INTERNATIONAL STANDARD

ISO 16844-7

Second edition
2015-01-15

Road vehicles — Tachograph systems —

Part 7: Parameters

Véhicules routiers — Systèmes tachygraphes —

Partie 7: Paramètres

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

This second edition cancels and replaces the first edition (ISO 16844—7:2004), which has been technically revised.

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 16844 consists of the following parts, under the general title *Road vehicles — Tachograph systems*:

— *Part 1: Electrical connectors*

— *Part 2: Electrical interface with recording unit*

— *Part 3: Motion sensor interface*

— *Part 4: CAN interface*

— *Part 5: Secured CAN interface*

— *Part 6: Diagnostics*

— *Part 7: Parameters*

Introduction

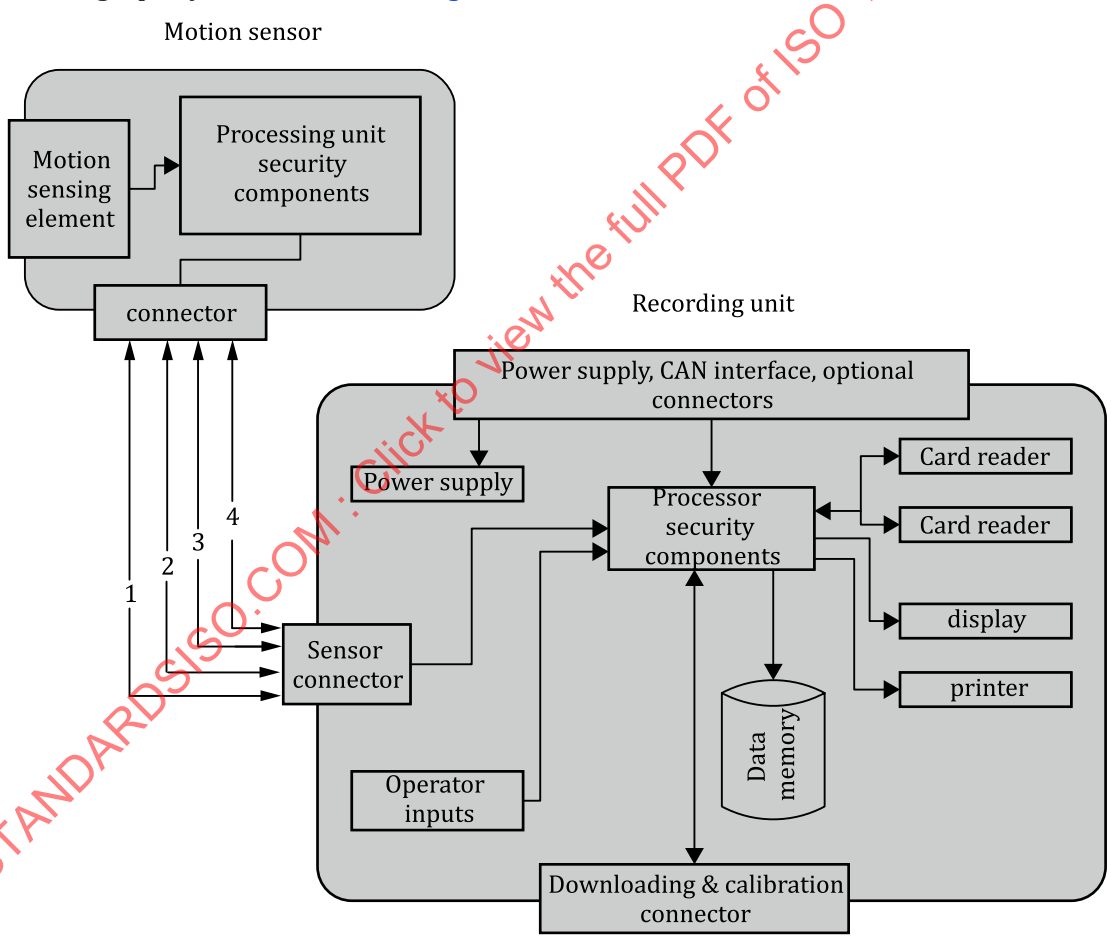
This International Standard supports and facilitates the communication between electronic control units and a tachograph. The tachograph is based upon the European Council Regulation (EC) No 561/2006[2] and (EEC) No 3821/85[3] as last amended.

The digital tachograph concept is based upon a RU storing data, related to the activities of the various drivers driving the vehicle, on which it is installed.

During the normal operational status of the RU, data stored in its memory are accessible to different entities (drivers, authorities, workshops, transport companies) in different ways (displayed on a screen, printed by a printing device, downloaded to an external device). Access to stored data is controlled by smart card inserted in the tachograph.

In order to prevent manipulation of the tachograph system, the speed signal sender (motion sensor) is provided with an encrypted data link.

A typical tachograph system is shown in Figure 1.



Key

1 positive supply
2 battery minus
3 speed signal, real time
4 data signal in/out

Figure 1 — Typical tachograph system

Road vehicles — Tachograph systems —

Part 7: Parameters

1 Scope

This part of ISO 16844 specifies the parameters used in the interchange of digital information between a road vehicle's tachograph system and vehicle units or a diagnostic tester, or within the tachograph system itself. The parameters are applicable for normal communication and/or diagnostic services. Parameters included in this part of ISO 16844 rely in particular on regulations stated in References [2] and [3].

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14229-1, *Road vehicles — Unified diagnostic services (UDS) — Part 1: Specification and requirements*

ISO 16844-4, *Road vehicles — Tachograph systems —Part 4: CAN interface*

ISO 16844-6, *Road vehicles — Tachograph systems —Part 6: Diagnostics*

ISO/IEC 8859 (all parts), *Information technology — 8-bit single-byte coded graphic character sets*

3 Symbols and abbreviated terms

CAN controller area network

Cvt convention

DID data identifier

DTC diagnostic trouble code

ECU electronic control unit

M mandatory

n/a not applicable

R accessible in reading using diagnostic services

RID routine identifier

RMS registering member state

R/W accessible in reading and writing, using diagnostic services

SJW resynchronisation jump width

t_q time quantum

U user option

UTC universal time coordinated

VIN vehicle identification number

VRN vehicle registration number

4 Identifier specification for diagnostic services

4.1 Data identifiers (DID)

The DIDs used in the diagnostic services ReadDataByIdentifier WriteDatatByIdentifier and InputOutputControlByIdentifier specified in ISO 16844-6 shall be supported in accordance with Table 1. The DIDs shall be implemented as specified in Clause 5.

In general,

— assignment of identifiers shall comply with the definitions given in ISO 14229-1,

— undefined identifiers in the range of tachograph IDs from $F900_{16}$ to $F9FF_{16}$ shall be reserved for future use, and

— all identifiers in the range of $F180_{16}$ to $F1A0_{16}$ shall be implemented as specified in ISO 14229-1 if not specified in Clause 5.

Table 1 — Data identifier

Data Identifier name	Value [Hex]	Cvt	Simplified mnemonic	Access	Specified in section
VehicleManufacturerSparePartNumber	F187	U	VMSPN	R/W	—
VehicleManufacturerECUSoftwareNumber	F188	U	VMECUSWN	R/W	—
VehicleManufacturerECUSoftwareVersionNumber	F189	U	VMECUSWVN	R/W	—
SystemSupplierIdentifier	F18A	M	SSID	R	—
ECUManufacturingDate	F18B	M	ECUMD	R	—
ECUSerialNumber	F18C	M	ECUSN	R	—
VehicleIdentificationNumber	F190	M	VIN	R/W	5.4.2
VehicleManufacturerECUHardwareNumber	F191	M	VMECUHWN	R/W	—
SystemSupplierECUHardwareNumber	F192	M	SSECUHWN	R	—
SystemSupplierECUHardwareVersionNumber	F193	M	SSECUHWVN	R	—
SystemSupplierECUSoftwareNumber	F194	M	SSECUSWN	R	—
SystemSupplierECUSoftwareVersionNumber	F195	M	SSECUSWVN	R	—
ExhaustRegulationOrTypeApprovalNumber	F196	M	EROTAN	R	—
SystemNameOrEngineType	F197	U	SNOET	R/W	—
RepairShopCodeOrTesterSerialNumber	F198	U	RSCOTSN	R/W	—
ProgrammingDate	F199	U	PD	R/W	—
CalibrationRepairShopCodeOrCalibrationEquipementSerialNumber	F19A	M	CRSCOCESN	R/W	—
CalibrationDate	F19B	M	CD	R/W	—
CalibrationEquipmentSWNumber	F19C	M	CESWN	R/W	—
ECUInstallationDate	F19D	M	EID	R/W	—

