fog light(s).

00 — Trailer left-hand rear fog light(s) off

01 — Trailer left-hand rear fog light(s) on

Type: Status

6.4.2.104 Trailer right-hand rear fog light(s) command

Command signal to activate the trailer right-hand rear fog light(s).

00 — Trailer right-hand rear fog light(s) off

01 — Trailer right-hand rear fog light(s) on

Type: Status

6.4.2.105 Trailer left-hand reversing light(s) command

Command signal to activate the trailer left-hand reversing light(s).

00 — Trailer left-hand reversing light(s) off

01 — Trailer left-hand reversing light(s) on

Type: Status

6.4.2.106 Trailer right-hand reversing light(s) command

Command signal to activate the trailer right-hand reversing light(s).

00 — Trailer right-hand reversing light(s) off

01 — Trailer right-hand reversing light(s) on

Type: Status

6.4.2.107 Trailer left-hand side marker light(s) command

Command signal to activate the trailer left-hand side marker light(s).

00 — Trailer left-hand side marker light(s) off

01 — Trailer left-hand side marker light(s) on

Type: Status

6.4.2.108 Trailer right-hand side marker light(s) command

Command signal to activate the trailer right-hand side marker light(s).

00 — Trailer right-hand side marker light(s) off

01 — Trailer right-hand side marker light(s) on

Type: Status

6.4.2.109 Trailer left-hand rear width indicator light(s) command

Command signal to activate the trailer left-hand rear width indicator light(s).

00 — Trailer left-hand rear width indicator light(s) off

01 — Trailer left-hand rear width indicator light(s) on

Type: Status

6.4.2.110 Trailer right-hand rear width indicator light(s) command

Command signal to activate the trailer right-hand rear width indicator light(s).

00 — Trailer right-hand rear width indicator light(s) off

01 — Trailer right-hand rear width indicator light(s) on

Type: Status

6.4.2.111 Trailer left-hand corner marker light(s) command

Command signal to activate the trailer left-hand rear width indicator light(s).

00 — Trailer left-hand corner marker light(s) off

01 — Trailer left-hand corner marker light(s) on

Type: Status

6.4.2.112 Trailer right-hand corner marker light(s) command

Command signal to activate the trailer right-hand rear width indicator light(s).

00 — Trailer right-hand corner marker light(s) off

01 — Trailer right-hand corner marker light(s) on

Type: Status

6.4.2.113 Trailer left-hand rear registration-plate light(s) command

Command signal to activate the trailer left-hand registration-plate light(s).

00 — Trailer left-hand rear registration-plate light(s) off

01 — Trailer left-hand rear registration-plate light(s) on

Type: Status

6.4.2.114 Trailer right-hand rear registration-plate command light(s)

Command signal to activate the trailer right-hand registration-plate light(s).

00 — Trailer right-hand rear registration-plate light(s)
off

01 — Trailer right-hand rear registration-plate light(s)
on

Type: Status

6.4.2.115 Trailer rear warning light(s) command

Command signal to activate the trailer rear warning light(s).

00 — Trailer rear warning light(s) off

01 — Trailer rear warning light(s) on

Type: Status

6.4.2.116 Trailer rotating identification light(s) command

Command signal to activate the trailer rotating identification light(s).

- 00 — Trailer rotating identification light(s) off
- 01 — Trailer rotating identification light(s) on

Type: Status

6.4.2.117 Trailer interior light(s) command

Command signal to activate the trailer interior light(s).

- 00 — Trailer interior light(s) off
- 01 — Trailer interior light(s) on

Type: Status

6.4.2.118 Trailer work light(s) command

Command signal to activate the trailer work light(s).

- 00 — Trailer work light(s) off
- 01 — Trailer work light(s) on

Type: Status

6.4.2.119 Trailer left-hand stop light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand stop light function is activated. The status of the light function used for replacement is not affected.

- 00 — A redundancy function is not activated
- 01 — A redundancy function is activated

Type: Measured

6.4.2.120 Trailer right-hand stop light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand stop light function is activated. The status of the light function used for replacement is not affected.

