

<document classification>

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<title>

<*subtitle*>

Summary:  
<summary>

Company: <company>  
Authors: <authors>  
Reference: <reference>  
Index: <index>  
Date: <date>

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Distribution List: <distribution list>

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# 1. General Project Description

<description>

## 2. Software Architecture

### 2.1. Project Architecture

This section displays the package hierarchy of projects.

Project SCAD\_E\_Procedure\_OS\_Systemrel

Project Library lib\_Types\_And\_Constants

### 2.2. Call Graph

This Call Graph displays the dependency tree of model operators.

#### 1. EVC

- 1.1. M01\_A00\_EXTRACT\_DATAS\_IN
- 1.2. M02\_A00\_DATA\_CONSISTENCY
- 1.3. M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION
- 1.4. M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL
  - 1.4.1. M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS
    - 1.4.1.1. M04\_A03\_MANAGEMENT\_TEMPORISATION
  - 1.4.2. M04\_A02\_DETERMINE\_MODE
- 1.5. M05\_A00\_BUILD\_DATAS\_OUT

### 3. SCADE\_Procedure\_OS\_Systemrel Project

#### 3.1. Root Elements

##### 3.1.1. EVC Operator

Declared as **public node**

##### 3.1.1.1. Interface

Table 1: Inputs of EVC

Name	Type	Comments and Information
M_DATAS_IN_ODO	s_datas_in_odo	
M_DATAS_IN_RADIO	s_datas_in_radio	
M_DATAS_IN_BTМ	s_datas_in_btm	
M_DATAS_IN_DMI	s_datas_in_dmi	
M_PARAMETERS	s_parameters	

Table 2: Outputs of EVC

Name	Type	Comments and Information
M_DATAS_OUT_DMI	s_datas_out_dmi	
M_DATAS_OUT_BIU	s_datas_out_biu	

##### 3.1.1.2. Locals

Table 3: Locals of EVC

Name	Type	Properties	Comments and Information
D_DISTANCE_ODO_LO C	int		
M_LEVEL_ETCS_LOC	enum_level_etcs	last   LEVEL_0	
M_OS_AREA_LOC	s_os_area		
Q_DRIVER_ACK_OS_M ODE_LOC	bool		

##### 3.1.1.3. Operator Hierarchy

diagram : diagram\_EVC\_1



3.1.1.4.1. View of diagram\_EVC\_1 (EVC)

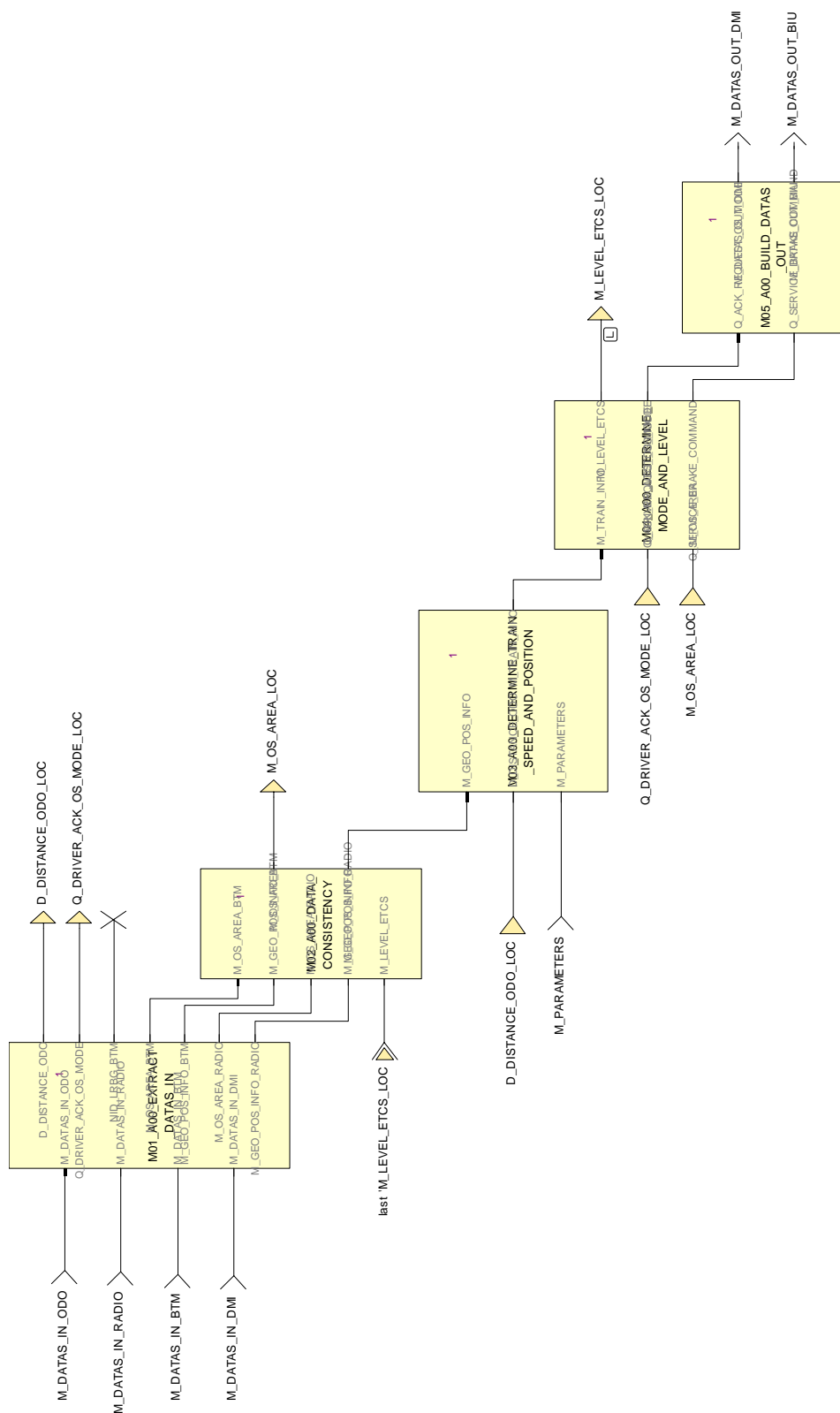


Figure 1: View of diagram\_EVC\_1 (EVC)