Table 1 *(continued)*

Data Identifier name	Value [Hex]	Cvt	Simplified mnemonic	Access	Specified in section
ODXFileIdentifier	F19E	U	OFID	R/W	—
RemoteSessionDiagnsosticSessionType	F900	M	RSDST	R/W	
TachographVehicleSpeed	F902	M	TVS	R	5.4.12
Driver1WorkingState	F903	M	D1WS	R	5.4.13
Driver2WorkingState	F904	M	D2WS	R	5.4.14
DriveRecognize	F905	M	DR	R	5.4.15
Driver1TimeRelatedStates	F906	M	D1TRS	R	5.4.16
Driver2TimeRelatedStates	F909	M	D2TRS	R	5.4.17
DriverCardDriver1	F907	M	DCD1	R	5.4.18
DriverCardDriver2	F90A	M	DCD2	R	5.4.19
OverSpeed	F908	M	OS	R	5.4.20
TimeDate	F90B	M	TD	R/W	5.4.21
ResetHeartbeatMessage	F90C	M	RHM	R/W	5.4.22
AdjustLocalMinuteOffset	F90D	M	ALMO	R/W	5.4.23
AdjustLocalHourOffset	F90E	M	ALHO	R/W	5.4.24
PriorityLevelOfTCO1Message	F90F	M	PLOTM	R/W	5.4.25
HighResolutionTotalVehicleDistance	F912	M	HRTVD	R/W	5.4.26
HighResolutionTripDistance	F913	M	HRTD	R/W	5.4.27
ServiceComponentIdentification	F914	M	SCI	R	5.4.28
ServiceDelayCalendarTimeBased	F915	M	SDCTB	R	5.4.29
Driver1Identification	F916	M	D1I	R	5.4.30
Driver2Identification	F917	M	D2I	R	5.4.31
KFactor	F918	M	KF	R/W	5.4.32
SpeedMeasurementRange	F919	M	SMR	R	5.4.33
NumberOfTeethOnPhonicWheel	F91A	U	NOTOPW	R/W	5.4.34
TachographOutputShaftSpeed	F91B	M	TOSS	R	5.4.35
LFactorTyreCircumference	F91C	M	LFTC	R/W	5.4.36
WVehicleCharacteristicFactor	F91D	M	WVCF	R/W	5.4.37
PulsesPerRevolutionOfOutputShaft	F91E	M	PPROOS	R/W	5.4.38
TransmissionRepetitionRateOfTCO1Message	F920	M	TRROTM	R/W	5.4.39
TyreSize	F921	M	TS	R/W	5.4.40
NextCalibrationDate	F922	M	NCD	R/W	5.4.41
Driver1ContinuousDrivingTime	F923	M	D1CDT	R	5.4.42
Driver2ContinuousDrivingTime	F924	M	D2CDT	R	5.4.43
Driver1CumulativeBreakTime	F925	M	D1CBT	R	5.4.44
Driver2CumulativeBreakTime	F926	M	D2CBT	R	5.4.45
Driver1CurrentDurationOfSelectedActivity	F927	M	D1CDOSA	R	5.4.46
Driver2CurrentDurationOfSelectedActivity	F928	M	D2CDOSA	R	5.4.47
SpeedAuthorised	F92C	M	SA	R/W	5.4.48
TachographCardSlot1	F930	M	TCS1	R	5.4.49
TachographCardSlot2	F933	M	TCS2	R	5.4.50
Driver1Name	F931	M	D1N	R	5.4.51

Table 1 *(continued)*

Data Identifier name	Value [Hex]	Cvt	Simplified mnemonic	Access	Specified in section
Driver2Name	F932	M	D2N	R	5.4.52
OutOfScopeCondition	F936	M	OOSC	R	5.4.53
ModeOfOperation	F937	M	MOO	R	5.4.54
Driver1CumulatedDrivingTimePreviousAndCurrentWeek	F938	M	D1CDTPACW	R	5.4.55
Driver2CumulatedDrivingTimePreviousAndCurrentWeek	F939	M	D2CDTPACW	R	5.4.56
RealTimeSpeedPulses	F940	M	RTSP	R/W	5.4.57
EngineSpeed	F95A	U	ES	R	5.4.58
CalibrationInputOutput	F960	M	CIO	R	5.4.59
SynchronizationJumpWidth	F979	M	SJW	R/W	5.4.60
SamplePoint	F97A	M	SP	R/W	5.4.61
TimeOutMessageErrorDelay	F97B	M	TOMED	R/W	5.4.62
ErrorManagementInitialisationInhibition	F97C	M	EMII	R/W	5.4.63
RegisteringMemberState	F97D	M	RMS	R/W	5.4.64
VehicleRegistrationNumber	F97E	M	VRN	R/W	5.4.65
VehicleRegistrationDate	F97F	M	VRD	R/W	5.4.66
Driver1PreferredLanguage	F981	U	D1PL	R/W	5.4.67
Driver2PreferredLanguage	F982	U	D2PL	R/W	5.4.68
DriverCard1DownloadTimePeriod	F990	U	DC1DTP	R	5.4.69
DriverCard2DownloadTimePeriod	F983	U	DC2DTP	R	5.4.70
TachographDownloadTimePeriod	F991	U	TDTP	R	5.4.71
DriversHoursRulesPreWarningTimeDelay	F992	U	DHRPWTD	R/W	5.4.72
DriverCardExpiryWarningTimeDelay	F993	U	DCEWTD	R/W	5.4.73
NextDriverCard1DownloadWarningTimeDelay	F994	U	NDC1DWTD	R/W	5.4.74
NextDriverCard2DownloadWarningTimeDelay	F984	U	NDC2DWTD	R/W	5.4.75
NextTachographDownloadWarningTimeDelay	F995	U	NTDWTD	R/W	5.4.76
NextCalibrationWarningTimeDelay	F996	U	NCWTD	R/W	5.4.77
Driver1EndOfLastDailyRestPeriod	F997	U	D1EOLDRP	R	5.4.78
Driver2EndOfLastDailyRestPeriod	F985	U	D2EOLDRP	R	5.4.79
Driver1EndOfLastWeeklyRestPeriod	F998	U	D1EOLWRP	R	5.4.80
Driver2EndOfLastWeeklyRestPeriod	F986	U	D2EOLWRP	R	5.4.81
Driver1EndOfSecondLastWeeklyRestPeriod	F999	U	D1EOSLWRP	R	5.4.82
Driver2EndOfSecondLastWeeklyRestPeriod	F987	U	D2EOSLWRP	R	5.4.83
Driver1CurrentDailyDrivingTime	F99A	U	D1CDDT	R	5.4.84
Driver2CurrentDailyDrivingTime	F988	U	D2CDDT	R	5.4.85
Driver1CurrentWeeklyDrivingTime	F99B	U	D1CWDT	R	5.4.86
Driver2CurrentWeeklyDrivingTime	F989	U	D2CWDT	R	5.4.87
Driver1TimeLeftUntilNewDailyRestPeriod	F99C	U	D1TLUNDRP	R	5.4.88
Driver2TimeLeftUntilNewDailyRestPeriod	F98A	U	D2TLUNDRP	R	5.4.89
Driver1CardExpiryDate	F99D	U	D1CED	R	5.4.90
Driver2CardExpiryDate	F98B	U	D2CED	R	5.4.91
Driver1CardNextMandatoryDownloadDate	F99E	U	D1CNMDD	R	5.4.92
Driver2CardNextMandatoryDownloadDate	F98C	U	D2CNMDD	R	5.4.93

Table 1 *(continued)*

Data Identifier name	Value [Hex]	Cvt	Simplified mnemonic	Access	Specified in section
TachographNextMandatoryDownloadDate	F99F	U	TNMDD	R	5.4.94
Driver1TimeLeftUntilNewWeeklyRestPeriod	F9A1	U	D1TLUNWRP	R	5.4.95
Driver2TimeLeftUntilNewWeeklyRestPeriod	F98D	U	D2TLUNWRP	R	5.4.96
Driver1NumberOfTimes9hDailyDrivingTimesExceeded	F9A0	U	D1NOT9HDDTE	R	5.4.97
Driver2NumberOfTimes9hDailyDrivingTimesExceeced	F98E	U	D2NOT9HDDTE	R	5.4.98
Driver1CumulativeUninterruptedRestTime	F9A2	U	D1CURT	R	5.4.99
Driver2CumulativeUninterruptedRestTime	F98F	U	D2CURT	R	5.4.100
Driver1MinimumDailyRest	F9A3	U	D1MDR	R	5.4.101
Driver2MinimumDailyRest	F9A7	U	D2MDR	R	5.4.102
Driver1MinimumWeeklyRest	F9A4	U	D1MWR	R	5.4.103
Driver2MinimumWeeklyRest	F9A8	U	D2MWR	R	5.4.104
Driver1MaximumDailyPeriod	F9A5	U	D1MDP	R	5.4.105
Driver2MaximumDailyPeriod	F9A9	U	D2MDP	R	5.4.106
Driver1MaximumDailyDrivingTime	F9A6	U	D1MDDT	R	5.4.107
Driver2MaximumDailyDrivingTime	F9AA	U	D2MDDT	R	5.4.108
Driver1NumberOfUsedReducedDailyRestPeriods	F9AB	U	D1NOURDRP	R	5.4.109
Driver2NumberOfUsedReducedDailyRestPeriods	F9AC	U	D2NOURDRP	R	5.4.110
Driver1RemainingCurrentDrivingTime	F9AD	U	D1RCDT	R	5.4.111
Driver2RemainingCurrentDrivingTime	F9AE	U	D2RCDT	R	5.4.112
Driver1RemainingDrivingTimeOnCurrentShift	F9AF	U	D1RDTOCS	R	5.4.113
Driver2RemainingDrivingTimeOnCurrentShift	F9B0	U	D2RDTOCS	R	5.4.114
Driver1RemainingDrivingTimeOfCurrentWeek	F9B1	U	D1RDTOCW	R	5.4.115
Driver2RemainingDrivingTimeOfCurrentWeek	F9B2	U	D2RDTOCW	R	5.4.116
Driver1Remaining2WeeksDrivingTime	F9B3	U	D1R2WDT	R	5.4.117
Driver2Remaining2WeeksDrivingTime	F9B4	U	D2R2WDT	R	5.4.118
Driver1TimeLeftUntilNextDrivingPeriod	F9B5	U	D1TLUNDP	R	5.4.119
Driver2TimeLeftUntilNextDrivingPeriod	F9B6	U	D2TLUNDP	R	5.4.120
Driver1DurationOfNextDrivingPeriod	F9B7	U	D1DONDP	R	5.4.121
Driver2DurationOfNextDrivingPeriod	F9B8	U	D2DONDP	R	5.4.122
Driver1DurationOfNextBreakRest	F9B9	U	D1DONBR	R	5.4.123
Driver2DurationOfNextBreakRest	F9BF	U	D2DONBR	R	5.4.124
Driver1RemainingTimeOfCurrentBreakRest	F9C0	U	D1RTOCBR	R	5.4.125
Driver2RemainingTimeOfCurrentBreakRest	F9C1	U	D2RTOCBR	R	5.4.126
Driver1RemainingTimeUntilNextBreakOrRest	F9C2	U	D1RTUNBOR	R	5.4.127
Driver2RemainingTimeUntilNextBreakOrRest	F9C3	U	D2RTUNBOR	R	5.4.128
Driver1OpenCompensationInTheLastWeek	F9C7	U	D1OCITLW	R	5.4.129
Driver2OpenCompensationInTheLastWeek	F9C8	U	D2OCITLW	R	5.4.130
Driver1OpenCompensationInWeekBeforeLast	F9C9	U	D1OCIWBL	R	5.4.131
Driver2OpenCompensationInWeekBeforeLast	F9CA	U	D2OCIWBL	R	5.4.132
Driver1OpenCompensationIn2ndWeekBeforeLast	F9CB	U	D1OCI2WBL	R	5.4.133
Driver2OpenCompensationIn2ndWeekBeforeLast	F9CC	U	D2OCI2WBL	R	5.4.134
Driver1AdditionalInformation	F9CD	V	D1AI	R	5.4.135

Table 1 *(continued)*

Data Identifier name	Value [Hex]	Cvt	Simplified mnemonic	Access	Specified in section
Driver2AdditionalInformation	F9CE	V	D2AI	R	5.4.136
StandardRevision	F9CF	M	SD	R	5.4.1

4.2 Routine identifiers (RID)

The RIDs used in the diagnostic services RoutineControlByIdentifier specified in ISO 16844-6 shall be in accordance with Table 2.