- 00 — A redundancy function is not activated
- 01 — A redundancy function is activated

Type: Measured

6.4.2.121 Trailer left-hand direction indicator light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand direction indicator light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.122 Trailer right-hand direction indicator light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand direction indicator light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.123 Trailer left-hand rear light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand rear light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.124 Trailer right-hand rear light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand rear light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.125 Trailer left-hand reversing light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand reversing light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.126 Trailer right-hand reversing light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand reversing light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.127 Transmission output shaft PTO feedback

Signal which indicates the current state of the transmission output shaft PTO.

00 — Not engaged

01 — Engaged

Type: Measured

6.4.2.128 Transfer case output shaft PTO feedback

Signal which indicates the current state of the transfer case output shaft PTO.

00 — Not engaged

01 — Engaged

Type: Measured

6.4.2.129 At least one PTO engaged

Signal which indicates that at least one PTO is engaged.

00 — No PTO engaged

01 — At least one PTO is engaged

Type: Measured

6.4.2.130 Transmission output shaft PTO switch

Signal which indicates the current state of the transmission output shaft PTO switch.

00 — Switched off

01 — Switched on

Type: Measured

6.4.2.131 Transfer case output shaft PTO switch

Signal which indicates the current state of the transfer case output shaft PTO switch.

00 — Switched off

01 — Switched on

Type: Measured

6.4.2.132 First clutch dependent PTO engagement consent

Signal indicating, if the engagement of the first clutch dependent PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.133 Second clutch dependent PTO engagement consent

Signal indicating, if the engagement of the second clutch dependent PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.134 Clutch independent PTO engagement consent

Signal indicating, if the engagement of the clutch independent PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.135 First engine mounted PTO engagement consent

Signal indicating, if the engagement of the first engine mounted PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.136 Second engine mounted PTO engagement consent

Signal indicating, if the engagement of the second engine mounted PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.137 Transmission output shaft PTO engagement consent

Signal indicating, if the engagement of the transmission output shaft PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.138 Transfer case output shaft PTO engagement consent

Signal indicating, if the engagement of the transfer case output shaft PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged

01 — Consent given - PTO drive may be engaged

Type: Measured

6.4.2.139 First clutch dependent PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the first clutch dependent PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.140 Second clutch dependent PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the second clutch dependent PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.141 Clutch independent PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the clutch independent PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.142 First engine mounted PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the first engine mounted PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.143 Second engine mounted PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the second engine mounted PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.144 Transmission output shaft PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the transmission output shaft PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.145 Transfer case output shaft PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the transfer case output shaft PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.146 Cargo hold temperature 1

The value of temperature 1 measured by the temperature recorder.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 40 °C offset
Data range: – 40 °C to + 40 °C
Type: Measured

6.4.2.147 Cargo hold temperature 2

The value of temperature 2 measured by the temperature recorder.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 40 °C offset
Data range: – 40 °C to + 40 °C
Type: Measured

6.4.2.148 Cargo hold temperature 3

The value of temperature 3 measured by the temperature recorder.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 40 °C offset
Data range: – 40 °C to + 40 °C
Type: Measured

6.4.2.149 Cargo hold temperature 4

The value of temperature 4 measured by the temperature recorder.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 40 °C offset
Data range: – 40 °C to + 40 °C
Type: Measured

6.4.2.150 Cargo hold temperature 5

The value of temperature 5 measured by the temperature recorder.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 40 °C offset
Data range: – 40°C to + 40°C
Type: Measured

6.4.2.151 Cargo hold temperature 6

The value of temperature 6 measured by the temperature recorder.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 40 °C offset
Data range: – 40 °C to + 40 °C
Type: Measured

6.4.2.152 Reefer unit battery voltage

The measured voltage of the reefer unit battery.

