

E DIN 14700:2024-05 (E)

Erscheinungsdatum: 2024-04-05

Firefighting and fire protection - CAN interface for devices in emergency vehicles;
Text in English

Inhalt	Seite
Foreword	9
Introduction.....	10
1 Scope.....	12
2 Normative references	12
3 Terms and definitions.....	13
4 Symbols and abbreviations.....	18
5 Driving direction definitions	20
6 CAN interface requirements	20
6.1 General.....	20
6.2 Physical layer.....	20
6.3 Data link layer	21
6.4 Application layer	21
6.4.1 General requirements.....	21
6.4.2 Node-ID.....	22
6.4.3 Network management	23
6.4.4 SDO services.....	23
6.4.5 PDO services	23
6.4.6 ERR message services	23
7 Parameters and PDOs	26
7.1 General.....	26
7.2 CANopen communication parameters.....	26
7.3 Process data	27
7.3.1 General.....	27
7.3.2 UNSIGNED2 data type (0060 ₁₆).....	29
7.3.3 Current error list (6000 ₁₆)	30
7.3.4 FFU error information (6001 ₁₆)	37
7.3.5 TWU display command (6010 ₁₆).....	38
7.3.6 TWU text (6011 ₁₆).....	39
7.3.7 Vehicle statuses (6101 ₁₆).....	40
7.3.8 Vehicle engine speed actual value (6102 ₁₆)	42
7.3.9 WSU control 1 (6111 ₁₆)	42
7.3.10 WSU control 2 (6112 ₁₆)	64
7.3.11 WSU main lightning pattern (6113 ₁₆).....	80
7.3.12 WSU signal selection (6114 ₁₆).....	82
7.3.13 WSU set and actual values (6115 ₁₆)	83
7.3.14 WSU battery status control (6117 ₁₆).....	84
7.3.15 ASM control (6116 ₁₆)	86
7.3.16 TWU control (6121 ₁₆)	87
7.3.17 LMU control (6131 ₁₆)	88
7.3.18 LMU actual values (6132 ₁₆).....	98
7.3.19 PWU control (6141 ₁₆)	99
7.3.20 PWU set and actual values (6142 ₁₆).....	109
7.3.21 WCU control (6151 ₁₆)	113
7.3.22 WCU set and actual values (6152 ₁₆).....	119

7.3.23	FIU control (6161 ₁₆)	122
7.3.24	FIU set and actual values (6162 ₁₆)	125
7.3.25	PEU control (6171 ₁₆)	128
7.3.26	PEU actual values (6172 ₁₆)	131
7.3.27	PGU control (6181 ₁₆)	132
7.3.28	PGU set and actual values (6182 ₁₆)	137
7.3.29	BCU monitoring (6191 ₁₆)	142
7.3.30	BCU actual values (6192 ₁₆)	146
7.3.31	WU control (61A1 ₁₆)	148
7.3.32	WU set and actual values (61A2 ₁₆)	149
7.3.33	Reserved 2-bit (67F1 ₁₆)	150
7.3.34	Reserved byte (67F2 ₁₆)	150
7.4	PDOs	151
7.4.1	General PDO specifications	151
7.4.2	Host controller TPDs	151
7.4.3	Battery charger unit TPDs	163
7.4.4	Frequency inverter unit TPDs	165
7.4.5	Light mast unit TPDs	166
7.4.6	Portable water-pump unit TPDs	168
7.4.7	Powder extinguisher unit TPDs	170
7.4.8	Power generator unit TPDs	171
7.4.9	Traffic warning unit TPDs	174
7.4.10	Warning signal unit TPDs	175
7.4.11	Water cannon unit TPDs	178
7.4.12	Winch unit TPDs	180
	Bibliography	181

Figures

Figure 1	— Network architecture example, the IGU interface is standardized in DIN 14704	10
Figure 2	— Main driving direction	20
Figure 3	— Sub-fields of the additional information field of the device type parameter	27
Figure 4	— Structure of the data element	30
Figure 5	— Structure of the TWU display command data element	38