### 3.1.2. M01\_A00\_EXTRACT\_DATAS\_IN Operator

Declared as **public function**

#### 3.1.2.1. Interface

Table 4: Inputs of M01\_A00\_EXTRACT\_DATAS\_IN

Name	Type	Comments and Information
M_DATAS_IN_ODO	s_datas_in_odo	
M_DATAS_IN_RADIO	s_datas_in_radio	
M_DATAS_IN_BTM	s_datas_in_btm	
M_DATAS_IN_DMI	s_datas_in_dmi	

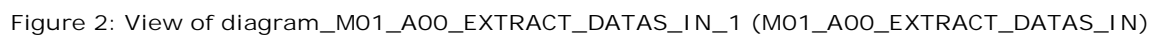
Table 5: Outputs of M01\_A00\_EXTRACT\_DATAS\_IN

Name	Type	Comments and Information
D_DISTANCE_ODO	int	
Q_DRIVER_ACK_OS_M ODE	bool	
NID_LRBG_BTM	int	
M_OS_AREA_BTM	s_os_area	
M_GEO_POS_INFO_BT M	s_geo_pos_info	
M_OS_AREA_RADIO	s_os_area	
M_GEO_POS_INFO_RA DIO	s_geo_pos_info	

#### 3.1.2.2. Operator Hierarchy

diagram : diagram\_M01\_A00\_EXTRACT\_DATAS\_IN\_1

3.1.2.3.1. View of diagram\_M01\_A00\_EXTRACT\_DATAS\_IN\_1  
(M01\_A00\_EXTRACT\_DATAS\_IN)



Declared as **public function**

### 3.1.3.1. Interface

Table 6: Inputs of M02\_A00\_DATA\_CONSISTENCY

Name	Type	Comments and Information
M_OS_AREA_BTM	s_os_area	
M_GEO_POS_INFO_BT M	s_geo_pos_info	
M_OS_AREA_RADIO	s_os_area	
M_GEO_POS_INFO_RA DIO	s_geo_pos_info	
M_LEVEL_ETCS	enum_level_etcs	

Table 7: Outputs of M02\_A00\_DATA\_CONSISTENCY

Name	Type	Comments and Information
M_OS_AREA	s_os_area	
M_GEO_POS_INFO	s_geo_pos_info	

### 3.1.3.2. Operator Hierarchy

diagram : diagram\_M02\_A00\_DATA\_CONSISTENCY\_1

### 3.1.3.3. Graphical and Textual Diagrams

3.1.3.3.1. View of diagram\_M02\_A00\_DATA\_CONSISTENCY\_1 (M02\_A00\_DATA\_CONSISTENCY)

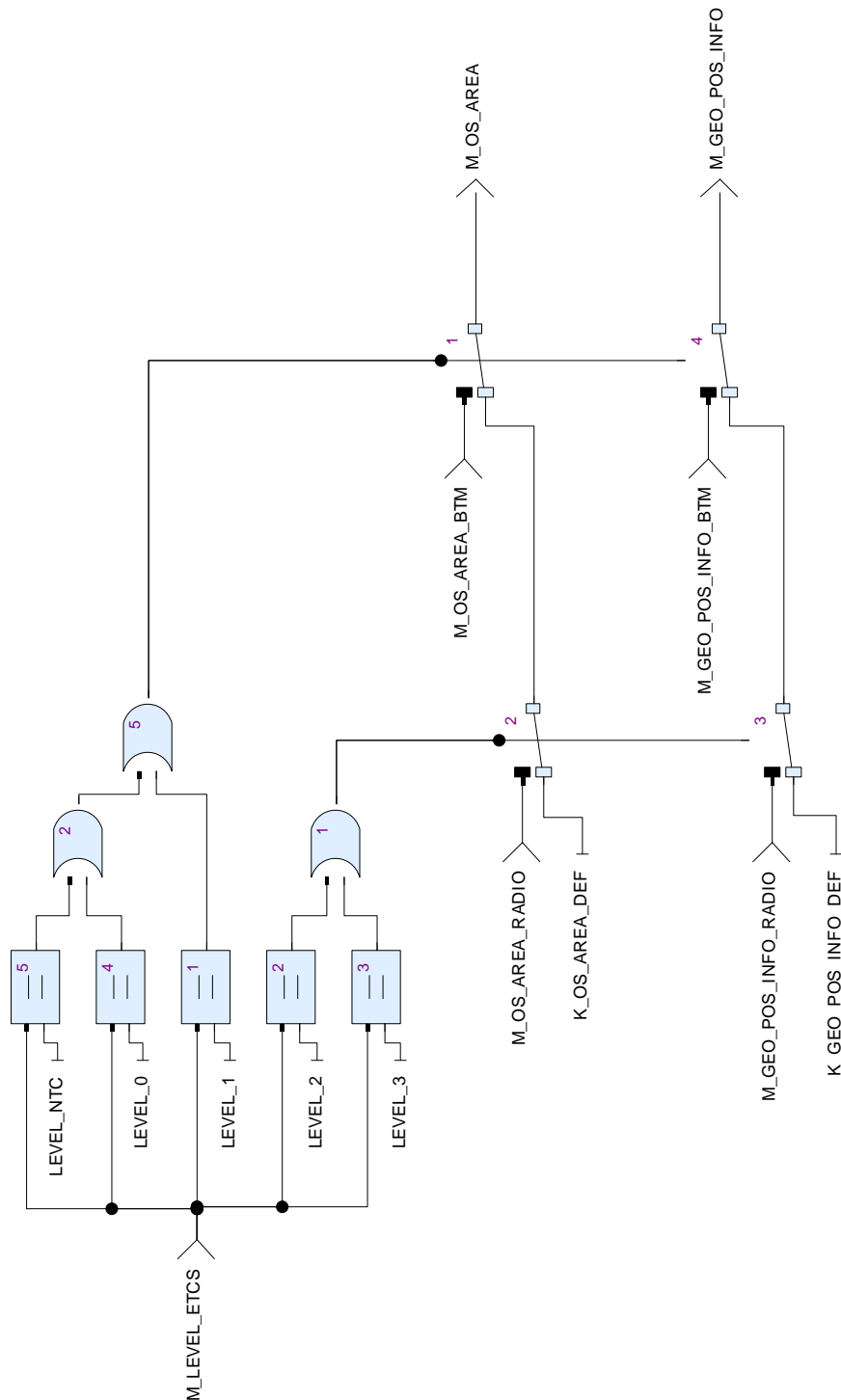


Figure 3: View of diagram\_M02\_A00\_DATA\_CONSISTENCY\_1 (M02\_A00\_DATA\_CONSISTENCY)