Data length: 2 bytes
Resolution: 0,01 V/bit gain, 0 V offset
Data range: 0 V to 642,55 V
Type: Measured

6.4.2.153 Reefer unit fuel tank level

The measured fuel level in the tank of the reefer unit.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.154 Requested evaporator 1 setpoint

Command signal to set the evaporator 1 setpoint.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 50 °C offset
Data range: – 50 °C to + 50 °C
Type: Status

6.4.2.155 Requested evaporator 2 setpoint

Command signal to set the evaporator 2 setpoint.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 50 °C offset
Data range: – 50 °C to + 50 °C
Type: Status

6.4.2.156 Requested evaporator 3 setpoint

Command signal to set the evaporator 3 setpoint.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 50 °C offset
Data range: – 50 °C to + 50 °C
Type: Status

6.4.2.157 Evaporator 1 setpoint

The temperature setpoint of evaporator 1.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 50 °C offset
Data range: – 50 °C to + 50 °C
Type: Measured

6.4.2.158 Evaporator 2 setpoint

The temperature setpoint of evaporator 2.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 50 °C offset
Data range: – 50 °C to + 50 °C
Type: Measured

6.4.2.159 Evaporator 3 setpoint

The temperature setpoint of evaporator 3.

Data length: 1 byte
Resolution: 0,5 °C/bit gain, – 50 °C offset
Data range: – 50 °C to + 50 °C
Type: Measured

6.4.2.160 Compartment 1 humidity

The measured air humidity in compartment 1.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.161 Compartment 2 humidity

The measured air humidity in compartment 2.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.162 Compartment 3 humidity

The measured air humidity in compartment 3.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.163 Compartment 1 oxygen concentration

The measured oxygen concentration in compartment 1.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.164 Compartment 2 oxygen concentration

The measured oxygen concentration in compartment 2.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.165 Compartment 3 oxygen concentration

The measured oxygen concentration in compartment 3.

Data length: 1 byte
Resolution: 0,5 %/bit gain, 0 % offset
Data range: 0 % to 125 %
Type: Measured

6.4.2.166 Reefer unit alarm status

Signal to indicate the alarm status of the reefer unit.

000	Reefer unit warning/alarm off
001	Reefer unit warning on
010	Reefer unit shutdown: alarm on
011 to 101	Not defined
Type:	Measured

6.4.2.167 Status evaporator 1

Signal to indicate the operating status of evaporator 1.

000	Standby
001	Cooling
010	Heating
011	Defrost
100 to 101	Not defined
Type:	Measured

6.4.2.168 Status evaporator 2

Signal to indicate the operating status of evaporator 2.

000	Standby
001	Cooling
010	Heating
011	Defrost
100 to 101	Not defined
Type:	Measured

6.4.2.169 Status evaporator 3

Signal to indicate the operating status of evaporator 3.

000	Standby
001	Cooling
010	Heating
011	Defrost
100 to 101	Not defined
Type:	Measured

6.4.2.170 Reefer unit status

Signal to indicate the reefer unit status.

00	Reefer unit off
01	Reefer unit on
Type:	Measured

6.4.2.171 Reefer unit start/stop operating hours

The total number of hours the reefer unit is in start/stop operating mode.

Data length:	3 bytes
Resolution:	1 h/bit gain, 0 h offset
Data range:	0 h to 16 449 535 h
Type:	Measured

6.4.2.172 Reefer unit diesel engine operating hours

The total number of hours the reefer unit diesel engine is operating.

Data length: 3 bytes
Resolution: 1 h/bit gain, 0 h offset
Data range: 0 h to 16 449 535 h
Type: Measured

6.4.2.173 Reefer unit line supply operating hours

The total number of hours the reefer unit is supplied from the line supply.

Data length: 3 bytes
Resolution: 1 h/bit gain, 0 h offset
Data range: 0 h to 16 449 535 h
Type: Measured

6.4.2.174 Reefer unit generator operating hours

The total number of hours the reefer unit generator is operating.

Data length: 3 bytes
Resolution: 1 h/bit gain, 0 h offset
Data range: 0 h to 16 449 535 h
Type: Measured

6.4.2.175 Reefer unit on/off

Command signal to turn the reefer unit on or off.

00 Reefer unit off
01 Reefer unit on
Type: Status

6.4.2.176 Reefer unit defrost cycle on/off

Command signal to activate a defrost cycle.

00 Defrost off
01 Defrost on
Type: Status

6.4.2.177 Cargo hold door 1 contact switch

Signal to indicate the status of the cargo hold door 1.

