

# ISO 11992-3:2021 (E)

## 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

---

### Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Abbreviated terms
5	APP – Parameter specification
5.1	General definitions
5.2	Rear obstacle distance
5.3	Thermal body temperature
5.4	Obstacle detection device (ODD) request
5.5	Anti-theft device – Status request
5.6	Obstacle detection device (ODD) active
5.7	Anti-theft device – Measured
5.8	Vehicle type
5.9	Detailed vehicle type
5.10	Percent clutch slip
5.11	Current gear
5.12	Accelerator pedal low idle switch
5.13	Engine propulsion system control allowed
5.14	PTO control allowed
5.15	Tachograph vehicle speed
5.16	Engine propulsion system speed measured
5.17	Driver's demand engine propulsion system – Percent torque
5.18	Actual engine propulsion system – Percent torque
5.19	Transmission reference torque
5.20	Engine propulsion system percent load at current speed
5.21	Maximum vehicle speed limit
5.22	Engine propulsion system speed upper limit
5.23	Engine propulsion system speed lower limit
5.24	Engine propulsion system coolant temperature warning
5.25	Engine propulsion system oil pressure warning
5.26	Engine propulsion system oil temperature
5.27	Engine propulsion system coolant temperature
5.28	Engine propulsion system oil pressure
5.29	Torque converter oil temperature warning
5.30	Torque converter oil temperature
5.31	First clutch-dependent PTO feedback
5.32	Second clutch-dependent PTO feedback
5.33	Clutch-independent PTO feedback
5.34	First engine propulsion system-mounted PTO feedback
5.35	Second engine propulsion system-mounted PTO feedback
5.36	Starter active
5.37	Engine propulsion system running
5.38	Engine propulsion system torque mode
5.39	First clutch-dependent PTO switch

5.40	Second clutch-dependent PTO switch
5.41	Clutch-independent PTO switch
5.42	First engine propulsion system-mounted PTO switch
5.43	Second engine propulsion system-mounted PTO switch
5.44	Requested percent clutch slip
5.45	Starter lockout switch
5.46	Engine propulsion system start switch
5.47	Engine propulsion system stop switch
5.48	Requested engine propulsion system speed upper limit
5.49	Requested engine propulsion system speed lower limit
5.50	Requested engine propulsion system torque limit
5.51	Requested vehicle speed limit
5.52	Refuse packer step switch
5.53	Operating panel active
5.54	Requested engine propulsion system speed
5.55	Accelerator pedal position
5.56	Ambient air temperature
5.57	Fuel level warning
5.58	Towed vehicle left-hand stop light(s)
5.59	Towed vehicle right-hand stop light(s)
5.60	Towed vehicle left-hand direction indicator light(s)
5.61	Towed vehicle right-hand direction indicator light(s)
5.62	Towed vehicle left-hand rear light(s)
5.63	Towed vehicle right-hand rear position light(s)
5.64	Towed vehicle left-hand rear fog light(s)
5.65	Towed vehicle right-hand rear fog light(s)
5.66	Towed vehicle left-hand reversing light(s)
5.67	Towed vehicle right-hand reversing light(s)
5.68	Towed vehicle left-hand side marker light(s)
5.69	Towed vehicle right-hand side marker light(s)
5.70	Towed vehicle left-hand rear width indicator light(s)
5.71	Towed vehicle right-hand rear width indicator light(s)
5.72	Towed vehicle left-hand corner marker light(s)
5.73	Towed vehicle right-hand corner marker light(s)
5.74	Towed vehicle left-hand rear registration-plate light(s)
5.75	Towed vehicle right-hand rear registration-plate light(s)
5.76	Towed vehicle rear warning light(s)
5.77	Towed vehicle rotating identification light(s)
5.78	Towed vehicle interior light(s)
5.79	Towed vehicle work light(s)
5.80	Body fluid level
5.81	Actual pressure
5.82	Towed vehicle rear black-out marker select light(s)
5.83	Towed vehicle front black-out marker lamp select
5.84	Towed vehicle convoy lamp select
5.85	Towed vehicle convoy driving lamp select
5.86	Towed vehicle black-out brake/stop lamp select
5.87	Towed vehicle night vision illuminator select
5.88	Towed vehicle black-out work lamp select
5.89	Towed vehicle operators black-out intensity selection
5.90	Towed vehicle left hand black-out rear light(s)
5.91	Towed vehicle right-hand black-out rear light(s)
5.92	Towed vehicle left-hand black-out brake/stop light(s)
5.93	Towed vehicle right-hand black-out brake/stop light(s)
5.94	Towed vehicle rear convoy light(s)
5.95	ODM version information
5.96	Identification data index
5.97	Identification data content
5.98	Velocity and yaw rate confidence level
5.99	OD status indicator
5.100	Cyclic redundancy check (CRC8)
5.101	Sequence counter
5.102	Longitudinal speed
5.103	Lateral speed