### 3.1.4. M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION Operator

Declared as **public** node

### 3.1.4.1. Interface

Table 8: Inputs of M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION

Name	Type	Comments and Information
M_GEO_POS_INFO	s_geo_pos_info	
D_DISTANCE_ODO	int	
M_PARAMETERS	s_parameters	

Table 9: Outputs of M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION

Name	Type	Comments and Information
M_TRAIN_INFO	s_train_information	

### 3.1.4.2. Locals

Table 10: Locals of M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION

Name	Type	Comments and Information
D_DIST_ANTENNA_MAX_SAFE_FRONT_LOC	int	
D_DIST_ANTENNA_MIN_SAFE_FRONT_LOC	int	
D_POSOFF_MAX_SAFE_FRONT_PREV_LOC	int	
D_POSOFF_MIN_SAFE_FRONT_PREV_LOC	int	
M_POSITION_REF_LOC	int	
M_TRAIN_POSITION_REF_PREV_LOC	int	
M_TRAIN_POSITIONS_LOC	s_train_positions	
V_TRAIN_SPEED_LOC	int	

### 3.1.4.3. Operator Hierarchy

diagram : diagram\_M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION\_1

3.1.4.4.1. View of diagram\_M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION\_1  
(M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION)



Table 11: diagram\_M03\_A00\_DETERMINE\_TRAIN\_SPEED\_AND\_POSITION\_1 Annotations

Note Name	Attribute	Value
Graphical_1	Text	***** Determine min/max safe front position of the train ***** *****
	to_c	False
Graphical_21	Text	***** Determine speed of the train ***** *****
	to_c	False
Graphical_3	Text	***** Determine Data Out ***** *****
	to_c	True

### 3.1.5. M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL Operator

Declared as **public node**

#### 3.1.5.1. Interface

Table 12: Inputs of M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL

Name	Type	Comments and Information
M_TRAIN_INFO	s_train_information	
Q_DRIVER_ACQ_OS_MODE	bool	
M_OS_AREA	s_os_area	

Table 13: Outputs of M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL

Name	Type	Comments and Information
M_LEVEL_ETCS	enum_level_etcs	
Q_ACK_REQUEST_OS_MODE	bool	
Q_SERVICE_BRAKE_COMMAND	bool	

#### 3.1.5.2. Locals

Table 14: Locals of M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL

Name	Type	Properties	Comments and Information
M_EVC_MODE_LOC	enum_evc_mode	last SR	

#### 3.1.5.3. Operator Hierarchy

diagram : diagram\_M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL\_1



### 3.1.5.4. Graphical and Textual Diagrams

#### 3.1.5.4.1. View of diagram\_M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL\_1 (M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL)

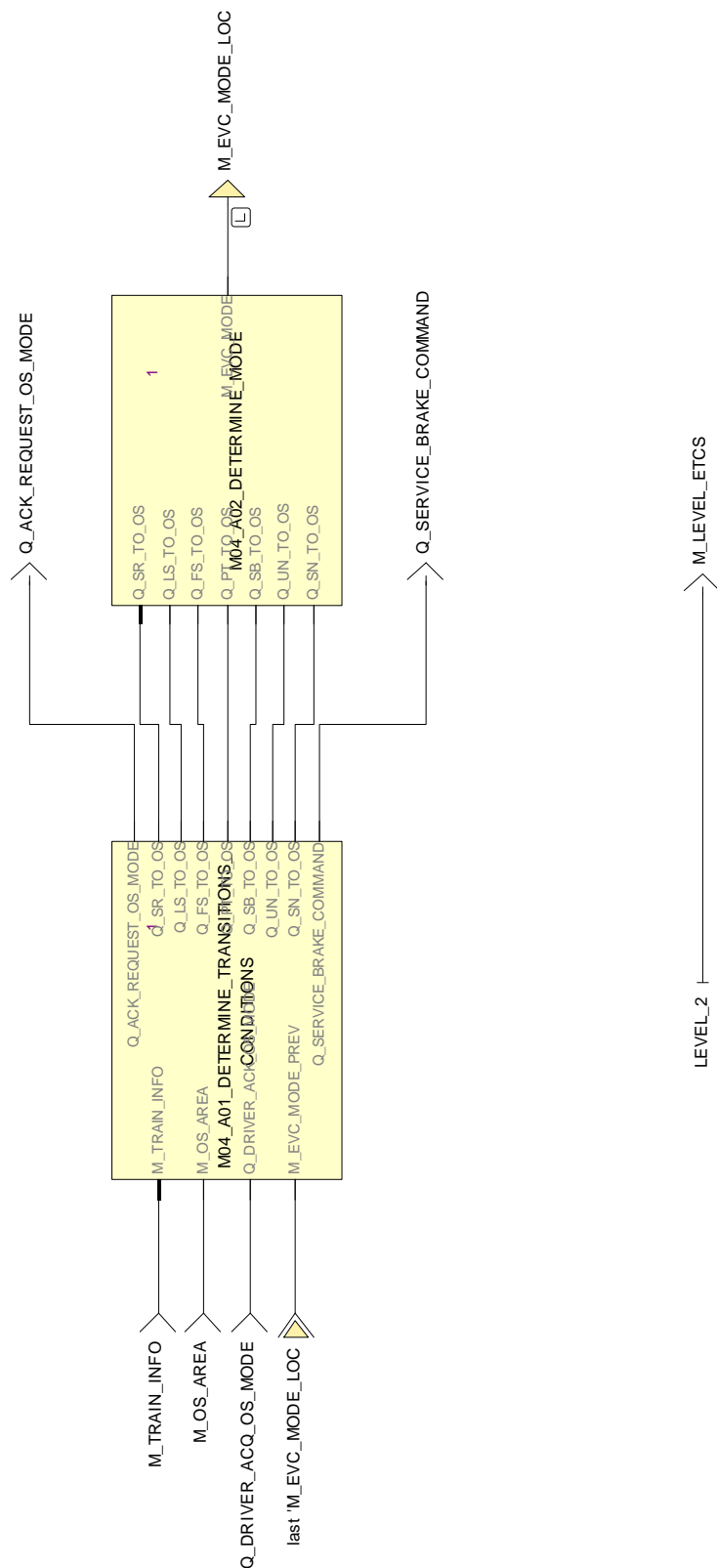


Figure 5: View of diagram\_M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL\_1  
(M04\_A00\_DETERMINE\_MODE\_AND\_LEVEL)