00	Door closed
01	Door open
Type:	Measured

6.4.2.178 Cargo hold door 2 contact switch

Signal to indicate the status of cargo hold door 2.

00	Door closed
01	Door open
Type:	Measured

6.4.2.179 Cargo hold door 3 contact switch

Signal to indicate the status of cargo hold door 3.

00	Door closed
01	Door open
Type:	Measured

Replace the whole of 6.5, including the tables, with the following new subclause.

6.5 Messages

6.5.1 General

The following specifies the messages for use on the electrical connection between towing and towed vehicles.

All undefined bits shall be transmitted with a value of "1". All undefined bits shall be treated as "don't care" (either masked out or ignored). This permits them to be defined and used in the future without causing any incompatibilities.

A message is described by a short form of the function (e.g. GPM for general purpose message) and two numbers.

The first stands for the transmission direction:

- towing to towed vehicle: 1
- towed to towing vehicle: 2

The second is the message number.

For the dynamic address assignment, one of the PDU 1 type messages to be sent from the towing vehicle to the towed vehicle with the lowest transmission repetition time is specified as the standard initialization message. This message, as well as one of the PDU 1 type messages to be sent from a towed vehicle to its predecessor with the lowest transmission repetition time, shall be sent continuously.

For PDU 1 type and PDU 2 type messages, see Tables 7 and 8.

The messages transmitted on the data link are distinguished by their unique identifier. The transmission repetition times are specified for messages with particular identifiers.

The messages GPM 11 and GPM 21 are to be transmitted only between two coupled vehicles.

Table 7 — PDU 1 type messages

Repetition time	Data specification	P	R	DP	PF	PS	PGN	Remarks
≥ 100 ms	General purpose #1/1 - GPM 11	6	0	0	226	DA	00E200 ₁₆	
≥ 5 000 ms	General purpose #1/8 - GPM 18	6	0	0	154	DA	009A00 ₁₆	Added in this amendment
≥ 100 ms	General purpose #2/1 - GPM 21	6	0	0	225	DA	00E100 ₁₆	

Table 8 — PDU 2 type messages

Repetition time	Data specification	P	R	DP	PF	PS (GE)	PGN	Remarks
≥ 500 ms	General purpose #1/2 - GPM 12	6	0	0	254	93	00FE5D ₁₆	
≥ 50 ms	General purpose #1/3 - GPM 13	3	0	0	254	95	00FE5F ₁₆	
≥ 100 ms	General purpose #1/4 - GPM 14	6	0	0	254	97	00FE61 ₁₆	
≥ 1 000 ms	General purpose #1/5 - GPM 15	6	0	0	254	99	00FE63 ₁₆	
≥ 1 000 ms	General purpose #1/6 - GPM 16	6	0	0	254	101	00FE65 ₁₆	
≥ 10 ms	General purpose #1/7 - GPM 17	3	0	0	240	27	00F01B ₁₆	Added in this amendment
≥ 100 ms	General purpose #1/9 - GPM 19	6	0	0	253	80	00FD50 ₁₆	Added in this amendment
≥ 100 ms	General purpose #2/2 - GPM 22	6	0	0	254	200	00FEC8 ₁₆	
≥ 100 ms	General purpose #2/3 - GPM 23	3	0	0	254	96	00FE60 ₁₆	
≥ 100 ms	General purpose #2/4 - GPM 24	3	0	0	254	98	00FE62 ₁₆	
≥ 100 ms	General purpose #2/5 - GPM 25	6	0	0	254	100	00FE64 ₁₆	
≥ 5 000 ms	General purpose #2/6 - GPM 26	6	0	0	253	79	00FD4F ₁₆	Added in this amendment
≥ 5 000 ms	General purpose #2/7 - GPM 27	6	0	0	253	78	00FD4E ₁₆	Added in this amendment
≥ 5 000 ms	General purpose #2/8 - GPM 28	6	0	0	253	77	00FD4D ₁₆	Added in this amendment
≥ 10 000 ms	General purpose #2/9 - GPM 29	6	0	0	253	76	00FD4C ₁₆	Added in this amendment
≥ 10 000 ms	General purpose #2/10 - GPM 210	6	0	0	253	75	00FD4B ₁₆	Added in this amendment
≥ 5 000 ms	General purpose #2/11 - GPM 211	6	0	0	253	74	00FD4A ₁₆	Added in this amendment
≥ 100 ms	Military application #1/1 - MAM 11	6	0	0	253	221	00FDDD ₁₆	
≥ 100 ms	Military application #2/1 - MAM 21	6	0	0	253	222	00FDDE ₁₆	
≥ 1 000 ms	Time/Date #1/1 - TD 11	6	0	0	254	230	00FEE6 ₁₆	Added in this amendment

