ITEA2 PROJECT

2012-2015

Frame to be used to indicate a customer reference number.

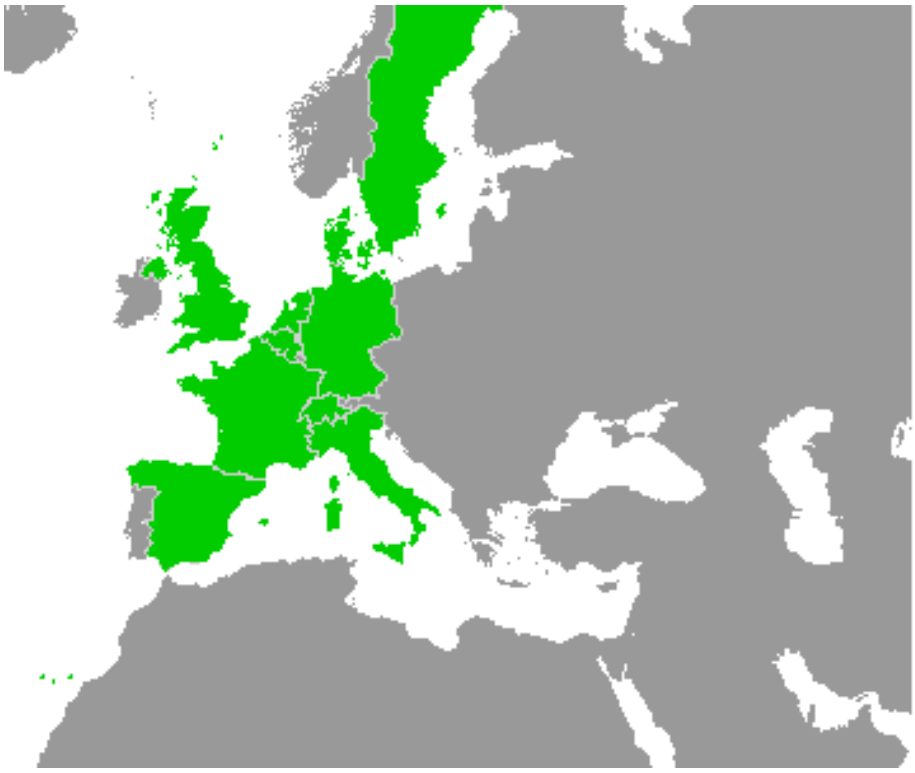
Client :	C/Ref. :

Work-Package 2 : “Requirements”

API Requirements for OpenETCS – appendix - Functional Data Dictionary v1.1

N. Boverie

September 2014



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Amendment record

Rev.[1]	Author	Version	Date	§	Modifications
	N. Boverie	1.0	06/02/2014	All	creation of the document
	N. Boverie	1.1	08/09/2014	All	Update of the radio interface (Baseline 3)

1 M : meeting review, R : read-back process

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1. INTRODUCTION

1.1 SUBJECT

This appendix document provides the OpenETCS API functional data dictionary.

This document is an appendix document of the ALSTOM proposal for the Application Programming Interface (API) Specification of the OpenETCS Onboard Application Software (applicable document /3/).

This specification shall be directly based on the Application Programming Interface (API) Specification of the ALSTOM ERTMS Onboard CORE Application Software.

1.2 FIELD OF APPLICATION

This document is to be considered in the frame of the OpenETCS program.

This specification is compliant to Unisig Baseline 3 of the ETCS Onboard unless explicitly mentioned in the document.

As the ALSTOM development for the ETCS Baseline 3 is still in progress, this document could be modified in the future.

This document is an appendix of the applicable document /3/.

Note : the modifications of this version 1.1 of the present document (compared to the original 1.0 version) that are significant for the OpenETCS project are the Euroradio input and output data flow. Other miscellaneous modifications are not relevant for the Open ETCS project.

The Euroradio API has been updated in present document for baseline 3 purpose and now also includes GPRS features. **Those GPRS features are not applicable and are not to be used in the frame of Open ETCS.**

1.3 DOCUMENT DESCRIPTION

This document provides the list of functional data of the OpenETCS API and definition.

2. DOCUMENTS & TERMINOLOGY

2.1 REFERENCE DOCUMENTS

/1/ System Requirements Specification, ref. SUBSET-026, v3.3.0

/2/Glossary of terms and abbreviations, ref. SUBSET-023, v3.0.0

2.2 APPLICABLE DOCUMENTS

/3/API Requirements for OpenETCS

2.3 DEFINITIONS

	Refer to /3/

Refer also to /2/

2.4 ABBREVIATIONS

	Refer to /3/

Refer also to /2/

3. FUNCTIONAL DATA DICTIONARY

3.1.1 OpenETCS Inputs

470. basic_to_generic_app_info (data flow) =
logical_voted_time
+TIU_input_info
+MMU_input_info
+EUROBALISE_input_info
+EUROCAB_input_info
+EURORADIO_input_info
+EUROLOOP_input_info
+LLRU_status_input_msg_info
+coded_config_data
+coded_data_restored_at_power_up
+power_up_tests_info
+maintenance_data_from_basic
+specific_config_data
+key_mgt_input_info
+language_info_from_basic
+events_from_basic.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information from basic software to generic application

1900. logical_voted_time (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 0..2**31 - 1;
resolution : 0.01
units : s;
value_names : N/A;
description : voted time input.

3726. TIU_input_info (data flow) =
TIU_input_msgs_info.

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : TIU input information

3733. TIU_input_msgs_info (data flow) =
max_n_of_TIU_input_msgs{TIU_input_msg_info
}max_n_of_TIU_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : TIU input messages information

2032. max_n_of_TIU_input_msgs (data flow, pel) =
**.

---
rate : N/A;
range : 24..24;
resolution : N/A;
units : N/A;
value names : N/A;
description : maximum number of messages from the TIU. This number is equal to 24;

3732. TIU_input_msg_info (data flow) =
is_present
+coded_TIU_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : TIU input message information

1574. is_present (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value names : N/A
description : indicates if the considered data is or is not present;

667. coded_TIU_input_msg (data flow) =
n_of_bits_in_TIU_i_msg{bit}n_of_bits_in_TIU_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded TIU input message;

2237. n_of_bits_in_TIU_i_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 0..2000;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in current TIU input message

522. bit (data flow, pel) =
**.
---
full_name : N/A;
rate : N/A;
range : 0..1;
resolution : 1;
units : N/A;
value_names : N/A;
description : bit;

2069. MMU_input_info (data flow) =
current_MMU_data
+tachymeter_out_of_scale.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : MMU input information.