Table 2 — Routine identifiers

Routine identifier	Value	Cvt	Simplified mnemonic
MotionSensorVehicleUnitPairing	$014F_{16}$	U	MSVUP
DisplayTest	0150_{16}	U	DT
LCDNegativeModeTest	0151_{16}	U	LNMT
PrinterTest	0152_{16}	U	PT
HardwareTest	0153_{16}	U	HT
CarderReaderTest	0154_{16}	U	CRT
Reserved by document	0155_{16}	U	RBD
ButtonTestLoop	0156_{16}	U	BTL
CodeTest	0158_{16}	U	CT
RemoteTachographCardDataTransfer	0180_{16}	U	RTCDT

5 Parameters and values

5.1 General

The parameters specified in this section shall be implemented as specified in 5.4 with the general definitions given in 5.2.

All parameters that are referenced in Table 1 or Table 2 shall be supported by diagnostic communication as specified in ISO 16844-6. Parameters supported for normal communication are referenced in ISO 16844-4.

5.2 Transmitted signal ranges

For the ranges used to determine the validity of a transmitted signal, see Table 3. For the ranges used to denote the state of a discrete parameter, see Table 4. For the ranges used to denote the state of a control mode command, see Table 5.

— The values of the *error indicator* range shall be used to immediately indicate that valid parameter data are currently not available due to error in the sending component (e.g. sensor, subsystem, or module).

— The values in the *not available* range shall be used to transmit a message which contains a parameter that is not available or not supported in the module.

— The values in the *don't care/take no action* range shall be used to transmit a command message and identify those parameters where no response is expected from the receiving device.

— The values in the range *Parameter specific indicator* may be used for individual indicators for a parameter. In this case, it is part of the parameter specification.

If a component failure prevents the transmission of valid data of a parameter, the error indicator as specified in Table 3 and Table 4 shall be used instead of the parameter data. However, the error indicator shall not be used if the measured or calculated data have yielded a value but exceed the specified parameter range. Instead, the data shall be transmitted using the appropriate minimum or maximum parameter value.

When a specified parameter of this part of ISO 16844 is transmitted using diagnostic services, padding bits shall be added to increase its length to the next integer number of bytes in the case where its length is not an integer number of bytes. This padding shall be made by setting the relevant most significant bits to zero.

EXAMPLE Driver1WorkingStates, DID $F003_{16}$, 3-bit length: when this parameter value is 010_2, it is transmitted as one byte of the value of 02_{16}.

Table 3 — Transmitted signal ranges

Range name	1 byte	2 byte	4 bytes	ASCII
Valid signal	0_{10} to 250_{10} 0_{16} to FA_{16}	0_{10} to 64255_{10} 0_{16} to $FAFF_{16}$	0_{10} to 4211081215_{10} 0_{16} to $FAFFFFFF_{16}$	1_{10} to 254_{10} 0_{16} to FE_{16}
Parameter specific indicator	251 FB_{16}	64256_{10} to 64511_{10} $FB00_{16}$ to $FBFF_{16}$	4211081216_{10} to 4227858431_{10} $FB00_{16}$ to $FDFF_{16}$	None
Reserved for future indicators	252_{10} to 253_{10} FC_{16} to FD_{16}	64512_{10} to 65023_{10} $FC00_{16}$ to $FDFF_{16}$	4211081216_{10} to 4261412863_{10} $FC000000_{16}$ to $FDFFFFFF_{16}$	None
Error indicator	254_{10} FE_{16}	65024_{10} to 65279_{10} $FE00_{16}$ to $FEFF_{16}$	4261412864_{10} to 4278190079_{10} $FE000000_{16}$ to $FEFFFFFF_{16}$	0
Not available or not requested	255_{10} FF_{16}	65280_{10} to 65535_{10} $FF00_{16}$ to $FFFF_{16}$	4278190080_{10} to 4294967294_{10} $FF000000_{16}$ to $FFFFFFFF_{16}$	255_{10} FF_{16}

Table 4 — Transmitted values for discrete parameters (measured)

Range name	Transmitted value
Disabled (off, passive, insufficient)	00_2
Enabled (on, active, sufficient)	01_2
Error indicator	10_2
Not available or not installed	11_2

Table 5 — Transmitted values for control requests (status)

Range name	Transmitted value
Command to disable function (turn off, etc.)	00_2
Command to enable function (turn on, etc.)	01_2
Reserved	10_2
Don't care/take no action (leave function as it is)	11_2

The data type can be either status or measured.

— Status specifies the present state of a multi-state parameter or function as a result of action taken by the transmitting node. This action is the result of a calculation which uses local and/or network measured and/or status information.

— Measured data convey the current value of a parameter as measured or observed by the transmitting node to determine the condition of the specified parameter.

5.3 Date and time parameter specifications

5.3.1 General

The parameters specified in this section are used in several other parameters or parameter groups.

5.3.2 Seconds

This parameter shall indicate the component "seconds" of the current time of day. This should be reported as the seconds of the current time at UTC; however, it may be reported as the component seconds of the current time at a local time zone. The local hour/minute offset parameters are used to indicate if the time of day is the current UTC time or a local time zone time. The parameter shall be implemented as specified in Table 6.

Table 6 — Specification of parameter seconds

Attribute	Value
Data length	1 byte
Resolution	0,25 s/bit
Offset	0 s
Operating range	0 s to 59,75 s
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

5.3.3 Minutes

This parameter shall indicate the component "minutes" of the current time of day. This should be reported as the minutes of the current time at UTC; however, it may be reported as the component minutes of the current time at a local time zone. The local hour/minute offset parameters are used to indicate if the time of day is the current UTC time or a local time zone time. The parameter shall be implemented as specified in Table 7.

Table 7 — Specification of parameter minutes

Attribute	Value
Data length	1 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 59 min
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

5.3.4 Hours

This parameter shall indicate the component "hour" of the current time of day. This should be reported as the hours of the current time at UTC; however, it may be reported as the component hours of the current time at a local time zone. The local hour/minute offset parameters are used to indicate if the

time of day is the current UTC time or a local time zone time. The parameter shall be implemented as specified in Table 8.

Table 8 — Specification of parameter hours

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0 h
Operating range	0 h to 23 h
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

5.3.5 Day

This parameter shall indicate the component "day" of the current time of day. This should be reported as the day of the current time at UTC; however, it may be reported as the component day of the current time at a local time zone. The local hour/minute offset parameters are used to indicate if the time of day is the current UTC time or a local time zone time. The parameter shall be implemented as specified in Table 9.

Table 9 — Specification of parameter day

Attribute	Value
Data length	1 byte
Resolution	0,25 d/bit
Offset	0 d
Operating range	0,25 d to 31,75 d
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

NOTE 1 A value of 0 for the day is null. The values [1, 2, 3, 4] indicate the first day of a month, the values [5, 6, 7, 8] indicate the second day of the month, etc.

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

5.3.6 Month

This parameter shall indicate the component "month" of the current time of day. This should be reported as the month of the current time at UTC; however, it may be reported as the component month of the current time at a local time zone. The local hour/minute offset parameters are used to indicate if the time of day is the current UTC time or a local time zone time. The parameter shall be implemented as specified in Table 10.

Table 10 — Specification of parameter month

Attribute	Value
Data length	1 byte
Resolution	1 month/bit
Offset	0 month
Operating range	1 month to 12 months
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

NOTE A value of 0 is null. A value of 1 identifies January, 2 identifies February, etc.

5.3.7 Year

This parameter shall indicate the component "year" of the current time of day. This should be reported as the year of the current time at UTC; however, it may be reported as the component year of the current time at a local time zone. The local hour/minute offset parameters are used to indicate if the time of day is the current UTC time or a local time zone time. The parameter shall be implemented as specified in Table 11.

Table 11 — Specification of parameter year

Attribute	Value
Data length	1 byte
Resolution	1 year/bit
Offset	1985 year
Operating range	1985 year to 2235 year
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

NOTE A value of 0 identifies year 1985, 1 identifies year 1986, etc.

5.3.8 Local minute offset

This parameter shall indicate the component "minute" of the offset between the UTC time and date and a local time zone time and date, and is defined as the number of minutes to add to UTC time and date to convert into the time and date of local time zone.

— The local offset is a positive value for time zones east of the prime meridian to the International Date Line.

— The local offset is a negative value for time zones west of the prime meridian to the International Date Line.

The local minute offset is only applicable when the time and date parameters are reported as UTC time and date. The parameter shall be implemented as specified in Table 12.

Table 12 — Specification of parameter local minute offset

Attribute	Value
Data length	1 byte
Resolution	1 min/bit
Offset	–125 min
Operating range	–59 min to 59 min
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

NOTE 1 For the recording unit, it represents an offset from UTC set by the driver.

NOTE 2 The valid range is further limited by legal requirements.

5.3.9 Local hour offset

This parameter shall indicate the component "hour" of the offset between the UTC time and date and a local time zone time and date, and is defined as the number of hours to add to UTC time and date to convert into the time and date of local time zone.

— The local offset is a positive value for time zones east of the prime meridian to the International Date Line.

— The local offset is a negative value for time zones west of the prime meridian to the International Date Line.

The local hour offset is only applicable when the time and date parameters are reported as UTC time and date. The parameter shall be implemented as specified in Table 13.

Table 13 — Specification of parameter local hour offset

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	–125 h
Operating range	–23 h to 23 h
Type	Measured
DID	n/a, used as part of other DIDs
Access	—

NOTE For the recording unit, it represents an offset from UTC set by the driver.

5.3.10 Time and date parameter group

The parameter group is referenced in other parameter specifications and shall be implemented as specified in Table 14.