### 3.1.6. M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS Operator

Declared as **public node**

#### 3.1.6.1. Interface

Table 15: Inputs of M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS

Name	Type	Comments and Information
M_TRAIN_INFO	s_train_information	
M_OS_AREA	s_os_area	
Q_DRIVER_ACK_OS_MODE	bool	
M_EVC_MODE_PREV	enum_evc_mode	

Table 16: Outputs of M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS

Name	Type	Comments and Information
Q_ACK_REQUEST_OS_MODE	bool	
Q_SR_TO_OS	bool	
Q_LS_TO_OS	bool	
Q_FS_TO_OS	bool	
Q_PT_TO_OS	bool	
Q_SB_TO_OS	bool	
Q_UN_TO_OS	bool	
Q_SN_TO_OS	bool	
Q_SERVICE_BRAKE_COMMAND	bool	

#### 3.1.6.2. Locals

Table 17: Locals of M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS

Name	Type	Properties		Comments and Information
D_START_OS_AREA_LOC	int			
D_TRAIN_POSOFF_MAX_SAFE_FRONT_LOC	int			
L_ACK_OS_AREA_LOC	int			
M_MAMODE_LOC	enum_mamode	last	NO_PROFILE	
M_TRAIN_POSITIONS_LOC	s_train_positions			
Q_ACK_REQUEST_OD_MODE_LOC	bool			
Q_MODE_PROFILE_OS_IN_PROGRESS_LOC	bool	last	false	
Q_SEND_ACK_REQUEST_FOR_CURRENT_LOCATION_LOC	bool			
Q_SEND_ACK_REQUEST_FOR_FUTHER_LOCATION_LOC	bool			

Name	Type	Properties		Comments and Information
Q_TEMPO_DELAY_DRIVER_ACK_IN_PROGRESS_LOC	bool	last	false	
Q_TRAIN_INSIDE_ACK_OS_AREA_LOC	bool			
Q_TRAIN_INSIDE_OS_AREA_LOC	bool			
Q_TRAIN_SPEED_LOWER_OS_SPEED_LOC	bool			
Q_TRANSITION_OS_FOR_CURRENT_LOCATION_LOC	bool			
Q_TRANSITION_OS_FOR_FURTHER_LOCATION_LOC	bool			
T_TEMPO_DELAY_DRIVER_ACK_LOC	int			
V_OS_AREA_LOC	int			
V_TRAIN_SPEED_LOC	int			

### 3.1.6.3. Operator Hierarchy

diagram : diagram\_M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS\_1

### 3.1.6.4. Graphical and Textual Diagrams

#### 3.1.6.4.1. View of diagram\_M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS\_1 (M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS)