Tables

Table 1	— Pin-assignment of the 5-pin M12 connector	21
Table 2	— Pin-assignment of the 7-pin bayonet connector	21
Table 3	— Node-ID assignment	22
Table 4	— Transmit ERR communication parameter data object	23
Table 5	— Transmit ERR communication parameter data elements	24
Table 6	— Transmit ERR mapping parameter data object	24

Table 7 — Transmit ERR mapping parameter data elements	24
Table 8 — Receive ERR communication parameter data object.....	25
Table 9 — Receive ERR communication parameter data elements.....	25
Table 10 — Receive ERR mapping parameter data object	25
Table 11 — Receive ERR mapping parameter data elements	26
Table 12 — Mandatory and optional CANopen communication parameters.....	26
Table 13 — Implemented function value definitions.....	27
Table 14 — Definition of UNSIGNED2 values	28
Table 15 — Definition of UNSIGNED8 values	28
Table 16 — Definition of UNSIGNED16 values.....	28
Table 17 — Physical quantity definitions	29
Table 18 — UNSIGNED2 data object.....	29
Table 19 — UNSIGNED2 data element.....	30
Table 20 — HCU warning and failure codes	30
Table 21 — BCU warning and failure codes	31
Table 22 — FIU warning and failure codes.....	31
Table 23 — LMU warning and failure codes.....	32
Table 24 — PEU warning and failure codes.....	32
Table 25 — PGU warning and failure codes	32
Table 26 — PWU warning and failure codes.....	34
Table 27 — TWU warning and failure codes.....	34
Table 28 — WCU warning and failure codes	34
Table 29 — WSU warning and failure codes	35
Table 30 — WU warning and failure codes.....	36
Table 31 — Current error list data object.....	36
Table 32 — Current error list data elements.....	36
Table 33 — FFU error information data object.....	37
Table 34 — FFU error history data elements.....	37
Table 35 — Field values of the TWU display command.....	38

Table 36 — TWU display command data object	39
Table 37 — TWU display command data element	39
Table 38 — Additional coding definitions	39
Table 39 — TWU text data object	40
Table 40 — TWU display command data element	40
Table 41 — Vehicle statuses data object	40
Table 42 — Vehicle statuses data elements	41
Table 43 — Vehicle engine speed actual value data object	42
Table 44 — Vehicle engine speed actual valueeacial data element(s)	42
Table 45 — WSU control 1 data object.....	42
Table 46 — WSU contol 1 data elements.....	43
Table 47 — WSU control 2 data object.....	64
Table 48 — WSU contol 2 data elements.....	65
Table 49 — WSU main lightning pattern values	80
Table 50 — WSU main lightning pattern data object	81
Table 51 — WSU main lightning pattern data elements	81
Table 52 — WSU signal selection command value definitions.....	82
Table 53 — WSU signal selection command data object.....	83
Table 54 — WSU signal selection command data elements.....	83
Table 55 — WSU set and actual values data object.....	84
Table 56 — WSU set and actual values data elements.....	84
Table 57 — WSU battery control value definitions.....	84
Table 58 — WSU battery control data object.....	85
Table 59 — WSU battery control data elements.....	85
Table 60 — ASM control data object.....	86
Table 61 — ASM control data elements.....	86
Table 62 — TWU control data object.....	87
Table 63 — TWU control data elements.....	88
Table 64 — LMU control data object.....	88

Table 65 — LMU control data elements.....	89
Table 66 — LMU actual values data object	98
Table 67 — LMU actual values data elements	98
Table 68 — PWU control data object.....	99
Table 69 — PWU control data elements.....	99
Table 70 — PWU set and actual values data object.....	110
Table 71 — PWU set and actual values data elements.....	110
Table 72 — WCU control data object.....	113
Table 73 — WCU control data elements	113
Table 74 — WCU set and actual values data object.....	119
Table 75 — WCU set and actual values data elements.....	120
Table 76 — FIU control data object.....	122
Table 77 — FIU control data elements.....	123
Table 78 — FIU set and actual values data object	125
Table 79 — FIU set and actual values data elements.....	126
Table 80 — PEU control data object.....	128
Table 81 — PEU control data elements.....	128
Table 82 — PEU actual values data object	131
Table 83 — PEU actual values data elements	131
Table 84 — PGU control data object	132
Table 85 — PGU control data elements	132
Table 86 — PGU set and actual values data object.....	138
Table 87 — PGU set and actual values data elements	138
Table 88 — BCU monitoring data object	143
Table 89 — BCU monitoring data elements.....	143
Table 90 — BCU actual values data object	146
Table 91 — BCU actual values data elements	146
Table 92 — WU control data object.....	148
Table 93 — WU control data elements.....	148