805. current_MMU_data (data flow) =
MMU_data_time_stamp
+ covered_dist_nominal_value
+ covered_dist_upper_bound
+ covered_dist_lower_bound
+ train_speed_nominal_value
+ train_speed_upper_bound
+ train_speed_lower_bound
+ train_acceleration_nominal_value
+ train_acceleration_upper_bound
+ train_accelration_lower_bound
+ MMU_motion_direction
+ train_motion_state

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : train movement data from the MMU

2066. MMU_data_time_stamp (data flow, cel) =
**.
---
rate : N/A
range : 0..2**31 - 1
resolution : 0.01
units : s (in logical_voted_time reference)
value_names : N/A
description : time stamp of the data from the MMU

783. covered_dist_nominal_value (data flow, cel) =
**.
---
rate : N/A
range : -20_000_000.0 .. 20_000_000.0
resolution : 0.01
units : m
value_names : N/A
description : nominal value of the distance covered by the train since the last MMU reference.

784. covered_dist_upper_bound (data flow, cel) =
**.
---
rate : N/A
range : -20_000_000.0 .. 20_000_000.0
resolution : 0.01
units : m
value_names : N/A
description : upper bound of the covered distance since the last MMU reference. This is an absolute value, not a delta to the nominal value of the covered distance.

782. covered_dist_lower_bound (data flow, cel) =
**.
---
rate : N/A
range : -20_000_000.0 .. 20_000_000.0
resolution : 0.01
units : m
value_names : N/A
description : lower bound of the covered distance since the last MMU reference. This is an absolute value, not a delta to the nominal value of the covered distance.

3973. train_speed_nominal_value (data flow, cel) =
**.
---
rate : N/A
range : 0.0 .. 167
resolution : 0.01
units : m/s
value_names : N/A
description : nominal value of the train speed.

3975. train_speed_upper_bound (data flow, cel) =
**.
---
rate : N/A
range : 0.0 .. 167
resolution : 0.01
units : m/s
value_names : N/A
description : upper bound of the train speed.This is an absolute value, not a delta to the nominal value of the train speed.

3971. train_speed_lower_bound (data flow, cel) =
**.
---
rate : N/A
range : 0.0 .. 167
resolution : 0.01
units : m/s
value_names : N/A
description : lower bound of the train speed.This is an absolute value, not a delta to the nominal value of the train speed.

3882. train_acceleration_nominal_value (data flow, cel) =
**.
---
rate : N/A
range : -6.35 .. 6.35
resolution : 0.01
units : m/s**2
value_names : N/A
description : nominal value of the train acceleration.

3883. train_acceleration_upper_bound (data flow, cel) =
**.
---
rate : N/A
range : -6.35 .. 6.35
resolution : 0.01
units : m/s**2
value_names : N/A
description : upper bound value of the train acceleration.

3884. train_accelration_lower_bound (data flow, cel) =
**.
---
rate : N/A
range : -6.35 .. 6.35
resolution : 0.01
units : m/s**2
value_names : N/A
description : lower bound value of the train acceleration.

2070. MMU_motion_direction (data flow, del) =
["CAB_A_FIRST"|"CAB_B_FIRST"|"UNKNOWN"]

---

rate : N/A
range : N/A
resolution : N/A
units : N/A
value_names : "CAB_A_FIRST" = train is running from cab B to cab A.
"CAB_B_FIRST" = train is running from cab A to cab B.
"UNKNOWN" = train motion direction is unknown.
description : train motion direction in relation to the driving cabs.

3953. train_motion_state (data flow, del) =
["MOTION"|"NO_MOTION"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : train motion state

3630. tachymeter_out_of_scale (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Set to "TRUE" during the "out of scale" mode of the
tachymeter;

1344. EUROBALISE_input_info (data flow) =
active_antenna
+EUROBALISE_input_telegrams_info.

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROBALISE input information

54. active_antenna (data flow, del) =
["NONE"|"ANTENNA_1"|"ANTENNA_2"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates which is the current reception antenna.
If set to "NONE", both reception antennae are failed.

1348. EUROBALISE_input_telegrams_info (data flow) =
max_n_of_EUROBALISE_input_tgs{EUROBALISE_input_telegram_info
}max_n_of_EUROBALISE_input_tgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : coded EUROBALISE input telegrams information

2008. max_n_of_EUROBALISE_input_tgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of EUROBALISE input telegrams. This number is equal to
16.

1346. EUROBALISE_input_telegram_info (data flow) =
is_present
+EUROBALISE_reception_time_stamp
+dist_nominal_value_at_EUROBALISE_detection
+dist_upper_bound_at_EUROBALISE_detection
+dist_lower_bound_at_EUROBALISE_detection
+EUROBALISE_centre_detection_accuracy
+EUROBALISE_antenna_origin
+coded_EUROBALISE_input_telegram.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROBALISE input telegram information

1351. EUROBALISE_reception_time_stamp (data flow, cel) =
**.

---
rate : N/A
range : 0..2**31 - 1 (in logical_voted_time reference);
resolution : 0.01
units : s;
value names : N/A
description : time of reception of the EUROBALISE telegram

958. dist_nominal_value_at_EUROBALISE_detection (data flow, cel) =
**.

---
rate : N/A
range : -15_000_000.0 .. 15_000_000.0;
resolution : 0.01;
units : m;
value_names : N/A;
description : nominal value of the distance measurement delivered by the MMU at balise detection.

963. dist_upper_bound_at_EUROBALISE_detection (data flow, del) =
**.
---
rate : At each balise detection.
range : -15_000_000.0 .. 15_000_000.0;
resolution : 0.01;
units : m;
value_names : N/A;
description : upper bound of the covered distance at balise detection. This is an absolute value, not a delta to the nominal value of the covered distance.

955. dist_lower_bound_at_EUROBALISE_detection (data flow, cel) =
**.
---
rate : N/A;
range : -15_000_000.0 .. 15_000_000.0;
resolution : 0.01;
units : m;
value_names : N/A;
description : lower bound of the covered distance at balise detection. This is an absolute value, not a delta to the nominal value of the covered distance.

1343. EUROBALISE_centre_detection_accuracy (data flow, cel) =
**.
---
rate : N/A;
range : 0 .. 2**16 - 1;
resolution : 0.001;
units : m;
value_names : N/A;
description : accuracy of the detection of the EUROBALISE centre.

1337. EUROBALISE_antenna_origin (data flow, del) =
["ANTENNA_1"|"ANTENNA_2"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates from which antenna of the active cabin
the balise telegram is received;

655. coded_EUROBALISE_input_telegram (data flow) =

n_of_bits_in_EUROBALISE_telegram{bit}n_of_bits_in_EUROBALISE_telegram
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded EUROBALISE telegram;

2226. n_of_bits_in_EUROBALISE_telegram (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..830;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in current EUROBALISE telegram;

1352. EUROCAB_input_info (data flow) =
DMI_input_info
+STM_input_info
+JRU_input_info
+DRU_input_info

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROCAB input information

986. DMI_input_info (data flow) =
DMI_input_msgs_info
+active_DMI_channel.

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DMI input information

989. DMI_input_msgs_info (data flow) =
max_n_of_DMI_input_msgs{DMI_input_msg_info
}max_n_of_DMI_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A

description : DMI input messages information

2005. max_n_of_DMI_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of input DMI messages.
Equal to 8.