Table 14 — Content specification of parameter group time and date

Byte pos	Bit pos	Parameter	Reference
1		Seconds	5.3.2
2		Minutes	5.3.3
3		Hours	5.3.4
4		Day	5.3.5
5		Month	5.3.6
6		Year	5.3.7
7		Local minute offset	5.3.8
8		Local hour offset	5.3.9

5.4 Parameter specifications

5.4.1 Standard revision

This parameter shall indicate the version of this International Standard being supported by the RU. The parameter shall be implemented as specified in Table 15. If this parameter is not present, the implied values shall be 1 (first version) for all parts of the standard.

Table 15 — Specification of parameter standard revision

Attribute	Value
Data length	7 bytes
Resolution	1/bit
Offset	0
Operating range	Each byte is mapped to one part of the standard: byte 1 — ISO 16844-1 byte 2 — ISO 16844-2, etc. with these values assigned: 1 — 1st revision 2 — 2nd revision Other values are reserved by document.
Type	Measured
DID	$F9CF_{16}$
Access	R

5.4.2 VIN — VehicleIdentificationNumber

This parameter shall indicate the vehicle identification number (VIN) as assigned by the vehicle manufacturer. The parameter shall be implemented as specified in Table 16.

Table 16 — Specification of parameter VIN

Attribute	Value
Data length	17 characters
Resolution	ASCII
Offset	—
Operating range	ASCII
Type	Measured
DID	$F190_{16}$
Access	R/W

5.4.3 Trip group 1

This parameter shall command a request to reset trip distance. The parameter shall be implemented as specified in Table 17.

Table 17 — Specification of parameter trip group 1

Attribute	Value
Data length	2 bits
Operating range	002 — take no action 012 — reset
Type	Status
DID	n/a

5.4.4 System event

This parameter shall command a request to drive a tachograph visual warning signal to the driver and indicates an occurred tachograph event. Events are implementation specific. The parameter shall be implemented as specified in Table 18.

Table 18 — Specification of parameter system event

Attribute	Value
Data length	2 bits
Operating range	002 — no tachograph event 012 — tachograph event
Type	Status
DID	n/a

5.4.5 Handling information

This parameter shall indicate that handling information is present. The parameter shall be implemented as specified in Table 19.

Table 19 — Specification of parameter handling information

Attribute	Value
Data length	2 bits
Operating range	002 — no handling information 012 — handling information
Type	Status
DID	n/a

5.4.6 Tachograph performance

This parameter shall command a request to indicate that the tachograph is performing the auto test. The parameter shall be implemented as specified in Table 20.

Table 20 — Specification of parameter tachograph performance

Attribute	Value
Data length	2 bits
Operating range	002 — normal performance 012 — performance analysis
Type	Status
DID	n/a

5.4.7 Direction indicator

This parameter shall indicate the direction of the vehicle motion (if any). The parameter shall be implemented as specified in Table 21.

Table 21 — Specification of parameter direction indicator

Attribute	Value
Data length	2 bits
Operating range	002 — forward 012 — reverse
Type	Measured
DID	n/a

5.4.8 Requested illumination percentage

This parameter shall indicate the illumination percentage of display and buttons. The parameter shall be implemented as specified in Table 22.

Table 22 — Specification of parameter requested illumination percentage

Attribute	Value
Data length	1 byte
Resolution	0,4 % bit
Offset	0 %
Operating range	0 % to 100 %
Type	Status
DID	n/a

5.4.9 Switch backlight illumination brightness per cent

This parameter shall indicate the switch backlight brightness level for all operator control switches. This is separate from the cab display illumination brightness per cent parameter. The parameter shall be implemented as specified in Table 23.

Table 23 — Specification of switch backlight illumination brightness per cent

Attribute	Value
Data length	1 byte
Resolution	0,4 % bit
Offset	0 %
Operating range	0 % to 100 %
Type	Status
DID	n/a

5.4.10 Switch indication illumination brightness per cent

This parameter shall indicate the switch indication illumination brightness level for all operator control switches. This is separate from the cab display illumination brightness per cent parameter. The parameter shall be implemented as specified in Table 24.

Table 24 — Specification of parameter switch indication illumination brightness per cent

Attribute	Value
Data length	1 byte
Resolution	0,4 % bit
Offset	0 %
Operating range	0 % to 100 %
Type	Status
DID	n/a

5.4.11 RSDST — RemoteSessionDiagnosticSessionType

This parameter shall indicate the value of the DiagnosticSessionType for the RemoteSession. The parameter shall be implemented as specified in Table 25. The parameter shall have a value in the vehicleManufacturerSpecific or systemSupplierSpecific range according to ISO 14229-1.

Table 25 — Specification of parameter RemoteSessionDiagnosticSessionType

Attribute	Value
Data length	1 byte
Resolution	1/bit
Offset	0
Operating range	4016 to 7E16
Type	Measured
DID	$F900_{16}$
Access	R/W

5.4.12 TVS — TachographVehicleSpeed

This parameter shall indicate the actual speed of the vehicle calculated by the tachograph. The parameter shall be implemented as specified in Table 26.

Table 26 — Specification of parameter TachographVehicleSpeed

Attribute	Value
Data length	2 bytes
Resolution	1/256 km/h/bit
Offset	0 km/h
Operating range	0 km/h to 250,996 km/h
Type	Measured
DID	$F902_{16}$
Access	R

5.4.13 D1WS — Driver1WorkingState

The parameters shall indicate the state of work of driver 1, i.e. activity currently selected on the recording unit for the driver. The parameters shall be implemented as specified in Table 27.

Table 27 — Specification of parameter Driver1WorkingState

Attribute	Value
Data length	3 bits
Operating range	0002 — break/rest 0012 — availability 0102 — work 0112 — driving 1002 — reserved 1012 — reserved
Type	Measured
DID	$F903_{16}$
Access	R

5.4.14 D2WS — Driver2WorkingState

The parameters shall indicate the state of work of driver 2, i.e. activity currently selected on the recording unit for the co-driver. The parameters shall be implemented as specified in Table 28.

Table 28 — Specification of parameter Driver2WorkingState

Attribute	Value
Data length	3 bits
Operating range	0002 — break/rest 0012 — availability 0102 — work 0112 — driving 1002 — reserved 1012 — reserved
Type	Measured
DID	$F904_{16}$
Access	R

5.4.15 DR — DriveRecognize

This parameter shall indicate whether or not motion of the vehicle is detected. Vehicle motion shall be indicated when more than 1 pulse/s (imp/s) is detected by the recording unit from the motion sensor for at least 5 s. The parameter shall be implemented as specified in Table 29.

Table 29 — Specification of parameter DriveRecognize

Attribute	Value
Data length	2 bits
Operating range	002 — vehicle motion not detected 012 — vehicle motion detected
Type	Measured
DID	$F905_{16}$
Access	R

5.4.16 D1TRS — Driver1TimeRelatedStates

This parameter shall be used to indicate if driver 1 approaches/exceeds working time limits or other limits. Only the values 0000_2, 0001_2, and 0010_2 are required (mandatory). The other values are optional warnings. If two or more pre-warnings/warnings are simultaneously active, only the pre-warning/warning corresponding to the lowest value shall be indicated. (Nevertheless, an actual warning should always have a higher priority than a pre-warning.). The parameter shall be implemented as specified in Table 30.

Table 30 — Specification of parameter Driver1TimeRelatedStates

Attribute	Value
Data length	4 bits
Operating range	00002 — no time-related warning detected 00012 — continuous driving time pre-warning active (15 min before 4h30) 00102 — continuous driving time warning active (4h30 exceeded) 00112 — daily driving time pre-warning active (daily driving time above 9 h or above maximum allowed daily driving time) 01002 — daily driving time warning active (daily driving time above 9 h or above maximum allowed daily driving time) 01012 — daily/weekly rest pre-warning active 01102 — daily/weekly rest warning active 01112 — weekly driving time pre-warning active 10002 — weekly driving time warning active 10012 — 2 weeks driving time pre-warning active 10102 — 2 weeks driving time warning active 10112 — driver 1 card expiry warning active 11002 — next mandatory driver 1 card download warning active 11012 — other
Type	Measured
DID	$F906_{16}$
Access	R

5.4.17 D2TRS — Driver2TimeRelatedStates

This parameter shall indicate if driver 2 (co-driver) approaches/exceeds working time limits, (or other limits). Only the value 0000 is required (mandatory). The other values are optional warnings. The parameter shall be implemented as specified in Table 31.

Table 31 — Specification of parameter Driver2TimeRelatedStates

Attribute	Value
Data length	4 bits
Operating range	00002 — no time-related warning detected 00012 to 01002 — reserved 01012 — daily/weekly rest pre-warning active 01102 — daily/weekly rest warning active 01112 to 10102 — reserved 10112 — driver 2 card expiry warning active 11002 — next mandatory driver 2 card download warning active 11012 — other
Type	Measured
DID	$F909_{16}$
Access	R

5.4.18 DCD1 — DriverCardDriver1

This parameter shall indicate the presence of the driver card of driver 1, i.e. that the card is placed in the driver slot of the recording unit. If another card is inserted (workshop, control or company card), the parameter driver card, driver 1, is equal to 00_2 (driver card not present). The parameter shall be implemented as specified in Table 32.

Table 32 — Specification of parameter DriverCardDriver1

Attribute	Value
Data length	2 bits
Operating range	002 — driver card not present 012 — driver card present
Type	Measured
DID	$F907_{16}$
Access	R

5.4.19 DCD2 — DriverCardDriver2

This parameter shall indicate the presence of the driver card of driver 2, i.e. that the card is placed in the co-driver slot of the recording unit. If another card is inserted (workshop, control or company card), the parameter driver card, driver 2, is equal to 00_2 (driver card not present). The parameter shall be implemented as specified in Table 33.

Table 33 — Specification of parameter DriverCardDriver2

Attribute	Value
Data length	2 bits
Operating range	002 — driver card not present 012 — driver card present
Type	Measured
DID	$F90A_{16}$
Access	R

5.4.20 OS — Overspeed

This parameter shall indicate that the current vehicle speed has exceeded the authorized speed of the vehicle according to current legal requirements. The parameter shall be implemented as specified in Table 34.