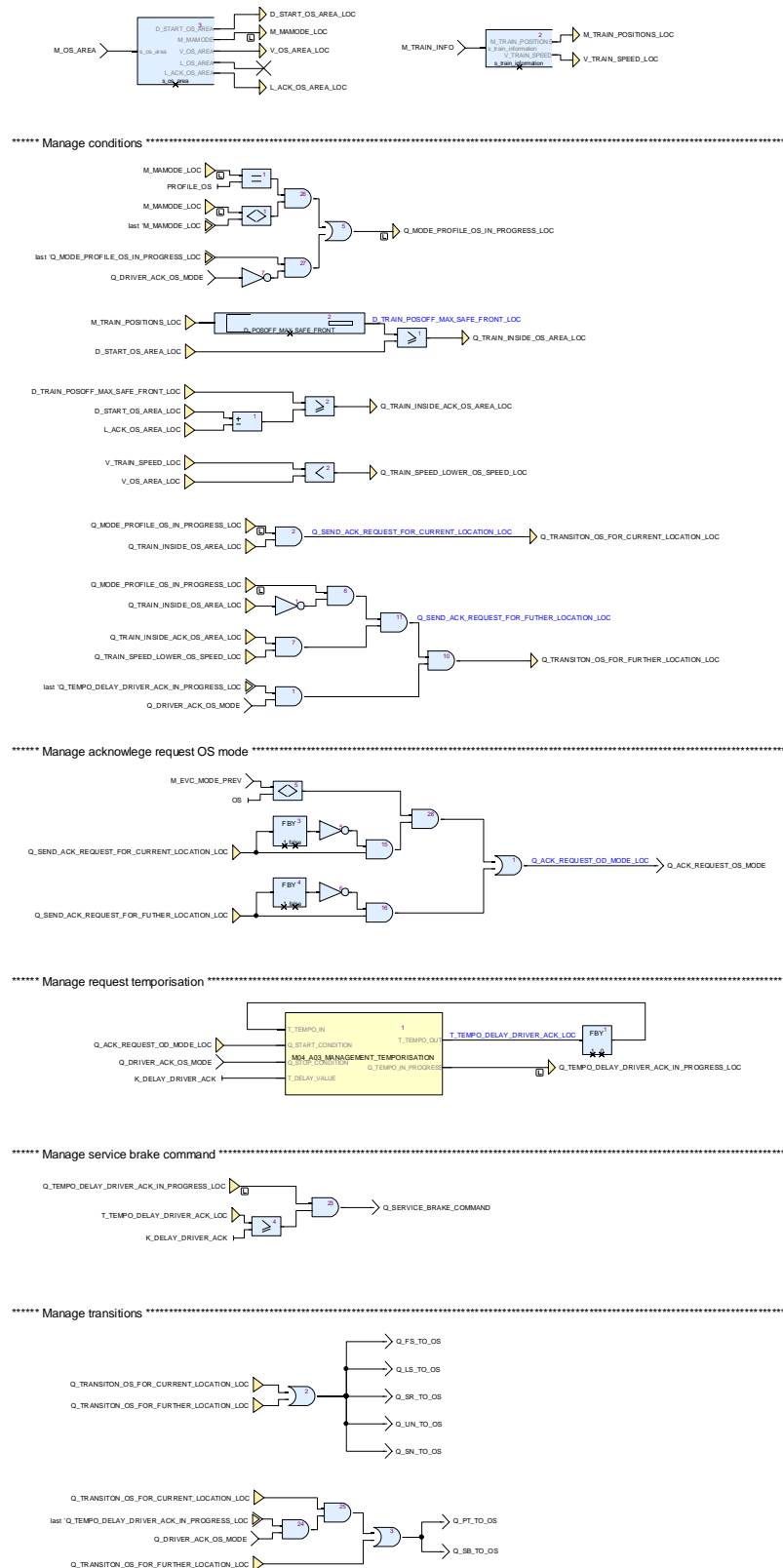


Figure 6: View of diagram\_M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS\_1 (M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS)

Table 18: diagram\_M04\_A01\_DETERMINE\_TRANSITIONS\_CONDITIONS\_1 Annotations

Note Name	Attribute	Value
Graphical_1	Text	***** Manage transitions ***** ***** *****
	to_c	False
Graphical_11	Text	***** Manage service brake command ***** ***** *****
	to_c	False
Graphical_111	Text	***** Manage request temporisation ***** ***** *****
	to_c	False
Graphical_1111	Text	***** Manage acknowledge request OS mode ***** ***** *****
	to_c	False
Graphical_2	Text	***** Manage conditions ***** ***** *****
	to_c	True

### 3.1.7. M04\_A02\_DETERMINE\_MODE Operator

Declared as **public node**

#### 3.1.7.1. Interface

Table 19: Inputs of M04\_A02\_DETERMINE\_MODE

Name	Type	Comments and Information
Q_SR_TO_OS	bool	
Q_LS_TO_OS	bool	
Q_FS_TO_OS	bool	
Q_PT_TO_OS	bool	
Q_SB_TO_OS	bool	
Q_UN_TO_OS	bool	
Q_SN_TO_OS	bool	

Table 20: Outputs of M04\_A02\_DETERMINE\_MODE

Name	Type	Comments and Information
M_EVC_MODE	enum_evc_mode	

### 3.1.7.2. Locals

Table 21: Locals of M04\_A02\_DETERMINE\_MODE

Name	Type	Properties		Comments and Information
M_EVC_MODE_LOC	enum_evc_mode	last	SR	
M_FS_TO_NEWMODE	enum_evc_mode			
M_LS_TO_NEWMODE	enum_evc_mode			
M_PT_TO_NEWMODE	enum_evc_mode			
M_SB_TO_NEWMODE	enum_evc_mode			
M_SN_TO_NEWMODE	enum_evc_mode			
M_SR_TO_NEWMODE	enum_evc_mode			
M_UN_TO_NEWMODE	enum_evc_mode			