988. DMI_input_msg_info (data flow) =
is_present
+kind
+coded_DMI_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : MMI input message information

1768. kind (data flow, del) =
["DATA"|"CONNECTED"|"DISCONNECTED"|"TEMPORARY_DISCONNECTED"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates the type of profibus data or the type of
profibus disconnection to request;

652. coded_DMI_input_msg (data flow) =
n_of_bits_in_DMI_i_msg{bit}n_of_bits_in_DMI_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded MMI input message;

2223. n_of_bits_in_DMI_i_msg (data flow, cel) =
**.
---

full_name : N/A;
rate : N/A;
range : 1..2296;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in a DMI input message

55. active_DMI_channel (data flow, del) =
["NO_DMI_CHANNEL"|"DMI_CHANNEL_1"|"DMI_CHANNEL_2"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Current active DMI channel for STMs

3349. STM_input_info (data flow) =
STM_input_msgs_info
+STM_specific_input_msgs_info.

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM input information

3353. STM_input_msgs_info (data flow) =
max_n_of_STM_input_msgs{STM_input_msg_info
}max_n_of_STM_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM input messages information

2026. max_n_of_STM_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : 80..80
resolution : N/A
units : N/A
value names : N/A
description : maximum number of messages from the STMs.

3352. STM_input_msg_info (data flow) =
is_present
+kind
+nid_STM
+coded_STM_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM input message information

2577. nid_STM (data flow, pel) =
**.

---
rate : N/A;
range : 0..255;
resolution : 1;
units : N/A;
value names : N/A;
description : NID_STM variable. Refer to Subset 058 for further information;

664. coded_STM_input_msg (data flow) =
n_of_bits_in_STM_i_msg{bit}n_of_bits_in_STM_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded STM input message;

2234. n_of_bits_in_STM_i_msg (data flow, cel) =
**.

---
rate : N/A
range : 0..1856
resolution : 1
units : N/A
value names : N/A
description : number of bits in the STM input message.

3417. STM_specific_input_msgs_info (data flow) =
max_n_of_STM_specific_input_msgs{STM_specific_input_msg_info
}max_n_of_STM_specific_input_msgs.

---
rate : N/A

range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM input messages information

2029. max_n_of_STM_specific_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : 12..12
resolution : N/A
units : N/A
value names : N/A
description : maximum number of specific messages from the STMs.

3416. STM_specific_input_msg_info (data flow) =
is_present
+kind
+nid_STM
+coded_STM_specific_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM input message information

666. coded_STM_specific_input_msg (data flow) =
n_of_bits_in_STM_specific_i_msg{bit}n_of_bits_in_STM_specific_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded STM input message;

2236. n_of_bits_in_STM_specific_i_msg (data flow, cel) =
**.

---
rate : N/A
range : 0..160
resolution : 1
units : N/A
value names : N/A
description : number of bits in the STM specific input message.

1601. JRU_input_info (data flow) =
JRU_input_msgs_info.

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : JRU input information

1604. JRU_input_msgs_info (data flow) =
max_n_of_JRU_input_msgs{JRU_input_msg_info
}max_n_of_JRU_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : JRU input messages information

2013. max_n_of_JRU_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of JRU input messages.
This number is equal to 6.

1603. JRU_input_msg_info (data flow) =
is_present
+kind
+coded_JRU_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : JRU input message information

660. coded_JRU_input_msg (data flow) =
n_of_bits_in_JRU_i_msg{bit}n_of_bits_in_JRU_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;

resolution : N/A;
units : N/A;
value_names : N/A;
description : coded JRU input message;

2231. n_of_bits_in_JRU_i_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..240;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in a JRU input message

1180. DRU_input_info (data flow) =
DRU_input_msgs_info.

---
rate : at each cycle
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DRU input information

1182. DRU_input_msgs_info (data flow) =
max_n_of_DRU_input_msgs{DRU_input_msg_info
}max_n_of_DRU_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DRU input messages information

2007. max_n_of_DRU_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of DRU input messages.
This number is equal to 1.

1181. DRU_input_msg_info (data flow) =
is_present
+kind.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DRU input message information

1381. EURORADIO_input_info (data flow) =
n_of_handable_EURORADIO_physical_connections_info
+EURORADIO_safe_connection_confirmation_info
+EURORADIO_safe_connection_failure_info
+EURORADIO_safe_connection_loss_info
+EURORADIO_safe_connection_not_established_info
+EURORADIO_input_msgs_info
+EURORADIO_input_emergency_msgs_info
+2{mobile_status}2
+2{mobile_network}2.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO input information

2330. n_of_handable_EURORADIO_physical_connections_info (data flow) =
is_present
+ n_of_handable_EURORADIO_physical_connections.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information about the number of EURORADIO physical connections that the
on board equipment can handle simultaneously.

1396. EURORADIO_safe_connection_confirmation_info (data flow) =
is_present
+nid_trackside_radio_device.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO safe connection confirmation information

2584. nid_trackside_radio_device (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : ETCS identifier of trackside radio device
(refer to NID_C, NID_RBC or NID_RIU variables for definition)

1397. EURORADIO_safe_connection_failure_info (data flow) =
is_present
+nid_trackside_radio_device
+reason
+subreason.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO safe connection definitive failure information

3003. reason (data flow, cel) =
**.

---
rate : N/A
range : 0.255
resolution : 1
units : N/A
value names : N/A
description : Code giving the reason of an event related to
radio disconnection;

3499. subreason (data flow, cel) =
**.

---
rate : N/A
range : 0.255
resolution : 1
units : N/A
value names : N/A
description : Code giving the sub-reason of an event related to
radio disconnection;

1398. EURORADIO_safe_connection_loss_info (data flow) =
is_present
+nid_trackside_radio_device
+reason
+subreason.

---

rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO safe connection loss information

1399. EURORADIO_safe_connection_not_established_info (data flow) =
is_present
+nid_trackside_radio_device
+reason
+subreason.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO safe connection not established information sent by the BSW after 3 unsucessful connection attempts.

1387. EURORADIO_input_msgs_info (data flow) =
max_n_of_EURORADIO_input_msgs{EURORADIO_input_msg_info}max_n_of_EURORADIO_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO input messages information

2011. max_n_of_EURORADIO_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of input EURORADIO messages.
This number is equal to 5.