Table 34 — Specification of parameter Overspeed

Attribute	Value
Data length	2 bits
Operating range	002 — no overspeed 012 — overspeed
Type	Measured
DID	$F908_{16}$
Access	R

5.4.21 TD — TimeDate

This parameter group shall be provided by the recording unit. All parameters shall be supported. The parameter group shall be implemented as specified in Table 35 and Table 14.

Table 35 — Specification of parameter group TimeDate

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F90B_{16}$
Access	R/W

5.4.22 RHM — ResetHeartbeatMessage

This parameter shall indicate if the reset heartbeat message is used. The parameter shall be implemented as specified in Table 36.

Table 36 — Specification of parameter ResetHeartbeatMessage

Attribute	Value
Data length	2 bits
Operating range	002 — disabled (the reset heartbeat message is not used by the recording unit) 012 — enabled (the reset heartbeat message is used by the recording unit)
Type	Status
DID	$F90C_{16}$
Access	R/W

5.4.23 ALMO — AdjustLocalMinuteOffset

This parameter shall be used to set the local offset in minutes from UTC, which influences the local minute offset only. The parameter shall be implemented as specified in Table 37.

Table 37 — Specification of parameter AdjustLocalMinuteOffset

Attribute	Value
Data length	1 byte
Resolution	1 min/bit
Offset	–125 min
Operating range	–59 min to +59 min
Type	Measured
DID	$F90D_{16}$
Access	R/W

5.4.24 ALHO — AdjustLocalHourOffset

This parameter shall be used to set the local offset in hours from UTC, which influences the local hour offset only. The parameter shall be implemented as specified in Table 38.

Table 38 — Specification of parameter AdjustLocalMinuteOffset

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	–125 h
Operating range	–23 h to +23 h
Type	Measured
DID	$F90E_{16}$
Access	R/W

5.4.25 PLOTM — PriorityLevelOfTCO1Message

This parameter shall command a request to set the priority of the TCO1 message. The parameter shall be implemented as specified in Table 39.

Table 39 — Specification of parameter PriorityLevelOfTCO1Message

Attribute	Value
Data length	3 bits
Operating range	0002 — highest priority 0012 — priority 1 0102 — priority 2 0112 — priority 3, default value 1002 — priority 4 1012 — priority 5 1102 — priority 6 1112 — priority 7, lowest
Type	Status
DID	$F90F_{16}$
Access	R/W

5.4.26 HRTVD — HighResolutionTotalVehicleDistance

This parameter shall indicate the accumulated distance travelled by the vehicle during its operation. The parameter shall be implemented as specified in Table 40.

Table 40 — Specification of parameter HighResolutionTotalVehicleDistance

Attribute	Value
Data length	4 bytes
Resolution	5 m/bit
Offset	0 m
Operating range	0 km to +21 055 406 km
Type	Measured
DID	$F912_{16}$
Access	R/W

5.4.27 HRTD — HighResolutionTripDistance

This parameter shall indicate the distance travelled during all or part of a journey. The parameter shall be implemented as specified in Table 41.

Table 41 — Specification of parameter HighResolutionTripDistance

Attribute	Value
Data length	4 byte
Resolution	5 m/bit
Offset	0 m
Operating range	0 km to +21 055 406 km
Type	Measured
DID	$F913_{16}$
Access	R/W

5.4.28 SCI — ServiceComponentIdentification

This parameter shall identify the component having the nearest time until the next service inspection, and shall provide service inspection: periodic inspection for the recording unit; card expiry date for the driver cards. The parameter shall be implemented as specified in Table 42.

Table 42 — Specification of parameter ServiceComponentIdentification

Attribute	Value
Data length	1 byte
Operating range	Encoding values as given in Table 43
Type	Measured
DID	$F914_{16}$
Access	R

Table 43 — Specification of ServiceComponentIdentification

Identification	Component
0 to 60	Reserved by document
61	Tachograph
62	Driver card 1
63	Driver card 2
64 to 239	Not defined
240 to 249	Manufacturer specific
250 to 251	Reserved
252	Reset all components
253	No action to be taken
254	Error
255	Component identification not available

5.4.29 SDCTB — ServiceDelayCalendarTimeBased

This parameter shall indicate the time in weeks until the next vehicle service inspection is required. A negative value shall be transmitted if the service inspection has been passed. The component that requires service shall be identified by the service component identification (5.4.28). This time is computed as the difference between the week when service inspection is required and the current week. For the purpose of this computation, week means the period between 00:00 h UTC on Monday and 24:00 UTC on Sunday. The parameter shall be implemented as specified in Table 44.

Table 44 — Specification of parameter ServiceDelayCalendarTimeBased

Attribute	Value
Data length	1 byte
Resolution	1 week/bit
Offset	–125 week
Operating range	–125 week to +125 week
Type	Measured
DID	$F915_{16}$
Access	R

5.4.30 D1I — Driver1Identification

This parameter shall be used to obtain the driver 1 identity from a driver card inserted in the recording unit, and shall contain 3 bytes for the issuing member state of the driver card and 16 bytes for the card number. The parameter shall be implemented as specified in Table 45.

Table 45 — Specification of parameter Driver1Identification

Attribute	Value
Data length	19 bytes
Resolution	ASCII
Operating range	Byte 1 to 3 — issuing member state Byte 4 to 19 — card number
Type	Measured
DID	$F916_{16}$
Access	R

NOTE This parameter is further specified in the tachograph regulation.

5.4.31 D2I — Driver2Identification

This parameter shall be used to obtain the driver 2 identity from a driver card inserted in the recording unit, and shall contain 3 bytes for the issuing member state of the driver card and 16 bytes for the card number. The parameter shall be implemented as specified in Table 46.

Table 46 — Specification of parameter Driver2Identification

Attribute	Value
Data length	19 bytes
Resolution	ASCII
Operating range	Byte 1 to 3 — issuing member state Byte 4 to 19 — card number
Type	Measured
DID	$F917_{16}$
Access	R

NOTE This parameter is further specified in the tachograph regulation.

5.4.32 KF — KFactor

This parameter shall be the current constant of the recording equipment, as the numerical characteristic giving the value of the input signal required to show and record a distance travelled of 1 km, resulting from the most recent calibration. The parameter shall be implemented as specified in Table 47.

Table 47 — Specification of parameter KFactor

Attribute	Value
Data length	2 bytes
Resolution	0,001 pulse/m/bit
Offset	0 pulse/m
Operating range	0 pulse/m to 64 255 pulse/m
Type	Measured
DID	$F918_{16}$
Access	R/W

NOTE KFactor is equal to WFactor.

5.4.33 SMR — SpeedMeasurementRange

This parameter shall be used to report the maximum supported speed value of the tachograph. The parameter shall be implemented as specified in Table 48.

Table 48 — Specification of parameter SpeedMeasurementRange

Attribute	Value
Data length	2 byte
Resolution	1/256 km/h/bit
Offset	0 km/h
Operating range	0 km/h to 250,996 km/h
Type	Measured
DID	$F919_{16}$
Access	R

5.4.34 NOTOPW — NumberOfTeethOnPhonicWheel

This parameter shall be used to indicate the number of teeth of the phonic (tone) wheel. The parameter shall be implemented as specified in Table 49.

Table 49 — Specification of parameter NumberOfTeethOfPhonicWheel

Attribute	Value
Data length	1 byte
Resolution	1 tooth/bit
Offset	0 tooth
Operating range	0 tooth to 250 tooth
Type	Measured
DID	$F91A_{16}$
Access	R/W

5.4.35 TOSS — TachographOutputShaftSpeed

This parameter shall be used to indicate calculated speed of the transmission output shaft. The parameter shall be implemented as specified in Table 50.

Table 50 — Specification of parameter TachographOutputShaftSpeed

Attribute	Value
Data length	2 bytes
Resolution	0,125 min^{-1}/bit
Offset	0 min^{-1}
Operating range	0 min to 8 031,875 min^{-1}
Type	Measured
DID	$F91B_{16}$
Access	R

5.4.36 LFTC — LFactorTyreCircumference

This parameter shall be used to indicate the current effective circumference of the wheel tyres, given as the average of the distances travelled by each of the wheels moving the vehicle (driving wheels) in the course of one complete rotation resulting from the most recent calibration. The parameter shall be implemented as specified in Table 51.

Table 51 — Specification of parameter LFactorTyreCircumference

Attribute	Value
Data length	2 bytes
Resolution	0,125 10–3 m/bit
Offset	0 m
Operating range	0 m to 8 031 m
Type	Measured
DID	$F91C_{16}$
Access	R/W

5.4.37 WVCF — WVehicleCharacteristicFactor

This parameter shall be used to indicate the current numerical characteristic giving the value of the output signal emitted by the part of the vehicle linked with the recording equipment (gearbox output shaft or axle) while the vehicle travels a distance of 1 km under standard test conditions, resulting from the most recent calibration. The parameter shall be implemented as specified in Table 52.

Table 52 — Specification of parameter WVehicleCharacteristicFactor

Attribute	Value
Data length	2 bytes
Resolution	0,001 m^{-1}/bit
Offset	0 m^{-1}
Operating range	0 m^{-1} to 64 255 m^{-1}
Type	Measured
DID	$F91D_{16}$
Access	R/W

NOTE 1 This parameter is further specified in the tachograph regulation.

NOTE 2 WFactor is equal to KFactor.

5.4.38 PPROOS — PulsesPerRevolutionOfOutputShaft

This parameter shall be used to indicate the number of pulses per revolution of the gearbox output shaft. The parameter shall be implemented as specified in Table 53.

Table 53 — Specification of parameter PulsesPerRevolutionOfOutputShaft

Attribute	Value
Data length	2 bytes
Resolution	0,001 pulse/revolution/bit
Offset	0
Operating range	0 pulse/revolution to 64 255 pulse/revolution
Type	Measured
DID	$F91E_{16}$
Access	R/W

5.4.39 TRROTM — TransmissionRepetitionRateOfTCO1Message

This parameter shall be used to set the transmission rate of the TCO1 message and may be part of the end-of-line programming. The parameter shall be implemented as specified in Table 54.

Table 54 — Specification of parameter TransmissionRepetitionRateOfTCO1Message

Attribute	Value
Data length	2 bit
Operating range	002 — transmission rate 20 ms 012 — transmission rate 50 ms (default value)
Type	Status
DID	$F920_{16}$
Access	R/W

5.4.40 TS — TyreSize

This parameter shall be used to indicate the designation of the current dimensions of the tyres (external driving wheels), resulting from the most recent calibration. The parameter shall be implemented as specified in Table 55.