5.104 Yaw rate  
 5.105 Articulation angle  
 5.106 OD longitudinal distance object  
 5.107 OD lateral distance object  
 5.108 OD absolute longitudinal speed object  
 5.109 OD absolute lateral speed object  
 5.110 OD standard deviation of longitudinal and lateral distance  
 5.111 OD normal deviation of longitudinal and lateral speed  
 5.112 Track ID  
 5.113 Lane curve coefficients  
 5.114 Lane curve validity interval  
 5.115 Lane marker width  
 5.116 Standard deviation of lane information error  
 5.117 Lane marker type  
 5.118 Object width (dimension in lateral direction)  
 5.119 Object length (dimension in longitudinal direction)  
 5.120 Object classification  
 5.121 Geometric distance  
 5.122 Towed vehicle rear IR-black-out marker select  
 5.123 Towed vehicle IR-black-out stop lamp select  
 5.124 Towed vehicle IR-convoy light ('Leitkreuz') select  
 5.125 Towed vehicle right-hand IR-black-out rear light(s)  
 5.126 Towed vehicle left-hand IR-black-out rear light(s)  
 5.127 Towed vehicle right-hand IR-black-out stop light(s)  
 5.128 Towed vehicle left-hand IR-black-out stop light(s)  
 5.129 Towed vehicle IR-convoy light ('Leitkreuz')  
 5.130 Towed vehicle black-out work lamp(s)  
 5.131 Seconds  
 5.132 Minutes  
 5.133 Hours  
 5.134 Day  
 5.135 Month  
 5.136 Year  
 5.137 Local minute offset  
 5.138 Local hour offset  
 5.139 Trailer left-hand stop light(s)  
 5.140 Trailer right-hand stop light(s)  
 5.141 Trailer left-hand direction indicator light(s)  
 5.142 Trailer right-hand direction indicator light(s)  
 5.143 Trailer left-hand rear light(s)  
 5.144 Trailer right-hand rear light(s)  
 5.145 Trailer left-hand rear fog light(s)  
 5.146 Trailer right-hand rear fog light(s)  
 5.147 Trailer left-hand reversing light(s)  
 5.148 Trailer right-hand reversing light(s)  
 5.149 Trailer left-hand side marker light(s)  
 5.150 Trailer right-hand side marker light(s)  
 5.151 Trailer left-hand rear width indicator light(s)  
 5.152 Trailer right-hand rear width indicator light(s)  
 5.153 Trailer left-hand corner marker light(s)  
 5.154 Trailer right-hand corner marker light(s)  
 5.155 Trailer left-hand rear registration-plate light(s)  
 5.156 Trailer right-hand rear registration-plate light(s)  
 5.157 Trailer rear warning light(s)  
 5.158 Trailer rotating identification light(s)  
 5.159 Trailer interior light(s)  
 5.160 Trailer work light(s)  
 5.161 Trailer left-hand stop light(s) redundancy function  
 5.162 Trailer right-hand stop light(s) redundancy function  
 5.163 Trailer left-hand direction indicator light(s) redundancy function  
 5.164 Trailer right-hand direction indicator light(s) redundancy function  
 5.165 Trailer left-hand rear light(s) redundancy function  
 5.166 Trailer right-hand rear light(s) redundancy function  
 5.167 Trailer left-hand reversing light(s) redundancy function

5.168 Trailer right-hand reversing light(s) redundancy function  
 5.169 Transmission output shaft PTO feedback  
 5.170 Transfer case output shaft PTO feedback  
 5.171 At least one PTO engaged  
 5.172 Transmission output shaft PTO switch  
 5.173 Transfer case output shaft PTO switch  
 5.174 First clutch-dependent PTO engagement consent  
 5.175 Second clutch-dependent PTO engagement consent  
 5.176 Clutch-independent PTO engagement consent  
 5.177 First engine propulsion system mounted PTO engagement consent  
 5.178 Second engine propulsion system mounted PTO engagement consent  
 5.179 Transmission output shaft PTO engagement consent  
 5.180 Transfer case output shaft PTO engagement consent  
 5.181 First clutch-dependent PTO engagement consent – Trailer  
 5.182 Second clutch-dependent PTO engagement consent – Trailer  
 5.183 Clutch-independent PTO engagement consent – Trailer  
 5.184 First engine propulsion system mounted PTO engagement consent – Trailer  
 5.185 Second engine propulsion system mounted PTO engagement consent – Trailer  
 5.186 Transmission output shaft PTO engagement consent – Trailer  
 5.187 Transfer case output shaft PTO engagement consent – Trailer  
 5.188 Cargo hold temperature 1  
 5.189 Cargo hold temperature 2  
 5.190 Cargo hold temperature 3  
 5.191 Cargo hold temperature 4  
 5.192 Cargo hold temperature 5  
 5.193 Cargo hold temperature 6  
 5.194 Reefer unit battery voltage  
 5.195 Reefer unit fuel tank level  
 5.196 Requested evaporator 1 set-point  
 5.197 Requested evaporator 2 set-point  
 5.198 Requested evaporator 3 set-point  
 5.199 Evaporator 1 set-point  
 5.200 Evaporator 2 set-point  
 5.201 Evaporator 3 set-point  
 5.202 Compartment 1 humidity  
 5.203 Compartment 2 humidity  
 5.204 Compartment 3 humidity  
 5.205 Compartment 1 oxygen concentration  
 5.206 Compartment 2 oxygen concentration  
 5.207 Compartment 3 oxygen concentration  
 5.208 Reefer unit alarm status  
 5.209 Status evaporator 1  
 5.210 Status evaporator 2  
 5.211 Status evaporator 3  
 5.212 Reefer unit status  
 5.213 Reefer unit start/stop operating hours  
 5.214 Reefer unit diesel engine propulsion system operating hours  
 5.215 Reefer unit line supply operating hours  
 5.216 Reefer unit generator operating hours  
 5.217 Reefer unit on/off  
 5.218 Reefer unit defrost cycle on/off  
 5.219 Cargo hold door 1 contact switch  
 5.220 Cargo hold door 2 contact switch  
 5.221 Cargo hold door 3 contact switch