1385. EURORADIO_input_msg_info (data flow) =
is_present
+nid_trackside_radio_device
+coded_EURORADIO_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO input message information

658. coded_EURORADIO_input_msg (data flow) =
n_of_bits_in_EURORADIO_i_msg{bit}n_of_bits_in_EURORADIO_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded EURORADIO input message

2229. n_of_bits_in_EURORADIO_i_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..4000
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in current EURORADIO input message

1380. EURORADIO_input_emergency_msgs_info (data flow) =
max_n_of_EURORADIO_input_emergency_msgs{EURORADIO_input_emergency_msg_info
}max_n_of_EURORADIO_input_emergency_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO input emergency messages information

2010. max_n_of_EURORADIO_input_emergency_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of input EURORADIO emergency messages.
This number is equal to 3.

1379. EURORADIO_input_emergency_msg_info (data flow) =
is_present
+nid_trackside_radio_device
+coded_EURORADIO_input_emergency_msg.

---
rate : N/A

range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO input emergency message information

657. coded_EURORADIO_input_emergency_msg (data flow) =
n_of_bits_in_EURORADIO_emergency_i_msg{bit}n_of_bits_in_EURORADIO_emergency_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded EURORADIO input emergency message

2228. n_of_bits_in_EURORADIO_emergency_i_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..200
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in current EURORADIO input emergency
message

2082. mobile_status (data flow) =
mobile_is_OK
+mobile_comm
+mobile_call_type
+mobile_network_registration
+mobile_PDP_context

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : statuses of one radio mobile

2078. mobile_is_OK (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates if the mobile is Ok or failed;

2077. mobile_comm (data flow, del) =
["FREE"|"SAFE"|"NON_SAFE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates if there is a connection established with the
mobile and, if so, if it is a safe one (ETCS);

2076. mobile_call_type (data flow, del) =
["CSD"|"PSD"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates if the mobile connection is in Circuit-Switched Data (GSM-R)
or in Packet-Switched Data (GPRS);

2080. mobile_network_registration (data flow, del) =
["NOT_REGISTERED"|"REGISTER_REQUEST"|"REGISTER_CONFIRM"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "NOT_REGISTERED" = the mobile has no registration on-going
"REGISTER_REQUEST" = the mobile is under registration
"REGISTER_CONFIRM" = the mobile is registred to a network
description : status of radio mobile registration to the network

2081. mobile_PDP_context (data flow, del) =
["NOT_ACTIVATED"|"ACTIVATION_REQUEST"|"ACTIVATION_CONFIRM"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "NOT_ACTIVATED" = the mobile has no PDP context activation on-going
"ACTIVATION_REQUEST" = the mobile is activating a PDP context
"ACTIVATION_CONFIRM" = the mobile PDP context is activated
description : status of radio mobile PDP context activation;

1354. EUROLOOP_input_info (data flow) =
EUROLOOP_input_msgs_info
+EUROLOOP_receiver_failure_info.

---
rate : N/A

range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROLOOP input information

1357. EUROLOOP_input_msgs_info (data flow) =
max_n_of_EUROLOOP_input_msgs{
EUROLOOP_input_msg_info
+EUROLOOP_reception_time_stamp
}max_n_of_EUROLOOP_input_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROLOOP input messages information

2009. max_n_of_EUROLOOP_input_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of input EUROLOOP messages.
This number is equal to 1(only the last received message is
considered).

1356. EUROLOOP_input_msg_info (data flow) =
loop_message_received
+coded_EUROLOOP_input_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROLOOP input message information

1905. loop_message_received (data flow, del) =
["NONE"|"NEW"|"SAME"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "NONE"=the message is not present
"NEW" =a new loop message (different from
the previous one) is received

"SAME"=the same loop message than the
previous one is received again
description : Indicates the type of the received euroloop
message

656. coded_EUROLOOP_input_msg (data flow) =
n_of_bits_in_EUROLOOP_i_msg{bit}n_of_bits_in_EUROLOOP_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded EUROLOOP input message

2227. n_of_bits_in_EUROLOOP_i_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..830
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in current EUROLOOP input message

1368. EUROLOOP_reception_time_stamp (data flow, cel) =
**.

---
rate : N/A
range : 0..2**31 - 1 (in logical_voted_time reference);
resolution : 0.01
units : s;
value names : N/A
description : time of reception of the EUROLOOP message

1365. EUROLOOP_receiver_failure_info (data flow) =
is_present.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the basic has detected the failure
of the EUROLOOP receiver device;

1876. LLRU_status_input_msg_info (data flow) =
is_present
+coded_LLRU_status_input_msg.

---

rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : LLRU status input message information
(received from basic softawre);

662. coded_LLRU_status_input_msg (data flow) =
n_of_bits_in_LLRU_status_i_msg{bit}n_of_bits_in_LLRU_status_i_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded LLRU status input message
(received from basic softawre);

2233. n_of_bits_in_LLRU_status_i_msg (data flow, cel) =
**.

---
rate : N/A;
range : 480..480;
resolution : 1;
units : N/A
value names : N/A
description : number of bits in a LLRU status input message

649. coded_config_data (data flow) =
is_present
+config_data_binary.

---
full_name : ;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
component_of : N/A;
description : ;

688. config_data_binary (data flow) =
config_data_binary_length
+config_data_binary_length{bit}config_data_binary_length.

---
full_name : ;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;

component_of : N/A;
description : ;

689. config_data_binary_length (data flow, del) =
**.

---
full_name : ;
rate : N/A;
range : 1..240000;
resolution : 1;
units : bit;
value_names : N/A;
component_of : N/A;
description : ;

650. coded_data_restored_at_power_up (data flow) =
is_present
+data_restored_at_po_binary.

---
full_name : ;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
component_of : N/A;
description : ;

883. data_restored_at_po_binary (data flow) =
data_restored_at_po_binary_length
+data_restored_at_po_binary_length{bit}data_restored_at_po_binary_length

---
full_name : ;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
component_of : N/A;
description : ;

884. data_restored_at_po_binary_length (data flow, cel) =
**.

---
full_name : ;
rate : N/A;
range : 1..8000;

resolution : 1;
units : bit;
value_names : N/A;
component_of : N/A;
description : ;

2732. power_up_tests_info (data flow, del) =
["NOT_RELEVANT" | "ON_GOING" | "SUCCESSFUL" | "SUCCESSFUL_WITH_LOW_AVAILABILTY" | "FAILED"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names :
"NOT_RELEVANT" = No power-up tests results available
"ON_GOING" = Power-up tests are on going
"SUCCESSFUL" = Power-up tests are successful
"SUCCESSFUL_WITH_LOW_AVAILABILTY" = Power-up tests are partially successful, implying low availability
"FAILED" = Power-up tests have failed
description : Gives the result of the power-up tests.