Table 55 — specification of parameter TyreSize

Attribute	Value
Data length	15 characters
Resolution	ASCII
Operating range	ASCII
Type	Measured
DID	$F921_{16}$
Access	R/W

NOTE This parameter is further specified in the tachograph regulation.

5.4.41 NCD — NextCalibrationDate

This parameter shall be used to indicate next mandatory calibration date of the tachograph and shall be carried out by the authorized inspection authority. The parameter shall be implemented as specified in Table 56.

Table 56 — Specification of parameter NextCalibrationDate

Attribute	Value
Data length	3 bytes
Operating range	Byte 1 — month Byte 2 — day Byte 3 — year
Type	Measured
DID	$F922_{16}$
Access	R/W

5.4.42 D1CDT — Driver1ContinuousDrivingTime

This parameter shall be computed as the current accumulated driving times of a particular driver, as defined by legal regulation. The parameter shall be implemented as specified in Table 57.

Table 57 — Specification of parameter Driver1ContinuousDrivingTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F923_{16}$
Access	R

5.4.43 D2CDT — Driver2ContinuousDrivingTime

This parameter shall be defined as Driver 2 continuous driving time. The parameter shall be implemented as specified in Table 58.

Table 58 — Specification of parameter Driver2ContinuousDrivingTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F924_{16}$
Access	R

5.4.44 D1CBT — Driver1CumulativeBreakTime

This parameter shall indicate the uninterrupted break time for driver 1 as defined by legal regulation. The parameter shall be implemented as specified in Table 59.

Table 59 — Specification of parameter Driver1CumulativeBreakTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F925_{16}$
Access	R

5.4.45 D2CBT — Driver2CumulativeBreakTime

This parameter shall indicate the uninterrupted break time for driver 2 as defined by legal regulation. The parameter shall be implemented as specified in Table 60.

Table 60 — Specification of parameter Driver2CumulativeBreakTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F926_{16}$
Access	R

5.4.46 D1CDOSA — Driver1CurrentDurationOfSelectedActivity

This parameter shall indicate the current duration of the selected activity, since selected, and which may be the current driving period, availability period, rest period, or work period. The parameter shall be implemented as specified in Table 61.

Table 61 — Specification of parameter Driver1CurrentDurationOfSelectedActivity

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F927_{16}$
Access	R

5.4.47 D2CDOSA — Driver2CurrentDurationOfSelectedActivity

This parameter shall indicate the current duration of the selected activity, since selected, and which may be the current availability period, rest period or work period. The parameter shall be implemented as specified in Table 62.

Table 62 — Specification of parameter Driver2CurrentDurationOfSelectedActivity

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F928_{16}$
Access	R

5.4.48 SA — SpeedAuthorised

This parameter shall be used for speed limit setting. The parameter shall be implemented as specified in Table 63.

Table 63 — Specification of parameter SpeedAuthorised

Attribute	Value
Data length	2 byte
Resolution	1/256 km/h/bit
Offset	0 km/h
Operating range	0 km/h to 250,996 km/h
Type	Measured
DID	$F92C_{16}$
Access	R/W

5.4.49 TCS1 — TachographCardSlot1

This parameter shall be used to indicate the presence of a tachograph card in the driver slot of the recording unit. The parameter shall be implemented as specified in Table 64.

Table 64 — Specification of parameter TachographCardSlot1

Attribute	Value
Data length	1 byte
Resolution	1/bit
Operating range	0 — tachograph card not present (or card present, but the type has not been recognized by the recording unit) 1 — driver card present 2 — workshop card present 3 — control card present 4 — company card present 5 to 250 — not used
Type	Measured
DID	$F930_{16}$
Access	R

5.4.50 TCS2 — TachographCardSlot2

This parameter shall be used to indicate the presence of a tachograph card in the co-driver slot of the recording unit. The parameter shall be implemented as specified in Table 65.

Table 65 — Specification of parameter TachographCardSlot2

Attribute	Value
Data length	1 byte
Resolution	1/bit
Operating range	0 — tachograph card not present (or card present, but the type has not been recognized by the recording unit) 1 — driver card present 2 — workshop card present 3 — control card present 4 — company card present 5 to 250 — not used
Type	Measured
DID	$F933_{16}$
Access	R

5.4.51 D1N — Driver1Name

This parameter shall be used to obtain the driver 1 name containing the surname and first name read from the driver card currently inserted in the recording unit. The parameter shall be implemented as specified in Table 66.

Table 66 — Specification of parameter Driver1Name

Attribute	Value
Data length	72 bytes
Resolution	ASCII
Operating range	Byte 1 — code page for surname Byte 2 to 36 — surname Byte 37 — code page for first name Byte 38 to 72 — first name
Type	Measured
DID	$F931_{16}$
Access	R

Driver1Name shall include

— a code page value specifying the part of ISO/IEC 8859 used to code the surname and the first name, and

— the surname (family name) and first name coded in accordance with the code page of the part of ISO/IEC 8859.

NOTE This parameter is further specified in the tachograph regulation.

5.4.52 D2N — Driver2Name

This parameter shall be used to obtain the driver 2 name containing the surname and first name read from the co-driver card currently inserted in the recording unit (co-driver slot). The parameter shall be implemented as specified in Table 67.

Table 67 — Specification of parameter Driver2Name

Attribute	Value
Data length	72 bytes
Resolution	ASCII
Operating range	Byte 1 — code page for surname Byte 2 to 36 — surname Byte 37 — code page for first name Byte 38 to 72 — first name
Type	Measured
DID	$F932_{16}$
Access	R

Driver2Name shall include

— a code page value specifying the part of ISO/IEC 8859 used to code the surname and the first name, and

— the surname (family name) and first name coded in accordance with the code page of the part of ISO/IEC 8859.

NOTE This parameter is further specified in the tachograph regulation.

5.4.53 OOSC — OutOfScopeCondition

This parameter shall be used to indicate whether an out of scope specific condition is currently open. The parameter shall be implemented as specified in Table 68.

Table 68 — Specification of parameter OutOfScopeCondition

Attribute	Value
Data length	2 bits
Operating range	002 — no out of scope condition opened 012 — out of scope condition opened
Type	Measured
DID	$F936_{16}$
Access	R

NOTE This parameter is further specified in the tachograph regulation.

5.4.54 MOD — ModeOfOperation

This parameter shall be used to indicate the current mode of operation of the recording unit according to the valid tachograph cards inserted. The parameter shall be implemented as specified in Table 69.

Table 69 — Specification of parameter ModeOfOperation

Attribute	Value
Data length	1 byte
Resolution	1/bit
Operating range	0 — operational mode 1 — control mode 2 — calibration mode 3 — company mode 4 to 250 — not used
Type	Measured
DID	$F937_{16}$
Access	R

NOTE This parameter is further specified in the tachograph regulation.

5.4.55 D1CDTPACW — Driver1CumulatedDrivingTimePreviousAndCurrentWeek

This parameter shall be computed as the current accumulated driving times of driver 1 (driver) for the previous and the current week. The parameter shall be implemented as specified in Table 70.

Table 70 — Specification of parameter Driver1CumulatedDrivingTimePreviousAndCurrentWeek

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F938_{16}$
Access	R

5.4.56 D2CDTPACW — Driver2CumulatedDrivingTimePreviousAndCurrentWeek

This parameter shall be computed as the current accumulated driving times of driver 2 (co-driver) for the previous and the current week. The parameter shall be implemented as specified in Table 71.

Table 71 — Specification of parameter Driver2CumulatedDrivingTimePreviousAndCurrentWeek

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
Type	Measured
DID	$F939_{16}$
Access	R

5.4.57 RTSP — RealTimeSpeedPulses

This parameter shall allow simulation (e.g. short-term adjustment) or monitoring of the frequency values received from the motion sensor. The motion sensor signal may be replaced by use of the service InputOutputControlByIdentifier, the recordIdentifier set to RealTimeSpeedPulses (F940H), and InputOutputControlParameter set to ShortTermAdjustment. The speed calculated from the replacement value can be read at the display or by the service readDataByIdentifier and the recordIdentifier set to TachographVehicleSpeed (F902H).

The simulated value shall not influence recorded data. If the tachograph detects sensor speed during this test, the test will be automatically aborted. The parameter shall be implemented as specified in Table 72.

Table 72 — Specification of parameters RealTimeSpeedPulses/TachographVehicleSpeed

Attribute	Value
Data length	2 bytes
Resolution	0,1 s^{-1}
Offset	0 s^{-1}
Operating range	0 s^{-1} to 6 425,5 s^{-1}
Type	Measured
DID	$F940_{16}$
Access	R/W

5.4.58 ES — EngineSpeed

This parameter shall indicate the actual engine speed which is calculated over a minimum crankshaft angle of 720 degrees divided by the number of cylinders. The parameter shall be implemented as specified in Table 73.

Table 73 — Specification of parameter EngineSpeed

Attribute	Value
Data length	2 bytes
Resolution	0,125 r/min/bit
Offset	0 r/min
Operating range	0 r/min to 8 031,875 r/min
Type	Measured
DID	$F95A_{16}$
Access	R

5.4.59 CIO — CalibrationInputOutput

The parameter CalibrationInputOutput shall allow controlling of the test and calibration pin function of the recording unit front connector with the InputOutputControlByIdentifier service. The actual setting may be read by the ReadDataByIdentifier service.

The test and calibration pin shall be used to input a replacement signal for the motion sensor (test signal) with the calibrationInputOutput parameter set to “enable as speedSignalInput”. The motion sensor signal may alternatively be replaced by use of the service InputOutputControlByIdentifier, with the recordIdentifier set to RealTimeSpeedPulses (F940H) and InputOutputControlParameter set to ShortTermAdjustment. The test and calibration pin shall be used to measure the motion sensor signal, with the calibrationInputOutput parameter set to enable as realTimeSpeedSignalOutputSensor. The motion sensor value may alternatively be read by the service readDataByIdentifier and with the recordIdentifier set to RealTimeSpeedPulses.

The test and calibration pin shall be used to measure the UTC clock signal with the calibrationInputOutput parameter set to “enable as RTCOutput”.

The parameter shall be implemented as specified in Table 74.