### 3.1.7.3. Operator Hierarchy

diagram : diagram\_M04\_A02\_DETERMINE\_MODE\_1

*activate if* : IfBlock1

branch : then

branch : else

*activate if* : IfBlock2

branch : then

branch : else

*activate if* : IfBlock3

branch : then

branch : else

*activate if* : IfBlock4

branch : then

branch : else

*activate if* : IfBlock5

branch : then

branch : else

*activate if* : IfBlock6

branch : then

branch : else

*activate if* : IfBlock7

branch : then

branch : else

### 3.1.7.4. Graphical and Textual Diagrams

#### 3.1.7.4.1. View of diagram\_M04\_A02\_DETERMINE\_MODE\_1 (M04\_A02\_DETERMINE\_MODE)

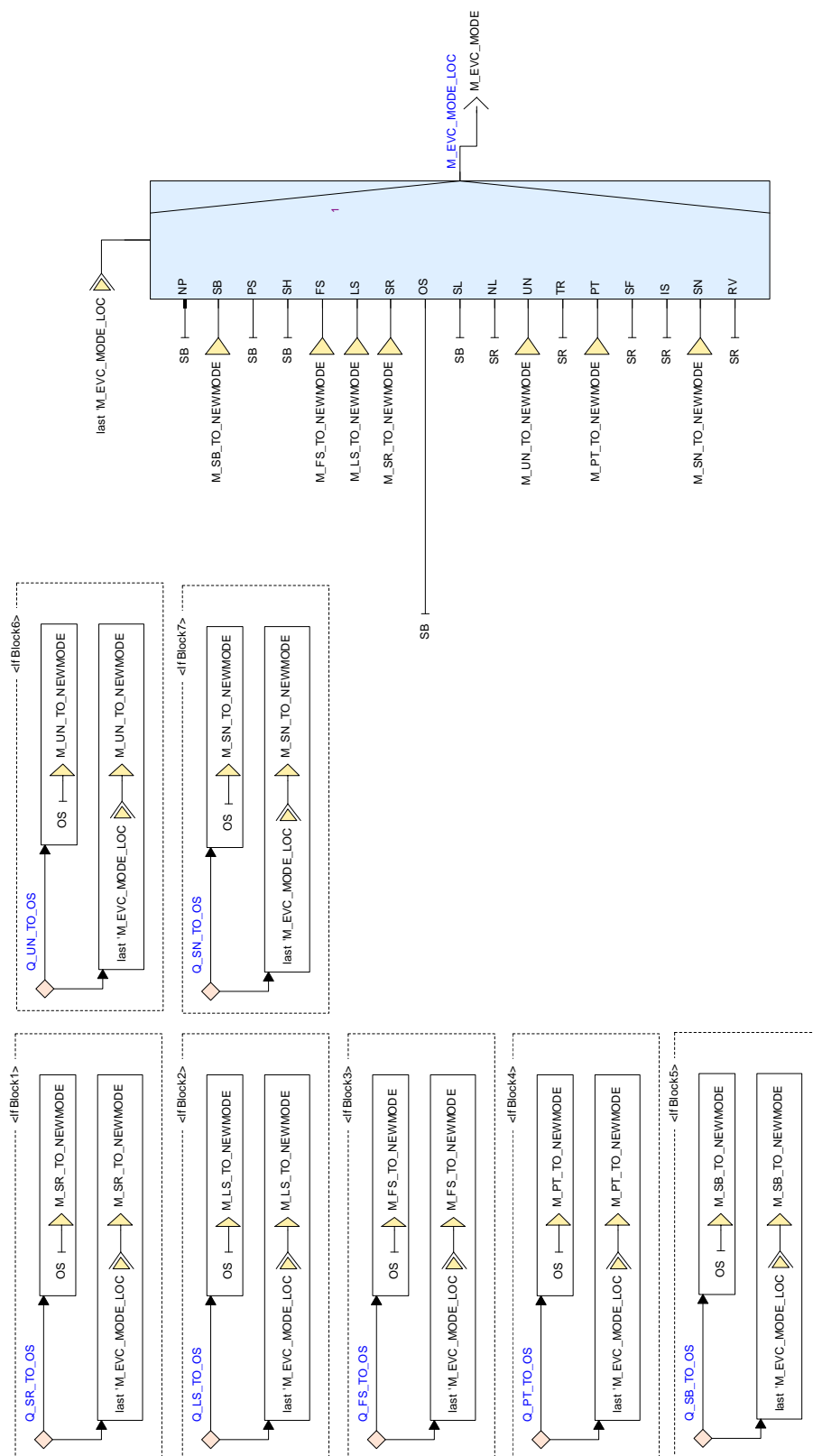


Figure 7: View of diagram\_M04\_A02\_DETERMINE\_MODE\_1 (M04\_A02\_DETERMINE\_MODE)

Table 22: Conditional Blocks of diagram\_M04\_A02\_DETERMINE\_MODE\_1

Conditional Block	Comments and Information
IfBlock1	
IfBlock2	
IfBlock3	
IfBlock4	
IfBlock5	
IfBlock6	
IfBlock7	

Table 23: Actions of diagram\_M04\_A02\_DETERMINE\_MODE\_1

Conditional Block Action	Comments and Information
IfBlock1: then	
IfBlock1: else	
IfBlock2: then	
IfBlock2: else	
IfBlock3: then	
IfBlock3: else	
IfBlock4: then	
IfBlock4: else	
IfBlock5: then	
IfBlock5: else	
IfBlock6: then	
IfBlock6: else	
IfBlock7: then	
IfBlock7: else	

### 3.1.8. M04\_A03\_MANAGEMENT\_TEMPORISATION Operator

Declared as **public node**

#### 3.1.8.1. Interface

Table 24: Inputs of M04\_A03\_MANAGEMENT\_TEMPORISATION

Name	Type	Comments and Information
T_TEMPO_IN	int	
Q_START_CONDITION	bool	
Q_STOP_CONDITION	bool	
T_DELAY_VALUE	int	

Table 25: Outputs of M04\_A03\_MANAGEMENT\_TEMPORISATION

Name	Type	Comments and Information
T_TEMPO_OUT	int	
Q_TEMPO_IN_PROGRES	bool	



### 3.1.8.2. Locals

Table 26: Locals of M04\_A03\_MANAGEMENT\_TEMPORISATION

Name	Type	Properties		Comments and Information
Q_TEMPO_IN_PROGRE SS_LOC	bool	last	false	

### 3.1.8.3. Operator Hierarchy

diagram : diagram\_M04\_A03\_MANAGEMENT\_TEMPORISATION\_1

```
    activate if : IfBlock1
      branch : then
      branch : else
        branch : then
        branch : else
          branch : then
            activate if : IfBlock2
              branch : then
              branch : else
            branch : else
```