Table 9 defines the messages to be used for diagnostic communication. The diagnostic messages and contents are specified in ISO 11992-4.

Table 9 — Diagnostic messages

Repetition time	Data specification	P	R	DP	PF	PS (GE)	PGN	Remarks
≥ 100 ms	Diagnostic Channel, physical addressing	7	0	0	206	DA	00CE00 ₁₆	Added in this amendment
≥ 100 ms	Diagnostic Channel, functional addressing	7	0	0	205	DA	00CD00 ₁₆	Added in this amendment

Table 10 defines two messages reserved for CANopen communication across the ISO 11992-3 data link. The data content of these messages is defined in EN 50325-4.

Table 10 — Messages reserved for CANopen application

Repetition time	Data specification	P	R	DP	PF	PS (GE)	PGN	Remarks
≥ 50 ms	CANopen Application Message #1/1 CAM11	7	0	0	5	DA	000500 ₁₆	Added in this amendment
≥ 50 ms	CANopen Application Message #2/1 CAM21	7	0	0	6	DA	000600 ₁₆	Added in this amendment

6.5.2 Message specifications, transmission direction from towing to towed vehicle

6.5.2.1 Towing vehicle message, general purpose message #1/1, GPM 11

This message is specified as the standard initialization message for address assignment of the receiving vehicle. Sending of this message is required.

Transmission repetition time: 100 ms ± 10 ms

Data length: 8 bytes

Data page: 0

PDU format: 226

PDU specific: address of the successor

Default priority: 6

Byte 1 Towing vehicle system status 1 Bits 1 to 2 Vehicle type

Bits 3 to 8 Not defined

Byte 2 Towing vehicle general function Bits 1 to 2 Anti-theft device request

Bits 3 to 4 ODD request

Bits 5 to 8 Not defined

Bytes 3 to 8 Not defined Bits

6.5.2.2 Towing vehicle message, general purpose message #1/2, GPM 12

Transmission repetition time: 500 ms ± 50 ms

Data length: 8 bytes
 Data page: 0
 PDU format: 254
 PDU specific: 93
 Default priority: 6

Bytes 1 to 2 Engine speed upper limit

Bytes 3 to 4 Engine speed lower limit

Byte 5 Maximum vehicle speed limit

Bytes 6 to 8 Not defined

6.5.2.3 Towing vehicle message, general purpose message #1/3, GPM 13

Transmission repetition time: 50 ms ± 5 ms

Data length: 8 bytes
 Data page: 0
 PDU format: 254
 PDU specific: 95
 Default priority: 3

Byte 1	Towing vehicle general function	Bits 1 to 4	Engine torque mode
		Bits 5 to 6	Engine control allowed
		Bits 7 to 8	Engine running
Byte 2	Driver's demand engine percent torque		
Byte 3	Actual engine percent torque		
Bytes 4 to 5	Engine speed		
Byte 6	Percent load at current speed		
Bytes 7 to 8	Vehicle speed		

6.5.2.4 Towing vehicle message, general purpose message #1/4, GPM 14

Transmission repetition time: 100 ms \pm 10 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 97