Table 74 — Specification of parameter CalibrationInputOutput

Attribute	Value
Data length	1 byte
Resolution	n/a
Offset	n/a
Operating range	0 to 4
Type	n/a
DID	$F960_{16}$
Access	R, I/Ocontrol

The possible values for the controlState parameter/dataRecord shall be in accordance with Table 75.

Table 75 — Possible controlState/dataRecord values for CalibrationInputOutput

Mode	Value	Description
Disable	0	I/O line is disabled (default state)
Enable	1	Enable as speedSignalInput
Enable	2	Enable as realTimeSpeedSignalOutputSensor
Enable	3	Enable as RTCOutput
Enable	4	Enable calibration I/O line as EngineRotationOutput

5.4.60 SJW — SynchronizationJumpWidth

The parameter SJW shall be modified by diagnosis, and according to the manufacturer's discretion, in order to take into account the different topologies of CAN network. The default value shall be according to ISO 16844-4. The parameter shall be implemented as specified in Table 76.

Table 76 — Specification of parameter SynchronizationJumpWidth

Attribute	Value
Data length	1 byte
Resolution	1 tq/bit
Offset	0
Operating range	1 tq to 4 tq
Type	Measured
DID	$F979_{16}$
Access	R/W

5.4.61 SP — SamplePoint

This parameter shall specify the point of time at which the bus level is read and interpreted as the value of that respective bit. This parameter shall be specified by end of line programming. For DID and access, the resolution shall be adjusted according to the hardware. The default value shall be 87,5 %. The parameter shall be implemented as specified in Table 77.

Table 77 — Specification of parameter SamplePoint

Attribute	Value
Data length	1 byte
Resolution	0,4 %/bit gain (recommended)
Offset	0
Operating range	60 % to 100 %
Type	Measured
DID	$F97A_{16}$
Access	R/W

5.4.62 TOMED — TimeOutMessageErrorDelay

This parameter shall contain the number of emission cycles of the specified message before time out failure is declared. This value shall be specified by the vehicle manufacturer. The default value shall be 3. The parameter shall be implemented as specified in Table 78.

Table 78 — Specification of parameter TimeOutMessageErrorDelay

Attribute	Value
Data length	1 byte
Resolution	0,5/bit gain
Offset	0
Operating range	0 to 128
Type	Status
DID	$F97B_{16}$
Access	R/W

EXAMPLE If the parameter is equal to 3,5, and if a message is sent every 20 ms (i.e. the message was missing during more than 3,5 × 20 = 70 ms), a time out failure on this message is declared.

5.4.63 EMII — ErrorManagementInitialisationInhibition

This parameter shall specify the inhibition period of the CAN network error management system at the ignition on and ignition off.

In order to take into account the different reset timings of the ECUs connected to the CAN network, the management of the network error shall be inhibited during a period of time. The default value shall be 2 s. This value shall be at the manufacturer's discretion.

The parameter shall be implemented as specified in Table 79.

Table 79 — Specification of parameter ErrorManagementInitialisationInhibition

Attribute	Value
Data length	1 byte
Resolution	0,1 s/bit gain
Offset	0
Operating range	0 s to 25,0 s
Type	Status
DID	$F97C_{16}$
Access	R/W

5.4.64 RMS — RegisteringMemberState

This parameter shall be assigned by the registration centre. The parameter shall be implemented as specified in Table 80.

Table 80 — Specification of parameter RMS

Attribute	Value
Data length	3 byte
Resolution	ASCII
Offset	n/a
Operating range	ASCII
Type	Measured
DID	$F97D_{16}$
Access	R/W

NOTE 1 The ASCII character "*" is reserved as a delimiter.

NOTE 2 This parameter is further specified in the tachograph regulation.

5.4.65 VRN — VehicleRegistrationNumber

This parameter shall be as assigned by the registration centre. The VRN shall include

— a code page value specifying the part of ISO/IEC 8859 used to code the VRN, and

— the VRN coded in accordance with the code page of the part of ISO/IEC 8859.

The parameter shall be implemented as specified in Table 81.

Table 81 — Specification of parameter VRN

Attribute	Value
Data length	14 bytes
Resolution	ASCII
Offset	0
Operating range	Byte 1: code page Byte 2 to 14: VRN
Type	Measured
DID	$F97E_{16}$
Access	R/W

NOTE This parameter is further specified in the tachograph regulation.

5.4.66 VRD — VehicleRegistrationDate

This parameter group shall be transmitted to the recording unit. All parameters shall be supported. The parameter shall be implemented as specified in Table 82.

Table 82 — Specification of parameter group VehicleRegistrationDate

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F97F_{16}$
Access	R/W

5.4.67 D1PL — Driver1PreferredLanguage

This parameter shall be set to the preferred language for driver 1. It shall be set to the two-letter lowercase coding according to ISO 639-1. The parameter shall be implemented as specified in Table 83.

Table 83 — Specification of parameter Driver1PreferredLanguage

Attribute	Value
Data length	2 bytes
Resolution	ASCII
Offset	n/a
Operating range	ASCII
Type	Measured
DID	$F981_{16}$
Access	R

5.4.68 D2PL — Driver2PreferedLanguage

This parameter shall be set to the preferred language for driver 2. It shall be set to the two-letter lowercase coding according to ISO 639-1. The parameter shall be implemented as specified in Table 84.

Table 84 — Specification of parameter Driver2PreferredLanguage

Attribute	Value
Data length	2 bytes
Resolution	ASCII
Offset	n/a
Operating range	ASCII
Type	Measured
DID	$F982_{16}$
Access	R

5.4.69 DC1DTP — DriverCard1DownloadTimePeriod

This parameter shall be the time period between two mandatory driver card downloads, which is used for computing the next mandatory driver card download pre-warning/warning (if implemented). The parameter shall be implemented as specified in Table 85.

Table 85 — Specification of parameter DriverCard1DownloadTimePeriod

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	1 d to 250 d
Type	Measured
DID	$F990_{16}$
Access	R/W

5.4.70 DC2DTP — DriverCard2DownloadTimePeriod

This parameter shall be the time period between two mandatory driver card downloads, which is used for computing the next mandatory driver card download pre-warning/warning (if implemented). The parameter shall be implemented as specified in Table 86.

Table 86 — Specification of parameter DriverCard2DownloadTimePeriod

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	1 d to 250 d
Type	Measured
DID	$F983_{16}$
Access	R/W

5.4.71 TDTP — TachographDownloadTimePeriod

This parameter shall be the time period between two mandatory tachograph downloads, which is used for computing the next mandatory tachograph download pre-warning/warning (if implemented). The parameter shall be implemented as specified in Table 87.

Table 87 — Specification of parameter TachographDownloadTimePeriod

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	1 d to 120 d
Default value	90 d
Type	Measured
DID	$F991_{16}$
Access	R/W

5.4.72 DHRPWTD — DriversHoursRulesPreWarningTimeDelay

This parameter shall be the time delay between a pre-warning and the associated warning for daily driving time, weekly driving time, two weeks driving time, and time to start daily/weekly rest period (if implemented). The parameter shall be implemented as specified in Table 88.

Table 88 — Specification of parameter DriversHoursRulesPreWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 min/bit gain
Offset	0
Operating range	15 min to 60 min
Type	Measured
DID	$F992_{16}$
Access	R/W

5.4.73 DCEWTD — DriverCardExpiryWarningTimeDelay

This parameter shall be the time delay before the driver card expiry date, during which the driver card expiry warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in Table 89.

Table 89 — Specification of parameter DriverCardExpiryWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is de-activated)
Type	Measured
DID	$F993_{16}$
Access	R/W

5.4.74 NDC1DWTD — NextDriverCard1DownloadWarningTimeDelay

This parameter shall be the time delay before the next mandatory driver 1 card download, during which the next mandatory driver 1 card download warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in Table 90.

Table 90 — Specification of parameter NextDriverCard1DownloadWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is de-activated)
Type	Measured
DID	$F994_{16}$
Access	R/W

5.4.75 NDC2DWTD — NextDriverCard2DownloadWarningTimeDelay

This parameter shall be the time delay before the next mandatory driver 2 card download, during which the next mandatory driver 2 card download warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in Table 91.

Table 91 — Specification of parameter NextDriverCard2DownloadWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is de-activated)
Type	Measured
DID	$F984_{16}$
Access	R/W

5.4.76 NTDWTD — NextTachographDownloadWarningTimeDelay

This parameter shall be the time delay before the next mandatory tachograph download, during which the next mandatory tachograph download warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in Table 92.

Table 92 — Specification of parameter NextTachographDownloadWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is de-activated)
Default value	10 d
Type	Measured
DID	$F995_{16}$
Access	R/W

5.4.77 NCWTD — NextCalibrationWarningTimeDelay

This parameter shall define the number of calendar days before the date of the next mandatory driver card download, when the RU starts to trigger the tachograph download warning. The parameter shall be implemented as specified in Table 93.

Table 93 — Specification of parameter NextCalibrationWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is de-activated)
Type	Measured
DID	$F996_{16}$
Access	R/W

5.4.78 D1EOLDRP — Driver1EndOfLastDailyRestPeriod

This parameter shall be the end of the last daily rest period of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in Table 94.

Table 94 — Specification of parameter Driver1EndOfLastDailyRestPeriod

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F997_{16}$
Access	R

5.4.79 D2EOLDRP — Driver2EndOfLastDailyRestPeriod

This parameter shall be the end of the last daily rest period of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in Table 95.

Table 95 — Specification of parameter Driver2EndOfLastDailyRestPeriod

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F985_{16}$
Access	R

5.4.80 D1EOLWRP — Driver1EndOfLastWeeklyRestPeriod

This parameter shall be the end of the last weekly rest period of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in Table 96.

Table 96 — Specification of parameter Driver1EndOfLastWeeklyRestPeriod

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F996_{16}$
Access	R

5.4.81 D2EOLWRP — Driver2EndOfLastWeeklyRestPeriod

This parameter shall be the end of the last weekly rest period of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in Table 97.

Table 97 — Specification of parameter Driver2EndOfLastWeeklyRestPeriod

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F986_{16}$
Access	R

5.4.82 D1EOSLWRP — Driver1EndOfSecondLastWeeklyRestPeriod

This parameter shall be the end of the second last weekly rest period of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in Table 98.