1966. maintenance_data_from_basic (data flow) =
is_present
+ wheel_diameter_A
+ wheel_diameter_B
+ sdmu_coefficient_A
+ sdmu_coefficient_B
+ accelerometer_bias

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maintenance data information provided
by basic

4138. wheel_diameter_A (data flow) =
wheel_diameter_value
+ maintenance_data_state
+ last_modification_date
+ value_has_been_entered

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : contains the information concerning the wheel diameter A entered by the driver

4147. wheel_diameter_value (data flow, cel) =
**.

---
rate : N/A
range : 0..2047
resolution : 1
units : N/A
value names : N/A
initialisation : Empty
description : wheel diameter value entered by the driver

1968. maintenance_data_state (data flow, del) =
["NOT_RELEVANT"| "RANGE_ERROR" | "CONSISTENCY_ERROR" | "VALID"]

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "NOT_RELEVANT " = the data is either undefined or is not available
"RANGE_ERROR" = the data entered is out of the authorised range
"CONSISTENCY_ERROR" = at power-up: the vote of the data fails /
after data entry by driver: the data entered is not coherent
"VALID" = the data has been checked and is the correct one
description : Indicates the state of the data.

1810. last_modification_date (data flow, cel) =
**.

---
rate : N/A
range : 0..4294967296
resolution : 1
units : N/A
value names : N/A
description : gives the date of the last modification of the parameter entered by the driver

4111. value_has_been_entered (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates if the related parameter value
has already been entered;

4141. wheel_diameter_B (data flow) =
wheel_diameter_value
+ maintenance_data_state
+ last_modification_date
+ value_has_been_entered

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : contains the information concerning the wheel diameter B entered by the driver

3152. sdmu_coefficient_A (data flow) =
sdmu_coefficient_value
+ maintenance_data_state
+ last_modification_date
+ value_has_been_entered

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : contains the information concerning the sdmu coefficient B entered by the driver

3162. sdmu_coefficient_value (data flow, cel) =
**.

---
rate : N/A
range : 0..100000
resolution : 1
units : N/A
value names : N/A
initialisation : Empty
description : sdmu coefficient value entered by the driver

3155. sdmu_coefficient_B (data flow) =
sdmu_coefficient_value
+ maintenance_data_state
+ last_modification_date
+ value_has_been_entered

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : contains the information concerning the sdmu coefficient B entered by the driver

31. accelerometer_bias (data flow) =
accelerometer_bias_value
+ maintenance_data_state
+ last_modification_date

+ value_has_been_entered

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : contains the information concerning the accelerometer bias entered by the driver

38. accelerometer_bias_value (data flow, cel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : accelerometer bias value.

3254. specific_config_data (data flow) =
is_present
+ nid_engine.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : specific configuration data received from the BSW at the first EVC cycle.

2568. nid_engine (data flow, pel) =
**.

---
rate : N/A;
range : 0..16777215;
resolution : 1;
units : N/A;
value names : N/A;
description : European Train Control Sysyem equipment ID;

1762. key_mgt_input_info (data flow) =
dialogue_with_KMC_not_possible
+ dialogue_with_KMC_possible
+ dialogue_with_KMC_on_going
+ dialogue_with_KMC_failure
+ key_mgt_info_updated
+ key_db_updated.

---
rate : N/A
range : N/A
resolution : N/A

units : N/A
value names : N/A
description : information coming from the basic software associated to the key management.

918. dialogue_with_KMC_not_possible (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the dialogue with the KMC has become impossible (according to mobiles state).

923. dialogue_with_KMC_possible (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the dialogue with the KMC has become possible (according to mobiles state).

919. dialogue_with_KMC_on_going (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates that the dialogue with the KMC has just started.

915. dialogue_with_KMC_failure (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates a failure of the dialogue with KMC.

1759. key_mgt_info_updated (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A

value names : N/A
description : indicates that the key management info have just been updated.

1754. key_db_updated (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates that the key database has just been updated.

1795. language_info_from_basic (data flow) =
2{driver_language}2
---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : driver language information for both cabins.

1159. driver_language (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DMI_NID_DRV_LANG variable;

1413. events_from_basic (data flow) =
external_small_availability_detected
+ btm_is_not_blind
+ btm_is_probably_blind
+ btm_is_blind
+ btm_unvoted_balise_detected
+ BTM_antenna_raw_tests_in_failure
+ BTM_antenna_valid
+ max_n_of_maintenance_events_from_basic{
maintenance_event_i
}max_n_of_maintenance_events_from_basic

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : events from basic.

1419. external_small_availability_detected (data flow, del) =

["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the basic has detected an EVC external
low availability (e.g. loss of a profibus node).

575. btm_is_not_blind (data flow, del) =
["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that there is no "blind" BTM failure anymore.

576. btm_is_probably_blind (data flow, del) =
["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the basic has detected a possible "blind" BTM failure.

574. btm_is_blind (data flow, del) =
["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the basic has detected a "blind" BTM failure.

578. btm_unvoted_balise_detected (data flow, del) =
["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the basic has detected an unvoted balise BTM failure.

562. BTM_antenna_raw_tests_in_failure (data flow, del) =

["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the EUROBALISE antenna tests have failed.
This flag is set even within Big Metal Masses.

563. BTM_antenna_valid (data flow, del) =
["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the EUROBALISE antenna tests have recovered.

2019. max_n_of_maintenance_events_from_basic (data flow, cel) =
**.

---
rate : N/A
range : 16..16
resolution : N/A
units : N/A
value names : N/A
description : ;

1971. maintenance_event_i (data flow, del) =
["FALSE"|"TRUE"].

---
rate : event (set to "TRUE" during one cycle)
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates that the basic has detected the i_th maintenance event (i = 1 to 16).

3.1.2 OpenETCS outputs

1458. generic_app_to_basic_info (data flow) =
TIU_output_msgs_info
+EUROBALISE_output_info
+EUROCAB_output_info
+EURORADIO_output_info
+EUROLOOP_output_info
+isolation_from_other_equipment_is_required
+channels_extinction_is_required
+coded_data_to_be_restored_at_power_up
+cab_status_for_basic
+antenna_to_be_activated_for_basic
+maintenance_data_to_basic
+LLRU_status_screen_reset_is_required
+MMU_output_info
+BTM_configuration_data_to_basic
+packet_44_info_to_basic
+STMs_state_info_to_basic
+key_mgt_request_info
+generic_context_info_to_basic
+SIL2_display_function_info_to_basic
+EB_intervention_requested.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information from generic application to basic software

3750. TIU_output_msgs_info (data flow) =
max_n_of_TIU_output_msgs{TIU_output_msg_info
}max_n_of_TIU_output_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : TIU output messages information

2033. max_n_of_TIU_output_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A

description : maximum number of output TIU messages.
This number is equal to 1.