**6 PG specification**

6.1 Towing vehicle  
 6.1.1 General requirements  
 6.1.2 Overview of towing vehicle PGs  
 6.1.3 CANopen messages  
 6.1.4 General purpose message #1/1 (GPM11)  
 6.1.5 General purpose message #1/2 (GPM12)  
 6.1.6 General purpose message #1/3 (GPM13)  
 6.1.7 General purpose message #1/4 (GPM14)

- 6.1.8 General purpose message #1/5 (GPM15)
- 6.1.9 General purpose message #1/6 (GPM16)
- 6.1.10 General purpose message #1/7 (GPM17)
- 6.1.11 General purpose message #1/8 (GPM18)
- 6.1.12 General purpose message #1/9 (GPM19)
- 6.1.13 Military application message #1/1 (MAM11)
- 6.1.14 Time/Date message #1/1 (TD11)
- 6.1.15 Object detection message #1/1 (ODM11)
- 6.2 Towed vehicle
  - 6.2.1 General requirements
  - 6.2.2 Overview of towed vehicle messages
  - 6.2.3 General purpose message #2/1 (GPM21)
  - 6.2.4 General purpose message #2/2 (GPM22)
  - 6.2.5 General purpose message #2/3 (GPM23)
  - 6.2.6 General purpose message #2/4 (GPM24)
  - 6.2.7 General purpose message #2/5 (GPM25)
  - 6.2.8 General purpose message #2/6 (GPM26)
  - 6.2.9 General purpose message #2/7 (GPM27)
  - 6.2.10 General purpose message #2/8 (GPM28)
  - 6.2.11 General purpose message #2/9 (GPM29)
  - 6.2.12 General purpose message #2/10 (GPM210)
  - 6.2.13 General purpose message #2/11 (GPM211)
  - 6.2.14 Military application message #2/1 (MAM21)
  - 6.2.15 Object detection message #2/1 (ODM21)
  - 6.2.16 Object detection message #2/2 (ODM22)
  - 6.2.17 Object detection message #2/3 (ODM23)
  - 6.2.18 Object detection message #2/4 (ODM24)
  - 6.2.19 Object detection message #2/5 (ODM25)
  - 6.2.20 Object detection message #2/6 (ODM26)
  - 6.2.21 Object detection message #2/7 (ODM27)
  - 6.2.22 Object detection message #2/8 (ODM28)
  - 6.2.23 Object detection message #2/9 (ODM29)
  - 6.2.24 Object detection message #2/10 (ODM210)
  - 6.2.25 Object detection message #2/11 (ODM211)
  - 6.2.26 Object detection message #2/12 (ODM212)
  - 6.2.27 Object detection message #2/13 (ODM213)
  - 6.2.28 Object detection message #2/14 (ODM214)
  - 6.2.29 Object detection message #2/15 (ODM215)
  - 6.2.30 Object detection message #2/16 (ODM216)
  - 6.2.31 Object detection message #2/17 (ODM217)
  - 6.2.32 Object detection message #2/18 (ODM218)
  - 6.2.33 Object detection message #2/19 (ODM219)
  - 6.2.34 Object detection message #2/20 (ODM220)
  - 6.2.35 Object detection message #2/21 (ODM221)
- 7 Application
  - 7.1 General requirements
  - 7.2 Address assignment
  - 7.3 Address assignment method of a towing and towed vehicle
  - 7.4 Vehicle node capabilities
  - 7.5 Parameter attributes
- 8 AL – Application layer
  - 8.1 AL – Message PDU format
  - 8.2 AL – Message routing
  - 8.3 AL – Parameter specification
    - 8.3.1 AL – General
    - 8.3.2 AL – Parameter attribute ranges
- 9 PL – Presentation layer
- 10 AL – ODM requirements
  - 10.1 AL – Message latency
  - 10.2 AL – Object selection

- 10.2.1 AL – General
- 10.2.2 AL – On the side of the vehicle
- 10.2.3 AL – Behind the vehicle
- 10.2.4 AL – Further objects
- 10.3 AL – Error handling

**Annex A (informative) Object detection (OD) sensor states**

- A.1 States and transitions of the OD status sensor
- A.2 Prioritisation of the detected objects in the ODM

**Annex B (informative) Message flow**

**Page count: 133**