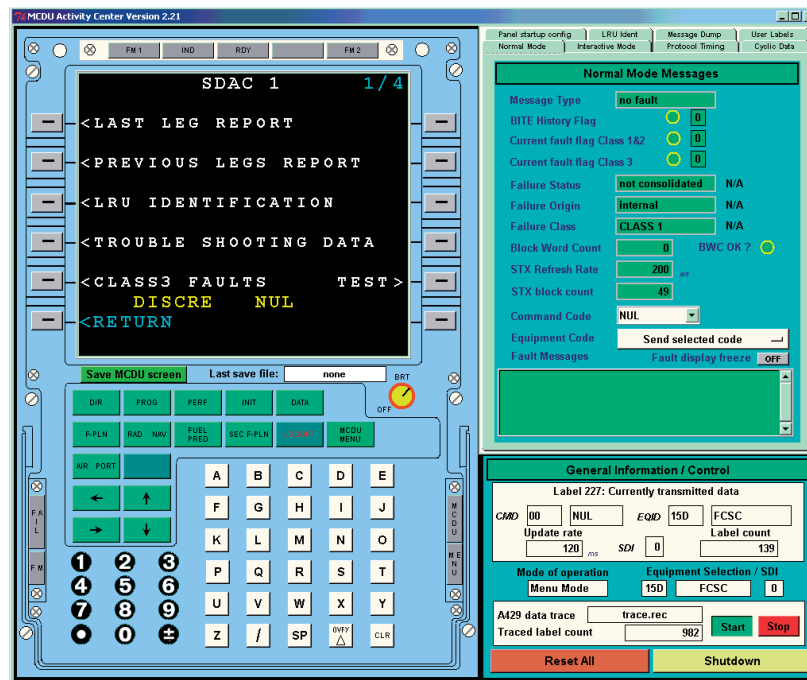


CMC3xx CFDS/OMS Simulation Package for Airbus A31x/A32x and A330/A340



- CFDS | OMS simulation according to ABD0018|48|100
- Flexible configuration
- Accurate simulation of the A429 data traffic
- Protocol analysis and recording





mastering
realtime
complexity

CMC3xx CFDS/OMS Simulation Package

General

The CMC3xx simulation package, which is implemented in Tcl/Tk, combines the Centralized Fault Display System (CFDS) according to ABD0018 and the Onboard Maintenance System (OMS) according to ABD0048/100. Presently, there are versions for Windows XP / 2000 / NT / ME / and 9x.

Together with one of the following TechSAT ARINC 429 interface solutions:

- > A429PCI & A429IPM - PC carrier plus IndustryPack module
- > A429PCC - PCMCIA

the CMC3xx simulation package provides a powerful and cost-saving tool, which is ideal for the development, diagnosis, and maintenance of components with CMCS interface.

The simulation includes the following LRU communication functions:

- > Transfer of cyclic data to LRU
- > Display of cyclic LRU data on MCDU screen (= normal mode)
- > Handshake with LRU and display of LRU pages on MCDU screen (= interactive mode)
- > Apart from these main tasks some special features have been implemented:
 - > Protocol timing analysis and display
 - > Protocol verification including block word count and record sequence number
 - > Protocol error stimulation

GUI Overview

A brief overview of the various control and display panels contained in the MCDU Activity Center main window is given in the sections below.

MCDU Activity Center - This three-pane window (see front page of this data sheet) is the container window of the CMC3xx simulation system. The left panel is a one-to-one copy of a real-world

MCDU panel. The top panel to the right changes according to which tab button has been clicked last. By default, the Normal Mode panel is displayed. At the bottom section you find the General Information / Control panel, which provides displays for the Operation Mode and the Equipment ID, and controls to start and stop ARINC 429 data logging, reset the displays of the various panels, and terminate the simulation.

Normal Mode panel - Contains scrollable history of fault messages. Detailed error information is provided for the last fault message in the upper half of the panel. The panel also contains list boxes to change the Command Code and the Equipment Code.

Cyclic Data panel - Displays the most recent updates of the cyclic data sent from the CFDS/OMS to the LRU, including date, UTC, Flight No., City Pair, etc. The panel also provides buttons to bring up configuration windows allowing the operator to enter or modify the data to be transmitted. An automatic flight leg change (flight phases 1 - 10) is available as an option.

Protocol Timing panel - Indicates the handshake response times of the CFDS/OMS and the LRU in milliseconds. There are two block word counts used to monitor if message transmission and reception are congruent. LEDs, initially set to RED, turn GREEN if communication is successful. They stay RED, if there are errors.

Interactive Mode panel - Used to set and define:

- > Protocol characteristics for protocol error stimulation
- > Equipment Identification
- > Protocol timeout tolerances for CFDS/OMS transmissions

Message Dump panel - Used to create a dump of the last message. The data is displayed in binary and ASCII (ISO5) including a time stamp.

LRU Ident(ification) panel - Indicates the Equipment Identification and special LRU identification messages sent by the connected system.

Cyclic Transmissions

Date: 11.02.05 *system*

UTC: 11:22.5 *system*

Flight No.: LH123

City Pair: from MUC to ORD

Flight Phase: # 1 - Powerup

Flight Phase cycle #: 1

Flight Phase interval: 1 sec *static*

A/C Ident: A/C IDENT 3F 6

A/C Config: 100000000000000000

Protocol Characteristics

Normal Operation

Don't send CTS after RTS (1 time(s))

Send CTS with NOT READY bit set

Don't send ACK/NAK after EOT

Send NAK after EOT (1 time(s))

Timing

END → RTS: 3000 ms

CTS → RTS: 1000 ms

RTS → CTS: 200 ms

STX → EOT: 3000 ms

EOT → ACK/NAK: 200 ms

Equipment Selection

Equipment ID: 1 5 D

by name: FCSC

SDI: 0

Submit changes | Reset to defaults

Protocol Status/Timing

ENQ/SE: 14 ms on time

RTS: 65 words in block 27 ms on time

CTS: 21 ms on time

STX: 6 number of

ETX: 6 number of

EOT: 440 ms on time

ACK: 30 ms Total Time Handshake (END - ACK) 538 ms

AlphaNumeric Key: 18 ms on time

ACK | NAK