Table 94 — WU set and actual values data object	149
Table 95 — WU set and actual values data elements	149
Table 96 — Reserved 2-bit data object	150
Table 97 — Reserved 2-bit data element	150
Table 98 — Reserved byte data object	150
Table 99 — Reserved byte data element	150
Table 100 — TPDO 1 and RPDO 1 mapping sets	151
Table 101 — TPDO 2 and RPDO 2 mapping sets	152
Table 102 — TPDO 3 and RPDO 3 mapping	153
Table 103 — TPDO 4 and RPDO 4 mapping	154
Table 104 — TPDO 5 and RPDO 5 mapping	155
Table 105 — TPDO 6 and RPDO 6 mapping	156
Table 106 — TPDO 7 and RPDO 7 mapping	156
Table 107 — TPDO 8 and RPDO 8 mapping	157
Table 108 — TPDO 9 and RPDO 9 mapping	158
Table 109 — TPDO 10 and RPDO 10 mapping	158
Table 110 — TPDO 11 and RPDO 11 mapping	159
Table 111 — TPDO 12 and RPDO 12 mapping	159
Table 112 — TPDO 13 and RPDO 13 mapping	160
Table 113 — TPDO 14 and RPDO 14 mapping	160
Table 114 — TPDO 15 and RPDO 15 mapping	161
Table 115 — TPDO 16 and RPDO 16 mapping	161
Table 116 — TPDO 17 and RPDO 17 mapping	163
Table 117 — TPDO 20/21/22/23/24 and RPDO 20/21/22/23/24	164
Table 118 — TPDO 25/26/27/28/29 and RPDO 25/26/27/28/29	164
Table 119 — TPDO 29/30/31/32 and RPDO 29/30/31/32	165
Table 120 — TPDO 33/34/35/36 and RPDO 33/34/35/36	166
Table 121 — TPDO 37/38 and RPDO 37/38 mapping	166
Table 122 — TPDO 39/40 and RPDO 39/40 mapping	168

Table 123 — TPDO 41/42 and RPDO 41/42 mapping	168
Table 124 — TPDO 43/44/45 and RPDO 43/44/45 mapping.....	168
Table 125 — TPDO 46/47/48 and RPDO 46/47/48 mapping.....	170
Table 126 — TPDO 49/50/51 and RPDO 49/50/51 mapping.....	170
Table 127 — TPDO 52 and RPDO 52 mapping.....	170
Table 128 — TPDO 53 and RPDO 53 mapping.....	171
Table 129 — TPDO 54/55 and RPDO 54/55 mapping	172
Table 130 — TPDO 56/57 and RPDO 56/57 mapping	172
Table 131 — TPDO 58/59 and RPDO 58/59 mapping	173
Table 132 — TPDO 60/61 and RPDO 60/61 mapping.....	173
Table 133 — TPDO 62/63 and RPDO 62/63 mapping.....	173
Table 134 — TPDO 64/65 and RPDO 64/65 mapping.....	174
Table 135 — TPDO 66/67 and RPDO 66/67 mapping.....	174
Table 136 — TPDO 68 and RPDO 68 mapping.....	174
Table 137 — TPDO 69/70/71/72/73/74 and RPDO 69/70/71/72/73/74 mapping	175
Table 138 — TPDO 75/76/77/78/79/80 and RPDO 75/76/77/78/79/80 mapping	177
Table 139 — TPDO 89/90/91/92/93/94 and RPDO 89/90/91/92/93/94 mapping	178
Table 140 — TPDO 81/82/83 and RPDO 81/82/83 mapping.....	179
Table 141 — TPDO 84/85/86 and RPDO 84/85/86 mapping.....	179
Table 142 — TPDO 87 and RPDO 87 mapping.....	180
Table 143 — TPDO 88 and RPDO 88 mapping.....	180