### 3.1.8.4. Graphical and Textual Diagrams

#### 3.1.8.4.1. View of diagram\_M04\_A03\_MANAGEMENT\_TEMPORISATION\_1 (M04\_A03\_MANAGEMENT\_TEMPORISATION)

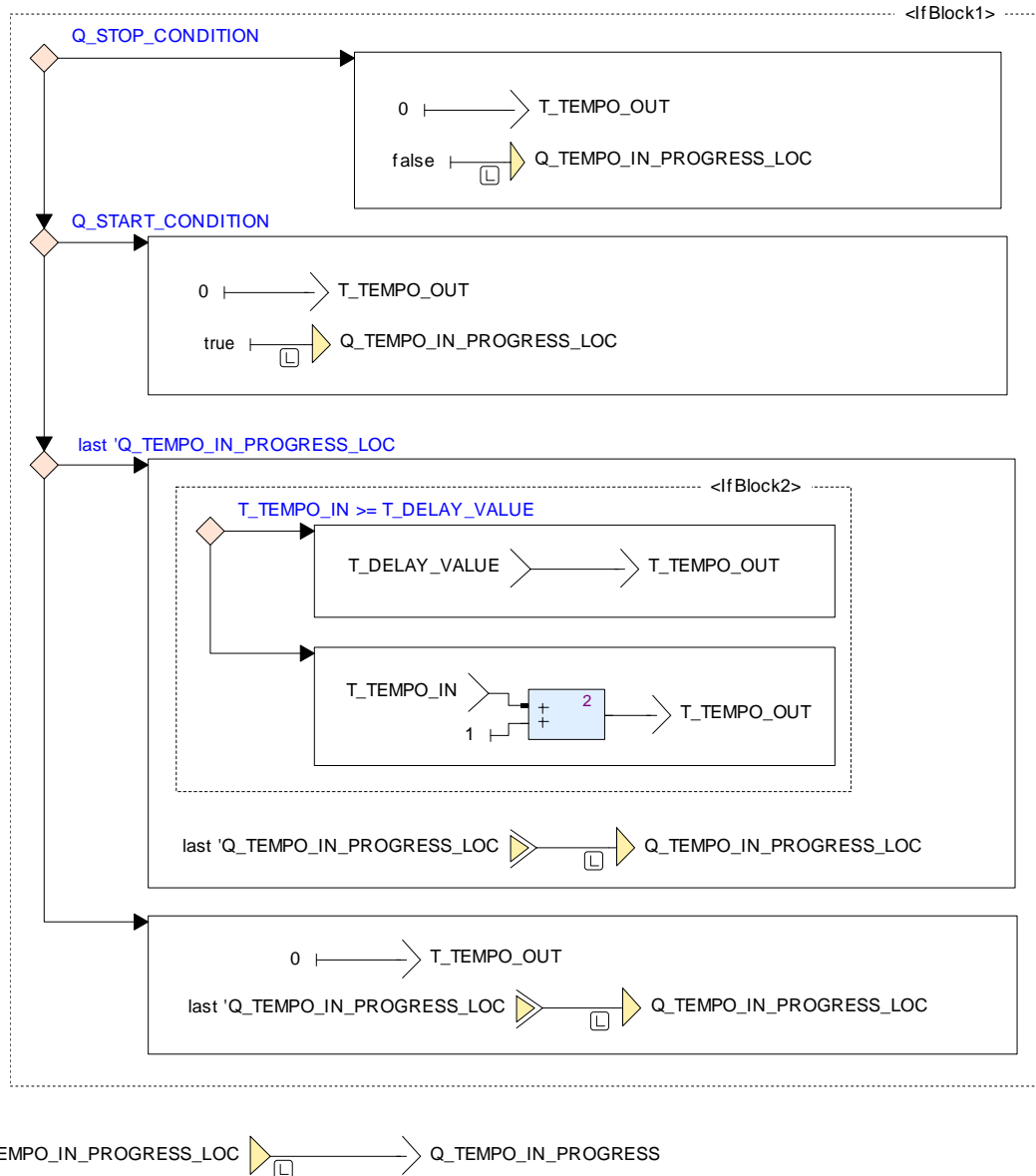


Figure 8: View of diagram\_M04\_A03\_MANAGEMENT\_TEMPORISATION\_1 (M04\_A03\_MANAGEMENT\_TEMPORISATION)

Table 27: Conditional Blocks of diagram\_M04\_A03\_MANAGEMENT\_TEMPORISATION\_1

Conditional Block	Comments and Information
IfBlock1	
IfBlock1:else:else:then: IfBlock2	

Table 28: Actions of diagram\_M04\_A03\_MANAGEMENT\_TEMPORISATION\_1

Conditional Block Action	Comments and Information
IfBlock1: then	
IfBlock1: else: then	
IfBlock1: else: else: then	

Conditional Block Action	Comments and Information
IfBlock1:else:else: then: IfBlock2: then	
IfBlock1:else:else: then: IfBlock2:else	
IfBlock1:else:else: else	

### 3.1.9. M05\_A00\_BUILD\_DATAS\_OUT Operator

Declared as **public function**

#### 3.1.9.1. Interface

Table 29: Inputs of M05\_A00\_BUILD\_DATAS\_OUT

Name	Type	Comments and Information
Q_ACK_REQUEST_OS_MODE	bool	
Q_SERVICE_BRAKE_COMMAND	bool	

Table 30: Outputs of M05\_A00\_BUILD\_DATAS\_OUT

Name	Type	Comments and Information
M_DATAS_OUT_DMI	s_datas_out_dmi	
M_DATAS_OUT_BIU	s_datas_out_biu	

#### 3.1.9.2. Operator Hierarchy

diagram : diagram\_M05\_A00\_BUILD\_DATAS\_OUT\_1

#### 3.1.9.3. Graphical and Textual Diagrams

##### 3.1.9.3.1. View of diagram\_M05\_A00\_BUILD\_DATAS\_OUT\_1 (M05\_A00\_BUILD\_DATAS\_OUT)

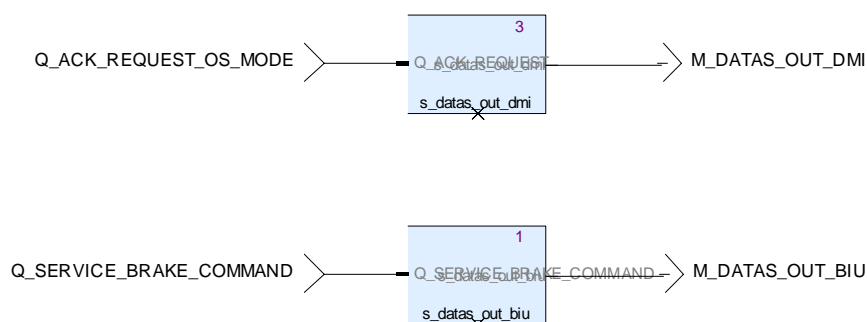


Figure 9: View of diagram\_M05\_A00\_BUILD\_DATAS\_OUT\_1 (M05\_A00\_BUILD\_DATAS\_OUT)

## 4. Project Library: lib\_Types\_And\_Constants

### 4.1. Root Elements

#### 4.1.1. Types

Table 31: Public Types of lib\_Types\_And\_Constants

Name	Definition	Comments and Information
enum_evc_mode	enum {NP, SB, PS, SH, FS, LS, SR, OS, SL, NL, UN, TR, PT, SF, IS, SN, RV}	Comments: Enumeration of EVC mode NP Comments: No Power SB Comments: Stand By PS Comments: Passive Shunting SH Comments: Shunting FS Comments: Full Supervision LS Comments: Limited Supervision SR Comments: Staff Responsible OS Comments: On Sight SL Comments: Sleeping NL Comments: Non Leading UN Comments: Unfitted TR Comments: Trip PT Comments: Post Trip SF Comments: System Failure IS Comments: Isolation SN Comments: National System RV Comments: Reversing
enum_level_etcs	enum {LEVEL_0, LEVEL_NTC, LEVEL_1, LEVEL_2, LEVEL_3}	Comments: Enumeration of ETCS levels
enum_mamode	enum {PROFILE_OS, PROFILE_SH, PROFILE_LS, NO_PROFILE}	Comments: Enumeration of the mode profile PROFILE_OS Comments: On Sight profile PROFILE_SH Comments: Shunting profile PROFILE_LS Comments: Limited Supervision profile NO_PROFILE Comments: No profile

