

# **SIBAS 32**

## **List of Abbreviations**

CCU - Central Control Unit

TCU - Traction Control Unit

TCU - Train Control Unit

BCU - Brake Control Unit

MMI - Man-Machine Interface

MVB - Multi Vehicle Bus

SKS - SIBAS Klip Station

WSP - Wheel Slip Protection

## **CCU**

- CCU is the main control system at the heart of each train
- There are two CCU's on a train located in cars 200 and 400 ( C and D ) ( Desiro rus )
- CCU also controls the display
- After activating of the train one of the CCU's are assigned as a ' Master ' unit and the other as a 'Slave' .
- The MASTER and SLAVE modes are unit specific and can be assigned to either of the CCU's after restarting of the system
- If one of the CCU's fails the operating one takes on all the functionality and control of the defective one .
- A current SLAVE unit becomes a MASTER if the original MASTER is lost .

## **MVB**

- The units are connected to each other via MVB
- MVB has line A and line B in case of the lines fails MVB will still be available

## **Klip**

- All switches , buttons and consumers that are controlled by CCU's are connected to KLIP stations
- KLIP stations are input/output devices that are used to significantly reduce the length of the CCU's control lines .

# TCU

- TCU processes propulsion and braking ( electro-dynamic ) commands and transmits them to the traction inverter

# BCU

- The CCU calculates EP ( Electro-Pneumatic ) and ED ( Electro-Dynamic ) brake and transmits the values to BCU's and TCU's .

# TCU ( Train Control Unit )

- Data exchange via the MVB Communication module with the other basic units
- Data exchange via MVB with ACU , BCU , TCU ,KLIP etc. of the own 3 car basic unit
- Control of power switches
- Control of the defined tractive and regenerative brake effort
- Monitoring ( power switches , pressure ,temperature , current , voltage and other values )
- Generating control signals for the traction converters
- Diagnostics
- These tasks are performed by the TCU via hardware and software components of the TCU
- TCU SIBAS 32 consists of The Central Processing Unit ( ZP ) and three sub computers ( signal processors )
- The Central Processing Unit is responsible for High - Level Traction Functions
- There are two lower - level signal processors for the two Power Width Modulated Inverters ( PWR )
- One sub computer (4QC ) works with the two 4 Quadrant Choppers
- The CPU also enables closure of the main circuit breakers and controls the state various internal breakers and train wired lines
- The CPU provides monitoring and protection functions to detect faults in the system .
- Diagnostic information is provided to a driver and maintenance staff . With a help of a PC and special software tool ( SIBAS 32 Customer Monitor / Moni32) diagnostic files can be read and / or downloaded from the TCU memory .
- SIBAS 32 is the main control system on a train .

- Processing digital and analog signal is carried out via SIBAS-KLIP stations that incorporate I/O devices .
- Front connectors of a KLIP stations link the I/O device to various internal devices and sensors .
- SIBAS -KLIP is connected to the CCU by the MVB bus

## **WTB**

- WTB bus is used for control and data exchange between several train-sets joined together .
- Shared control via WTB line allows to use several trainsets ( usually two ) as one train .