Table 98 — Specification of parameter Driver1EndOfSecondLastWeeklyRestPeriod

Attribute	Value
Data length	8 bytes
Operating range	as specified in Table 14
Type	Measured
DID	$F999_{16}$
Access	R

5.4.83 D2EOSLWRP — Driver2EndOfSecondLastWeeklyRestPeriod

This parameter shall be the end of the last weekly rest period of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in Table 99.

Table 99 — Specification of parameter Driver2EndOfSecondLastWeeklyRestPeriod

Attribute	Value
Data length	8 bytes
Operating range	As specified in Table 14
Type	Measured
DID	$F987_{16}$
Access	R

5.4.84 D1CDDT — Driver1CurrentDailyDrivingTime

This parameter shall be the current daily driving time of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in Table 100.

Table 100 — Specification of parameter Driver1CurrentDailyDrivingTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F99A_{16}$
Access	R

5.4.85 D2CDDT — Driver2CurrentDailyDrivingTime

This parameter shall be the current daily driving time of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in Table 101.

Table 101 — Specification of parameter Driver2CurrentDailyDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F988_{16}$
Access	R

5.4.86 D1CWDT — Driver1CurrentWeeklyDrivingTime

This parameter shall be the current weekly driving time of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in Table 102.

Table 102 — Specification of parameter Driver1CurrentWeeklyDrivingTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F99B_{16}$
Access	R

5.4.87 D2CWDT — Driver2CurrentWeeklyDrivingTime

This parameter shall be the current weekly driving time of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in Table 103.

Table 103 — Specification of parameter Driver2CurrentWeeklyDrivingTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F989_{16}$
Access	R

5.4.88 D1TLUNDRP — Driver1TimeLeftUntilNewDailyRestPeriod

This parameter shall be the calendar time left until driver 1 shall start a new daily rest period. The parameter shall be implemented as specified in Table 104.

Table 104 — Specification of parameter Driver1TimeLeftUntilNewRestPeriod

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F99C_{16}$
Access	R

5.4.89 D2TLUNDRP — Driver2TimeLeftUntilNewDailyRestPeriod

This parameter shall be the calendar time left until driver 2 shall start a new daily rest period. The parameter shall be implemented as specified in Table 105.

Table 105 — Specification of parameter Driver2TimeLeftUntilNewRestPeriod

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F98A_{16}$
Access	R

5.4.90 D1CED — Driver1CardExpiryDate

The parameter Driver1CardExpiryDate shall be the card expiry date read by the tachograph in driver 1 card (in UTC time). The parameter shall be implemented as specified in Table 106 and 5.3.

Table 106 — Specification of parameter Driver1CardExpiryDate

Attribute	Value
Data length	3 bytes, Byte 1: month Byte 2: days Byte 3: years
Operating range	As specified in Table 14
Type	Measured
DID	$F99D_{16}$
Access	R

5.4.91 D2CED — Driver2CardExpiryDate

The parameter Driver2CardExpiryDate shall be the card expiry date read by the tachograph in driver 2 card (in UTC time). The parameter shall be implemented as specified in Table 107 and 5.3.

Table 107 — Specification of parameter Driver2CardExpiryDate

Attribute	Value
Data length	3 bytes, Byte 1: month Byte 2: days Byte 3: years
Operating range	As specified in Table 14
Type	Measured
DID	$F98B_{16}$
Access	R

5.4.92 D1CNMDD — Driver1CardNextMandatoryDownloadDate

This parameter shall be the date of the next driver 1 card mandatory download (in UTC time). The parameter shall be implemented as specified in Table 108 and 5.3.

Table 108 — Specification of parameter Driver1CardNextMandatoryDownloadDate

Attribute	Value
Data length	3 bytes, Byte 1: month Byte 2: days Byte 3: years
Operating range	As specified in Table 14
Type	Measured
DID	$F99E_{16}$
Access	R

5.4.93 D2CNMDD — Driver2CardNextMandatoryDownloadDate

This parameter shall be the date of the next driver 2 card mandatory download (in UTC time). The parameter shall be implemented as specified in Table 109 and 5.3.

Table 109 — Specification of parameter Driver2CardNextMandatoryDownloadDate

Attribute	Value
Data length	3 bytes, Byte 1: month Byte 2: days Byte 3: years
Operating range	As specified in Table 14
Type	Measured
DID	$F99F_{16}$
Access	R

5.4.94 TNMDD — TachographNextMandatoryDownloadDate

This parameter shall be the date of the next mandatory download of the tachograph (in UTC time) The parameter shall be implemented as specified in Table 110 and 5.3.

Table 110 — Specification of parameter TachographNextMandatoryDownloadDate

Attribute	Value
Data length	3 bytes, Byte 1: month Byte 2: days Byte 3: years
Operating range	As specified in Table 14
Type	Measured
DID	$F98C_{16}$
Access	R

5.4.95 D1TLUNWRP — Driver1TimeLeftUntilNewWeeklyRestPeriod

This parameter shall be the calendar time left until driver 1 shall start a new weekly rest period. The parameter shall be implemented as specified in Table 111.

Table 111 — Specification of parameter Driver1TimeLeftUntilNewWeeklyRestPeriod

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F9A1_{16}$
Access	R

5.4.96 D2TLUNWRP — Driver2TimeLeftUntilNewWeeklyRestPeriod

This parameter shall be the calendar time left until driver 2 shall start a new weekly rest period. The parameter shall be implemented as specified in Table 112.

Table 112 — Specification of parameter Driver2TimeLeftUntilNewWeeklyRestPeriod

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F98D_{16}$
Access	R

5.4.97 D1NOT9HDDTE — Driver1NumberOfTimes9hDailyDrivingTimesExceeded

This parameter shall be the number of times the driver exceeded 9 h daily driving time in the current week. The parameter shall be implemented as specified in Table 113.

Table 113 — Specification of parameter Driver1NumberOfTimes9hDailyDrivingTimesExceeded

Attribute	Value
Data length	1 byte
Resolution	1/bit gain
Offset	0
Operating range	0 times to 13 times
Type	Measured
DID	$F9A0_{16}$
Access	R

5.4.98 D2NOT9HDDTE — Driver2NumberOfTimes9hDailyDrivingTimesExceeced

This parameter shall be the number of times the driver 2 exceeded 9 h daily driving time in the current week. The parameter shall be implemented as specified in Table 114.

Table 114 — Specification of parameter Driver2NumberOfTimes9hDailyDrivingTimesExceeded

Attribute	Value
Data length	1 byte
Resolution	1/bit gain
Offset	0
Operating range	0 times to 13 times
Type	Measured
DID	$F98E_{16}$
Access	R

5.4.99 D1CURT — Driver1CumulativeUninterruptedRestTime

This parameter shall be the cumulative uninterrupted rest period for driver 1 since last fulfilled daily rest. It shall be incremented each minute of uninterrupted rest time. The parameter shall be implemented as specified in Table 115.

Table 115 — Specification of parameter Driver1CumulativeUninterruptedRestTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F9A2_{16}$
Access	R

5.4.100 D2CURT — Driver2CumulativeUninterruptedRestTime

This parameter shall be the cumulative uninterrupted rest period for driver 2 since last fulfilled daily rest. It shall be incremented each minute of uninterrupted rest time. The parameter shall be implemented as specified in Table 116.

Table 116 — Specification of parameter Driver2CumulativeUninterruptedRestTime

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F98F_{16}$
Access	R

5.4.101 D1MDR — Driver1MinimumDailyRest

This parameter shall be the minimum daily rest the driver 1 needs to do to fulfil an on-going or approaching daily rest period. The parameter shall be implemented as specified in Table 117.

Table 117 — Specification of parameter Driver1MinimumDailyRest

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F9A3_{16}$
Access	R

5.4.102 D2MDR — Driver2MinimumDailyRest

This parameter shall be the minimum daily rest the driver 2 needs to do to fulfil an on-going or approaching daily rest period. The parameter shall be implemented as specified in Table 118.

Table 118 — Specification of parameter Driver2MinimumDailyRest

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F9A7_{16}$
Access	R

5.4.103 D1MWR — Driver1MinimumWeeklyRest

This parameter shall be the minimum weekly rest the driver 1 needs to do to fulfil an on-going or approaching weekly rest period. It shall be set to regular or reduced weekly rest period plus compensation hours, if any. The parameter shall be implemented as specified in Table 119.

Table 119 — Specification of parameter Driver1MinimumWeeklyRest

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F9A4_{16}$
Access	R

5.4.104 D2MWR — Driver2MinimumWeeklyRest

This parameter shall be the minimum weekly rest the driver 2 needs to do to fulfil an on-going or approaching weekly rest period. It shall be set to regular or reduced weekly rest period plus compensation hours, if any. The parameter shall be implemented as specified in Table 120.

Table 120 — Specification of parameter Driver2MinimumWeeklyRest

Attribute	Value
Data length	2 bytes
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
Type	Measured
DID	$F9A8_{16}$
Access	R

5.4.105 D1MDP — Driver1MaximumDailyPeriod

This parameter shall be set to the maximum allowed calendar time between the end of two daily rests (the daily period) for driver 1. The parameter shall be implemented as specified in Table 121.

Table 121 — Specification of parameter Driver1MaximumDailyPeriod

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0
Operating range	0 to 250
Type	Status
DID	$F9A5_{16}$
Access	R

5.4.106 D2MDP — Driver2MaximumDailyPeriod

This parameter shall be set to the maximum allowed calendar time between the end of two daily rests (the daily period) for driver 2. The parameter shall be implemented as specified in Table 122.

Table 122 — Specification of parameter Driver2MaximumDailyPeriod

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0
Operating range	0 to 250
Type	Status
DID	$F9A9_{16}$
Access	R

5.4.107 D1MDDT — Driver1MaximumDailyDrivingTime

This parameter shall be the maximum daily driving time for driver 1. The parameter shall be implemented as specified in Table 123.

Table 123 — Specification of parameter Driver1MaximumDailyDrivingTime

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0
Operating range	910 — 9 h 1010 — 10 h All other values — reserved
Type	Status
DID	$F9A6_{16}$
Access	R

5.4.108 D2MDDT — Driver2MaximumDailyDrivingTime

This parameter shall be the maximum daily driving time for driver 2. The parameter shall be implemented as specified in Table 124.