Name	Definition	Comments and Information
s_datas_in_btm	{M_PACKET_GEO_POS_INFO : s_packet_geographical_position_infor mation, M_PACKET_MODE_PROFILE : s_packet_mode_profile, NID_LRBG_BT M : int}	Comments: Structure associated to the inputs of the BTM sub-system M_PACKET_GEO_POS_I NFO Comments: Packet geographical position information M_PACKET_MODE_PROFI LE Comments: Packet Mode Profile NID_LRBG_BT M Comments: Identity of last relevant balise group
s_datas_in_dmi	{Q_DRIVER_ACK_OS_MODE : bool}	Comments: Structure associated to the inputs of the DMI sub-system Q_DRIVER_ACK_OS_MODE Comments: Acknowledgement for OS mode send by the driver
s_datas_in_odo	{D_DISTANCE_ODO : int}	Comments: Structure associated to the inputs of the ODO sub-system D_DI STANCE_ODO Comments: Distance extracted of the ODO sub-system
s_datas_in_radio	{M_PACKET_GEO_POS_INFO : s_packet_geographical_position_infor mation, M_PACKET_MODE_PROFILE : s_packet_mode_profile}	Comments: Structure associated to the inputs of the Radio sub-system M_PACKET_GEO_POS_I NFO Comments: Packet geographical position information M_PACKET_MODE_PROFI LE Comments: Packet Mode Profile
s_datas_out_biu	{Q_SERVICE_BRAKE_COMMAND : bool}	Comments: Structure associated to the outputs of the BIU sub-system Q_SERVICE_BRAKE_COMMAN D Comments: Service brake command
s_datas_out_dmi	{Q_ACK_REQUEST : bool}	Comments: Structure associated to the outputs of the DMI sub-system Q_ACK_REQUEST Comments: Acknowledgement requested to the driver

Name	Definition	Comments and Information
s_geo_pos_info	{NID_BG : int, D_POSOFF : int, M_POSITION : int}	Comments: Structure associated to the geographical position information NID_BG Comments: Identity number of the balise group D_POSOFF Comments: Offset from the location reference of the geographical position reference balise group to the related track kilometre reference M_POSITION Comments: Track kilometre reference value
s_os_area	{D_START_OS_AREA : int, M_MAMODE : enum_mamode, V_OS_AREA : int, L_OS_AREA : int, L_ACK_OS_AREA : int}	Comments: Structure associated of the OS area D_START_OS_AREA Comments: Incremental distance to the start of the OS area M_MAMODE Comments: Required mode for a part of the MA V_OS_AREA Comments: Speed of the OS area L_OS_AREA Comments: Length of the OS area L_ACK_OS_AREA Comments: Length of the acknowledgement area in rear of the start of the OS area
s_packet_geographical_position_information	{NID_BG : int, D_POSOFF : int, M_POSITION : int}	Comments: Structure associated to the packet geographical location information for one or multiple references to the train NID_BG Comments: Identity number of the balise group D_POSOFF Comments: Offset from the location reference of the geographical position reference balise group to the related track kilometre reference M_POSITION Comments: Track kilometre reference value

Name	Definition	Comments and Information
s_packet_mode_profile	{D_MAMODE : int, M_MAMODE : enum_mamode, V_MAMODE : int, L_MAMODE : int, L_ACKMAMODE : int}	Comments: Structure associated to the packet mode profile associated to an MA D_MAMODE Comments: Incremental distance to the start of the next Mode Profile M_MAMODE Comments: Required mode for a part of the MA V_MAMODE Comments: Required mode related speed L_MAMODE Comments: Length of the area of the required mode L_ACKMAMODE Comments: Length of the acknowledgement area in rear of the start of the required mode
s_parameters	{D_DISTANCE_ANTENNA_MAX_SAFE_FRONT : int, D_DISTANCE_ANTENNA_MIN_SAFE_FRONT : int}	Comments: Structure associated of parameters D_DISTANCE_ANTENNA_MAX_SAFE_FRONT Comments: Distance between the antenna and the max safe front position of the train D_DISTANCE_ANTENNA_MIN_SAFE_FRONT Comments: Distance between the antenna and the min safe front position of the train
s_train_information	{M_TRAIN_POSITIONS : s_train_positions, V_TRAIN_SPEED : int}	Comments: Structure associated to the informations of a train M_TRAIN_POSITIONS Comments: Positions of the train V_TRAIN_SPEED Comments: Speed of the train
s_train_positions	{M_POSITION : int, D_POSOFF_MAX_SAFE_FRONT : int, D_POSOFF_MIN_SAFE_FRONT : int}	Comments: Structure associated of positions of a train M_POSITION Comments: Track kilometre reference value D_POSOFF_MAX_SAFE_FRONT Comments: Offset from the max safe front position to the related track kilometre reference D_POSOFF_MIN_SAFE_FRONT Comments: Offset from the min safe front position to the related track kilometre reference

#### 4.1.2. Constants

Table 32: Public Constants of lib\_Types\_And\_Constants

Name	Type	Value	Comments and Information
K_DELAY_DRIVER_ACK	int	50	Comments: Delay waiting for the acknowledge of the driver (in cycles)
K_GEO_POS_INFO_DEF	s_geo_pos_info	{NID_BG : 0, D_POSOFF : 0, M_POSITION : 0}	Comments: Geographical position information by default
K_OS_AREA_DEF	s_os_area	{D_START_OS_AREA : 0, M_MAMODE : NO_PROFILE, V_OS_AREA : 0, L_OS_AREA : 0, L_ACK_OS_AREA : 0}	Comments: OS area by default
K_PERIOD_APPLI	int	100	Comments: Period of the application EVC (in milliseconds)
K_S_TO_MS	int	1000	Comments: Conversion seconds to milliseconds
K_TRAIN_POSITIONS_DEF	s_train_positions	{M_POSITION : 0, D_POSOFF_MAX_SAFE_FRONT : 0, D_POSOFF_MIN_SAFE_FRONT : 0}	Comments: Positions by default of the train (in meters)
K_TRAIN_SPEED_DEF	int	0	Comments: Speed by default of the train (in m/s)

End of document.