3749. TIU_output_msg_info (data flow) =
is_present
+coded_TIU_output_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : TIU output message information

668. coded_TIU_output_msg (data flow) =
n_of_bits_in_TIU_o_msg{bit}n_of_bits_in_TIU_o_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded TIU output message;

2238. n_of_bits_in_TIU_o_msg (data flow, cel) =
**.

---
rate : N/A
range : 0..2000;
resolution : N/A
units : N/A
value names : N/A
description : number of bits in a TIU output message

1350. EUROBALISE_output_info (data flow) =
EUROBALISE_antenna_test_failure_has_to_be_ignored_d_metal_sup
+ EUROBALISE_antenna_test_failure_d_metal_value_info
+ EUROBALISE_antenna_test_failure_has_to_be_ignored_track_cond_sup.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROBALISE output information

1339. EUROBALISE_antenna_test_failure_has_to_be_ignored_d_metal_sup (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates whether the EUROBALISE antenna test failure has to be ignored due
to the d_metal supervision (in level 0, NTC).

1338. EUROBALISE_antenna_test_failure_d_metal_value_info (data flow) =
is_finite
+ d_metal_value.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : D_METAL value information. The distance D_METAL is used by the BSW. It indicates during
which distance the failure of the EUROBALISE antenna test can be ignored.

1568. is_finite (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the value of the variable is finite or not

840. d_metal_value (data flow, cel) =
**.

---
rate : N/A
range : 0..1023
resolution : 1
units : m
value names : 1023 means no value
description : D_METAL value.

1340. EUROBALISE_antenna_test_failure_has_to_be_ignored_track_cond_sup (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates whether the EUROBALISE antenna test failure has to be ignored due
to the a BMM track condition.

1353. EUROCAB_output_info (data flow) =
DMI_output_msgs_info
+STM_output_msgs_info
+STM_specific_output_msgs_info
+JRU_output_msgs_info
+DRU_output_msg_info

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROCAB output information

1042. DMI_output_msgs_info (data flow) =
max_n_of_DMI_output_msgs{DMI_output_msg_info
}max_n_of_DMI_output_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DMI output messages information

2006. max_n_of_DMI_output_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of messages to send to the DMI in a cycle.
Equal to 5.

1041. DMI_output_msg_info (data flow) =
is_present
+DMI_msg_destination_cabin
+coded_DMI_output_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DMI output message information

1013. DMI_msg_destination_cabin (data flow, del) =

["CAB_A"|"CAB_B"|"NO_CAB"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "CAB_A" = the DMI message shall be sent to the cab named by convention CAB_A
"CAB_B" = the DMI message shall be sent to the cab named by convention CAB_B
"NO_CAB" = no DMI message shall be sent.
description : Indicates the destination of the DMI message to send.

653. coded_DMI_output_msg (data flow) =
n_of_bits_in_DMI_o_msg{bit}n_of_bits_in_DMI_o_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded DMI output message;

2224. n_of_bits_in_DMI_o_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..12000;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in a DMI output message

3383. STM_output_msgs_info (data flow) =
max_n_of_STM_output_msgs{STM_output_msg_info
}max_n_of_STM_output_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM output messages information

2027. max_n_of_STM_output_msgs (data flow, pel) =
**.

---
rate : N/A
range : 24..24

resolution : N/A
units : N/A
value names : N/A
description : maximum number of output STM messages.

3381. STM_output_msg_info (data flow) =
is_present
+nid_STM
+coded_STM_output_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM output message information.

665. coded_STM_output_msg (data flow) =
n_of_bits_in_STM_o_msg{bit}n_of_bits_in_STM_o_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded STM output message;

2235. n_of_bits_in_STM_o_msg (data flow, cel) =
**.

---
rate : N/A
range : 0..1856
resolution : 1
units : N/A
value names : N/A
description : number of bits in the STM output message.

3421. STM_specific_output_msgs_info (data flow) =
max_n_of_STM_output_msgs{STM_specific_output_msg_info
}max_n_of_STM_output_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STM specific output messages information

3419. STM_specific_output_msg_info (data flow) =
is_present
+ nid_STM
+ kind.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : request related to the STM-SCMT specific connection,
sent to basic;

1675. JRU_output_msgs_info (data flow) =
max_n_of_JRU_output_msgs{JRU_output_msg_info
}max_n_of_JRU_output_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : JRU output messages information

2014. max_n_of_JRU_output_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of JRU output messages.
This number is equal to 11.

1674. JRU_output_msg_info (data flow) =
is_present
+coded_JRU_output_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : JRU output message information

661. coded_JRU_output_msg (data flow) =
n_of_bits_in_JRU_o_msg{bit}n_of_bits_in_JRU_o_msg
---
full_name : N/A;
rate : N/A;
range : N/A;

resolution : N/A;
units : N/A;
value_names : N/A;
description : coded JRU output message;

2232. n_of_bits_in_JRU_o_msg (data flow, cel) =
**.
---
full_name : N/A;
rate : N/A;
range : 1..16000;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in a JRU output message

1199. DRU_output_msg_info (data flow) =
is_present
+coded_DRU_output_msg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : DRU output message information

654. coded_DRU_output_msg (data flow) =
n_of_bits_in_DRU_o_msg{bit}n_of_bits_in_DRU_o_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded DRU output message;

2225. n_of_bits_in_DRU_o_msg (data flow, cel) =
**.

---
rate : N/A
range : 0..2232
resolution : N/A
units : N/A
value names : N/A
description : number of bits in the DRU output message.

1392. EURORADIO_output_info (data flow) =
EURORADIO_connection_request_info
+EURORADIO_connection_attempts_number_is_infinite
+n_of_EURORADIO_change_of_priority_requests

+n_of_EURORADIO_change_of_priority_requests{EURORADIO_change_of_priority_request}n_of_EURORADIO_change_of_priority_requests
+EURORADIO_disconnection_request_info
+EURORADIO_connection_reset_request_info
+network_registration_request_info
+train_is_in_a_radio_hole_with_front_end
+EURORADIO_output_msgs_info.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO output information

1375. EURORADIO_connection_request_info (data flow) =
is_present
+nid_trackside_radio_device
+nid_radio
+call_type
+QoS
+priority_level.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO connection request information

2572. nid_radio (store) =
number_of_nid_radio_digits
+number_of_nid_radio_digits{digit}number_of_nid_radio_digits.

---
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value names : N/A;
description : NID_RADIO variable (refer to NID_RADIO variable definition in SRS chapter 7);

2622. number_of_nid_radio_digits (data flow, pel) =
**.