Default priority: 6

Byte 1	Percent clutch slip	
Byte 2	Current gear	
Byte 3	Towing vehicle general function 1	Bits 1 to 2 First clutch dependent PTO feedback Bits 3 to 4 Second clutch dependent PTO feedback Bits 5 to 6 Clutch independent PTO feedback Bits 7 to 8 First engine mounted PTO feedback
Byte 4	Towing vehicle general function 2	Bits 1 to 2 Second engine mounted PTO feedback Bits 3 to 4 PTO control allowed Bits 5 to 7 Torque converter oil temperature warning Bit 8 Not defined
Bytes 5 to 6	Torque converter oil temperature	
Byte 7	Towing vehicle general function 3	Bits 1 to 2 Starter active Bits 3 to 4 Accelerator pedal low idle switch Bits 5 to 8 Not defined
Byte 8	Accelerator pedal position	

6.5.2.5 Towing vehicle message, general purpose message #1/5, GPM 15

Transmission repetition time: 1 000 ms ± 100 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 99

Default priority: 6

Bytes 1 to 2 Engine oil temperature

Byte 3 Engine coolant temperature

Byte 4 Engine oil pressure

Byte 5 Towing vehicle general function	Bits 1 to 3	Engine coolant temperature warning
	Bits 4 to 5	Engine oil pressure warning
	Bits 6 to 7	Fuel level warning
	Bit 8	Not defined

Bytes 6 to 7 Reference engine torque

Byte 8 Not defined

6.5.2.6 Towing vehicle message, general purpose message #1/6, GPM 16

Transmission repetition time: 1,000 ms ± 100 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 101

Default priority: 6

Bytes 1 to 2 Ambient air temperature

Bytes 3 to 8 Not defined

6.5.2.7 Towed vehicle message, general purpose message #1/7, GPM 17

Transmission repetition time: 10 ms ± 1 ms

Data length: 8 bytes

Data page: 0

PDU format: 240

PDU specific: 27

Default priority: 3

Byte 1	Towed vehicle lights command 1	Bits 1 to 2	Trailer left-hand stop light(s) command	Added
		Bits 3 to 4	Trailer right-hand stop light(s) command	Added
		Bits 5 to 6	Trailer left-hand direction indicator light(s) command	Added
		Bits 7 to 8	Trailer right-hand direction indicator light(s) command	Added
Byte 2	Towed vehicle lights command 2	Bits 1 to 2	Trailer left-hand rear light(s) command	Added
		Bits 3 to 4	Trailer right-hand rear light(s) command	Added
		Bits 5 to 6	Trailer left-hand rear fog light(s) command	Added
		Bits 7 to 8	Trailer right-hand rear fog light(s) command	Added
Byte 3	Towed vehicle lights command 3	Bits 1 to 2	Trailer left-hand reversing light(s) command	Added
		Bits 3 to 4	Trailer right-hand reversing light(s) command	Added
		Bits 5 to 6	Trailer left-hand side marker light(s) command	Added
		Bits 7 to 8	Trailer right-hand side marker light(s) command	Added
Byte 4	Towed vehicle lights command 4	Bits 1 to 2	Trailer left-hand rear width indicator light(s) command	Added
		Bits 3 to 4	Trailer right-hand rear width indicator light(s) command	Added
		Bits 5 to 6	Trailer left-hand corner marker light(s) command	Added
		Bits 7 to 8	Trailer right-hand corner marker light(s) command	Added
Byte 5	Towed vehicle lights command 5	Bits 1 to 2	Trailer left-hand rear registration-plate light(s) command	Added
		Bits 3 to 4	Trailer right-hand rear registration-plate command light(s)	Added
		Bits 5 to 6	Trailer rear warning light(s) command	Added
		Bits 7 to 8	Trailer rotating identification light(s) command	Added
Byte 6	Towed vehicle lights command 6	Bits 1 to 2	Trailer interior light(s) command	Added
		Bits 3 to 4	Trailer work light(s) command	Added
		Bits 5 to 8	Not defined	
Byte 7 to 8	Not defined			

6.5.2.8 Towing vehicle message, general purpose message #1/8, GPM 18

Transmission repetition time:	5 000 ms \pm 500 ms or on change, not to exceed 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	154
PDU specific:	address of the successor
Default priority:	6