---
rate : N/A;
range : 0..16;
resolution : 1;
units : N/A;
value names : N/A;
description : number of decimal digit in the radio number;

924. digit (data flow, pel) =
**.

---
rate : N/A;
range : 0..9;
resolution : 1;
units : N/A;
value names : N/A;
description : ;

597. call_type (data flow, del) =
["CSD_ONLY"|"PSD_WITH_FALLBACK"].

---
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : Indicates the allowed radio call type retrieved
from Q_RADIO of packet 151 or 152 (not standard);

2928. QoS (data flow, del) =
["STANDARD"|"SPARE"].

---
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : Indicates the requested Quality of Service
for the radio connection, retrieved
from Q_RADIOQOS of packet 151 or 152 (not standard);

2856. priority_level (data flow, del) =
["LOW"|"HIGH"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Indicates the priority level of a radio connection.
"HIGH" is used for a connection to the supervising RBC.

1374. EURORADIO_connection_attempts_number_is_infinite (data flow) =
is_present
+nid_trackside_radio_device.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indication to the basic software, about the connection attempts number,
in case of connection request or connection re-establishment process after a connection loss.

2316. n_of_EURORADIO_change_of_priority_requests (data flow, cel) =
**.

---
rate : N/A
range : 0..2
resolution : 1
units : N/A
value names : N/A
description : Number of requests to change the priority level of
an on-going connection;

1370. EURORADIO_change_of_priority_request (data flow) =
is_present
+nid_trackside_radio_device
+priority_level.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO change of priority level request information

1377. EURORADIO_disconnection_request_info (data flow) =
is_present
+nid_trackside_radio_device
+reason
+subreason.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO disconnection request information

1376. EURORADIO_connection_reset_request_info (data flow) =
is_present
+nid_trackside_radio_device
+reason
+subreason.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO connection reset request information
(used in case of T_NVCONTACT expiration);

2535. network_registration_request_info (data flow) =

is_present
+ radio_network_id_value
+ bearer_type
+ nid_APN.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : radio network registration request info.

2952. radio_network_id_value (data flow, cel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : radio network id value.

472. bearer_type (data flow, del) =
["GSM_R_ONLY"|"GPRS_WITH_FALLBACK"].

---
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : Indicates the allowed radio network bearer retrieved
from Q_RADIO of packet 155 (not standard);

2541. nid_APN (data flow, pel) =
**.

---
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : NID_APN variable (not standard);

3934. train_is_in_a_radio_hole_with_front_end (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates whether the train max safe front end is or is not in a radio hole.

1395. EURORADIO_output_msgs_info (data flow) =
max_n_of_EURORADIO_output_msgs{EURORADIO_output_msg_info
}max_n_of_EURORADIO_output_msgs.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO output messages information

2012. max_n_of_EURORADIO_output_msgs (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maximum number of output EURORADIO messages.
This number is equal to 15.

1394. EURORADIO_output_msg_info (data flow) =
is_present
+nid_trackside_radio_device
+coded_EURORADIO_output_msg .

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EURORADIO output message information

659. coded_EURORADIO_output_msg (data flow) =
n_of_bits_in_EURORADIO_o_msg{bit}n_of_bits_in_EURORADIO_o_msg
---
full_name : N/A;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
description : coded EURORADIO output message;

2230. n_of_bits_in_EURORADIO_o_msg (data flow, cel) =
**.

---
full_name : N/A;
rate : N/A;
range : 1..4000;
resolution : 1;
units : N/A;
value_names : N/A;
description : number of bits in current EURORADIO output message

1364. EUROLOOP_output_info (data flow) =
q_sscode.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : EUROLOOP output information

2917. q_sscode (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Q_SSCODE variable (see UNISIG SRS);

1580. isolation_from_other_equipment_is_required (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
value names : "TRUE" = the ERTMS ETCS trainborne equipment
that it is in mode IS to the basic
and the basic has to take the properly actions
"FALSE"= the ERTMS ETCS trainborne equipment
that it is not in mode IS to the basic
and the basic has not to take the properly actions
description : indicates to the basic whether the ERTMS ETCS trainborne equipment is or is not
in isolation mode and the basic, on this information, has or has not to take actions

644. channels_extinction_is_required (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the application software requires
the channel extinctions to the basic software

(when in SF mode).

651. coded_data_to_be_restored_at_power_up (data flow) =
is_present
+data_to_be_restored_at_po_binary.

---
full_name : ;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
component_of : N/A;
description : ;

888. data_to_be_restored_at_po_binary (data flow) =
data_restored_at_po_binary_length
+data_restored_at_po_binary_length{bit}data_restored_at_po_binary_length

---
full_name : ;
rate : N/A;
range : N/A;
resolution : N/A;
units : N/A;
value_names : N/A;
component_of : N/A;
description : ;

596. cab_status_for_basic (data flow, del) =
["CAB_A"|"CAB_B"|"NO_CAB"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "CAB_A" = the activated driver's cab is the cab named by convention CAB_A
"CAB_B" = the activated driver's cab is the cab named by convention CAB_B
"NO_CAB" = no cab is activated
description : cab status information from generic application to basic software

434. antenna_to_be_activated_for_basic (data flow, del) =
["NONE"|"ANTENNA_1"|"ANTENNA_2"].

---
rate : N/A
range : N/A

resolution : N/A
units : N/A
value names : N/A
description : antenna to be activated according to the selected cabin, from applicatif software to basic software.

1969. maintenance_data_to_basic (data flow) =
wheel_diameters_to_be_recorded
+wheel_diameter_to_be_checked
+wheel_diameter_A
+wheel_diameter_B
+sdmu_coefficient_to_be_recorded
+sdmu_coefficient_to_be_checked
+sdmu_coefficient_A
+sdmu_coefficient_B
+accelerometer_bias_to_be_recorded
+accelerometer_bias_to_be_checked
+accelerometer_bias.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : maintenance to transmit to basic

4148. wheel_diameters_to_be_recorded (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the wheel diameters have to
be recorded by basic

4146. wheel_diameter_to_be_checked (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the wheel diameters have to
be checked by basic

3161. sdmu_coefficient_to_be_recorded (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A

range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the sdmu coefficient have to
be recorded by basic

3160. sdmu_coefficient_to_be_checked (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the sdmu coefficient have to
be checked by basic

37. accelerometer_bias_to_be_recorded (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the accelerometer bias has to be recorded by basic

36. accelerometer_bias_to_be_checked (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the accelerometer bias has to be checked by basic.

1882. LLRU_status_screen_reset_is_required (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates to the basic software that the reset of the LLRU status is required.

2071. MMU_output_info (data flow) =
line_speed_value
+ MMU_gradient_data

+ MMU_sb_data
+ MMU_eb_data
+ MMU_traction_data
+ slippery_track.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : Information to the Movement Measuring Unit;

1859. line_speed_value (data flow, pel) =
**.

---
rate : N/A
range : 0..600
resolution : 5
units : kph
value names :
"UNKNOWN" (coded 127) = The line speed profile known onboard is not
sufficient to compute the current line speed;
description : Value of the line speed applicable to the current engine location;

2068. MMU_gradient_data (data flow) =
engine_gradient_value
+ train_gradient_value
+ gradient_is_available.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information about gradient transmitted to the MMU.

1273. engine_gradient_value (data flow, cel) =
**.

---
rate : N/A
range : -0.254..0.254
resolution : 0.001
units : N/A
value names : note: -0.254 is called the "safe gradient value"
description : Value of the minimum gradient found within
the train engine area.;

3922. train_gradient_value (data flow, cel) =
**.

---
rate : N/A

range : -0.254..0.254
resolution : 0.001
units : N/A
value names : note: -0.254 is called the "safe gradient value"
description : Value of the minimum gradient found within
the train area.

1474. gradient_is_available (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates to the MMU if the gradient information is available
according to the current level.

2072. MMU_sb_data (data flow) =
sb_intervention_requested
+ sb_applied_not_filtered
+ sb_braking_capicity
+ sb_application_delay.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information linked to the service brake, transmitted to the MMU.

3131. sb_intervention_requested (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates to the MMU if the Core requests serivce brake application.

3122. sb_applied_not_filtered (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : non-filtered status of the service brake

3123. sb_braking_capicity (data flow, cel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates to the MMU the service deceleration model, used to carry out speed supervision.

3121. sb_application_delay (data flow, cel) =
**.

---
rate : N/A
range : 0..25.5
resolution : 0.1
units : s
value names : N/A
description : indicates to the MMU the service application time, used to carry out speed supervision.

2067. MMU_eb_data (data flow) =
EB_intervention_requested
+ eb_applied_not_filtered.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information linked to the emergency brake, transmitted to the MMU.

1237. EB_intervention_requested (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information to basic.

1231. eb_applied_not_filtered (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : non-filtered status of the emergency brake

2073. MMU_traction_data (data flow) =
traction_cut_off_not_filtered
+ traction_status.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : information linked to the traction, transmitted to the MMU.

3877. traction_cut_off_not_filtered (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : non-filtered status of the traction cut-off

3878. traction_status (data flow, del) =
["NULL"|"POSITIVE"|"NEGATIVE"|"NOT_NULL"|"FAIL_STATE"|"INFORMATION_NOT_AVAILABLE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : traction status computed by the TIU, transmitted to the MMU.

3217. slippery_track (data flow, del) =
["TRUE"|"FALSE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates to the MMU if the rail adhesion is set to "SLIPPERY".

567. BTM_configuration_data_to_basic (data flow) =
is_present
+ BTM_configuration.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A

description : BTM configuration data to transmit to basic

2681. packet_44_info_to_basic (data flow) =
n_of_packet_44_to_be_sent_on_serial_link
+n_of_packet_44_to_be_sent_on_serial_link{packet_44_to_be_sent_on_serial_link}n_of_packet_44_to_be_sent_on_serial_link.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : packets 44 sent to basic.

2411. n_of_packet_44_to_be_sent_on_serial_link (data flow, cel) =
**.

---
rate : N/A
range : 0..5
resolution : 1
units : N/A
value names : N/A
description : number of packets 44 sent to basic software.

2683. packet_44_to_be_sent_on_serial_link (data flow) =
bg_id
+nid_xuser
+xuser_data.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : packet 44 information sent to basic software.

489. bg_id (data flow) =
nid_c
+nid_bg.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : "UNKNOWN" = the ETCS identifier of the balise group is unknown
description : balise group ETCS identifier

2545. nid_c (data flow, pel) =
**.

---
rate : N/A;

range : N/A;
resolution : N/A;
units : N/A;
value names : N/A;
description : NID_C variable;

2543. nid_bg (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : NID_BG variable;

2586. nid_xuser (data flow, del) =
**.

---
rate : N/A
range : 0..511
resolution : 1
units : N/A
value names : N/A
description : NID_XUSER variable (see subset 26).

4161. xuser_data (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : XUSER_DATA variable (see subset 26).

3466. STMs_state_info_to_basic (data flow) =
n_of_STMs_state_info
+ n_of_STMs_state_info{nid_STM
+ nid_stmstate}n_of_STMs_state_info.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : STMs state info transmitted to BSW.

2463. n_of_STMs_state_info (data flow, cel) =
**.

---

rate : N/A
range : 0..12
resolution : 1
units : N/A
value names : N/A
description : number of STM state info transmitted to the BSW.

2580. nid_stmstate (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : NID_STMSTATE variable
exception : for internal use only, use of state DA_FOR_TEST.

1765. key_mgt_request_info (data flow) =
is_present
+ key_mgt_request_type.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : key management request info to basic software.

1766. key_mgt_request_type (data flow, del) =
["UPDATE"|"INSTALLATION"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : key management request type.

1459. generic_context_info_to_basic (data flow) =
is_present
+ DRU_nid_lrbg
+ DRU_d_lrbg
+ DRU_q_dirlrbg
+ DRU_q_dlrbg
+ DRU_l_doubtover
+ DRU_l_doubtunder
+ DRU_q_dirtrain
+ DRU_v_train
+ DRU_m_level
+ DRU_nid_NTC
+ DRU_m_mode
+ DRU_active_cab
+ DRU_active_antenna

+ DRU_EVC_equipment_id

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description :

1194. DRU_nid_lrbg (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1176. DRU_d_lrbg (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1203. DRU_q_dirlrbg (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1205. DRU_q_dlrbg (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1184. DRU_l_doubtover (data flow, pel) =

**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1185. DRU_l_doubtunder (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1204. DRU_q_dirtrain (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1207. DRU_v_train (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1188. DRU_m_level (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1195. DRU_nid_NTC (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1189. DRU_m_mode (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1172. DRU_active_cab (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1171. DRU_active_antenna (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

1178. DRU_EVC_equipment_id (data flow, pel) =
**.

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : See [Applic 5]

3214. SIL2_display_function_info_to_basic (data flow) =
train_speed_for_SIL2
+ SIL2_display_function_is_active

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : SIL2 display function information transmitted to the BSW.

3970. train_speed_for_SIL2 (data flow, cel) =
**.

---
rate : N/A
range : 0..600/3.6
resolution : N/A
units : m/s
value names : N/A
description : train speed value transmitted to BSW, for SIL2 display function.

3215. SIL2_display_function_is_active (data flow, del) =
["FALSE"|"TRUE"].

---
rate : N/A
range : N/A
resolution : N/A
units : N/A
value names : N/A
description : indicates if the SIL2 display function is active or not.