Byte	1	Reefer unit control	Bits	1 to 2	Reefer unit on/off	Added
			Bits	3 to 4	Reefer unit defrost cycle on/off	Added
			Bits	5 to 8	Not defined	Added
Byte	2	Requested evaporator 1 setpoint				Added
Byte	3	Requested evaporator 2 setpoint				Added
Byte	4	Requested evaporator 3 setpoint				Added
Bytes	5 to 8	Not defined				

6.5.2.9 Towing vehicle message, general purpose message #1/9, GPM 19

Transmission repetition time:	100 ms \pm 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	80
Default priority:	6

Byte	1	PTO status 1	Bits	1 to 2	Transmission output shaft PTO feedback	Added
			Bits	3 to 4	Transfer case output shaft PTO feedback	Added
			Bits	5 to 6	At least one PTO engaged	Added
			Bits	7 to 8	First clutch dependent PTO engagement consent	Added
Byte	2	PTO status 2	Bits	1 to 2	Second clutch dependent PTO engagement consent	Added
			Bits	3 to 4	Clutch independent PTO engagement consent	Added
			Bits	5 to 6	First engine mounted PTO engagement consent	Added
			Bits	7 to 8	Second engine mounted PTO engagement consent	Added
Byte	3	PTO status 3	Bits	1 to 2	Transmission output shaft PTO engagement consent	Added
			Bits	3 to 4	Transfer case output shaft PTO engagement consent	Added
			Bits	5 to 8	Not defined	Added
Bytes	4 to 8	Not defined				

6.5.2.10 Towing vehicle message, military applications message #1/1, MAM 11

Transmission repetition time: 100 ms ± 10 ms

Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	221
Default priority:	6

Byte	1	Lighting control	Bits	1 to 2	Rear Black Out Marker Select
			Bits	3 to 4	Convoy lamp select
			Bits	5 to 6	Black Out Brake/Stop Lamp Select
			Bits	7 to 8	Not defined
Bytes	2 to 8	Not defined			

6.5.2.11 Towing vehicle message, Time/Date #1/1, TD 11

Transmission repetition time:	1 000 ms \pm 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	230
Default priority:	6

Byte 1	Seconds	Added
Byte 2	Minutes	Added
Byte 3	Hours	Added
Byte 4	Month	Added
Byte 5	Day	Added
Byte 6	Year	Added
Byte 7	Local Minute Offset	Added
Byte 8	Local Hour Offset	Added

6.5.3 Message specifications, transmission direction from towed to towing vehicle

6.5.3.1 Towed vehicle message, general purpose message #2/1, GPM 21

Sending this message is required.

Transmission repetition time:	100 ms \pm 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	225
PDU specific:	Address of the predecessor
Default priority:	6

Byte 1	Towed vehicle system status 1	Bits 1 to 2	Vehicle type
		Bits 3 to 8	Not defined
Bytes 2 to 8			Not defined

6.5.3.2 Towed vehicle message, general purpose message #2/2, GPM 22Transmission repetition time: 100 ms \pm 10 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 200

Default priority: 6

Byte 1	Towed vehicle system status 2	Bits 1 to 2	ODD
		Bits 3 to 4	Anti-theft device
		Bits 5 to 8	Not defined
Byte 2	Towed vehicle system status 3		Not defined
Byte 3	Rear obstacle distance		
Byte 4	Thermal body temperature		
Bytes 5 to 6	Body fluid level		
Byte 7	Body pressure		
Byte 8	Not defined		

6.5.3.3 Towed vehicle message, general purpose message #2/3, GPM 23Transmission repetition time: 100 ms \pm 10 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 96

Default priority: 3

Byte 1 to 2	Requested engine speed
Bytes 3 to 4	Requested engine speed upper limit
Bytes 5 to 6	Requested engine speed lower limit
Byte 7	Requested engine torque limit
Byte 8	Requested vehicle speed limit

6.5.3.4 Towed vehicle message, general purpose message #2/4, GPM 24

Transmission repetition time: 100 ms ± 10 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 98

Default priority: 3

Byte 1	Requested percent clutch slip		
Byte 2	Towed vehicle general function 1	Bits 1 to 2	Starter lockout switch
		Bits 3 to 4	Engine start switch
		Bits 5 to 6	Engine stop switch
		Bits 7 to 8	Not defined
Byte 3	Towed vehicle general function 2	Bits 1 to 2	Refuse packer step switch
		Bits 3 to 4	Operating panel active
		Bits 5 to 6	Not defined
		Bits 7 to 8	First clutch dependent PTO switch
Byte 4	Towed vehicle general function 3	Bits 1 to 2	Second clutch dependent PTO switch
		Bits 3 to 4	Clutch independent PTO switch
		Bits 5 to 6	First engine mounted PTO switch
		Bits 7 to 8	Second engine mounted PTO switch
Byte 5	Towed vehicle general function 4	Bits 1 to 2	Transmission output shaft PTO switch Added
		Bits 3 to 4	Transfer case output shaft PTO switch Added
		Bits 5 to 6	First clutch dependent PTO engagement consent - trailer Added
		Bits 7 to 8	Second clutch dependent PTO engagement consent - trailer Added
Byte 6	Towed vehicle general function 5	Bits 1 to 2	Clutch independent PTO engagement consent - trailer Added
		Bits 3 to 4	First engine mounted PTO engagement consent - trailer Added
		Bits 5 to 6	Second engine mounted PTO engagement consent - trailer Added
		Bits 7 to 8	Transmission output shaft PTO engagement consent - trailer Added
Byte 7	Towed vehicle general function 6	Bits 1 to 2	Transfer case output shaft PTO engagement consent - trailer Added
		Bits 3 to 8	Not defined
Byte 8	Not defined		

6.5.3.5 Towed vehicle message, general purpose message #2/5, GPM 25

Transmission repetition time: 100 ms ± 10 ms

Data length: 8 bytes

Data page: 0

PDU format: 254

PDU specific: 100

Default priority: 6

Byte 1	Towed vehicle lights status 1	Bits 1 to 2	Trailer left-hand stop light(s)	
		Bits 3 to 4	Trailer right-hand stop light(s)	
		Bits 5 to 6	Trailer left-hand direction indicator light(s)	
		Bits 7 to 8	Trailer right-hand direction indicator light(s)	
Byte 2	Towed vehicle lights status 2	Bits 1 to 2	Trailer left-hand rear light(s)	
		Bits 3 to 4	Trailer right-hand rear light(s)	
		Bits 5 to 6	Trailer left-hand rear fog light(s)	
		Bits 7 to 8	Trailer right-hand rear fog light(s)	
Byte 3	Towed vehicle lights status 3	Bits 1 to 2	Trailer left-hand reversing light(s)	
		Bits 3 to 4	Trailer right-hand reversing light(s)	
		Bits 5 to 6	Trailer left-hand side marker light(s)	
		Bits 7 to 8	Trailer right-hand side marker light(s)	
Byte 4	Towed vehicle lights status 4	Bits 1 to 2	Trailer left-hand rear width indicator light(s)	
		Bits 3 to 4	Trailer right-hand rear width indicator light(s)	
		Bits 5 to 6	Trailer left-hand corner marker light(s)	
		Bits 7 to 8	Trailer right-hand corner marker light(s)	
Byte 5	Towed vehicle lights status 5	Bits 1 to 2	Trailer left-hand rear registration-plate light(s)	
		Bits 3 to 4	Trailer right-hand rear registration-plate light(s)	
		Bits 5 to 6	Trailer rear warning light(s)	
		Bits 7 to 8	Trailer rotating identification light(s)	
Byte 6	Towed vehicle lights status 6	Bits 1 to 2	Trailer interior light(s)	
		Bits 3 to 4	Trailer work light(s)	
		Bits 5 to 8	Not defined	
Byte 7	Towed vehicle redundancy lights status 1	Bits 1 to 2	Trailer left-hand stop light(s) redundancy function	Added
		Bits 3 to 4	Trailer right-hand stop light(s) redundancy function	Added
		Bits 5 to 6	Trailer left-hand direction indicator light(s) redundancy function	Added
		Bits 7 to 8	Trailer right-hand direction indicator light(s) redundancy function	Added