

20200603 - ProSimA320 functional specification

About ProSim-AR Products

- ProSim creates software products only.
- For both 737 and A320.
- ProSim's products are called Professional Simulator Suites:
 - Detailed simulation of all aircraft systems.
 - Creates images on the Main Instrument Panel (MIP) Display Units (DU).
 - Instructor functionality.
 - Hardware / software interfaces.
 - Highly realistic aircraft flight characteristics.

ProSim-AR software USP's

- Fault tolerant design, maximize uptime, minimize maintenance cost.
- Developed using modern technology for crash free low system load operations.
- High level of realism.
- Actively developed, monthly updates for both products.
- Hardware vendor independent, broad hardware compatibility.
- Easy to use high level SDK.
- Facilities for unattended pilot training.
- Quick turnaround time and flexibility.

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CAA certifications achieved on ProSim-AR software based devices

ProSim737

- FAA AATD
- EASA FNPT II MCC (generic)
- CASA Cat B synthetic trainer FSD-2 + MCC
- CAA NZ STD IR

ProSimA320

- FAA AATD
- EASA FNPT II MCC (generic)
- FAA level 4
- FAA level 5

Selection of ProSim-AR references in education, research, airlines and pilot training

Cockpit4u Aviation Service GmbH

FlyBest Flight Academy

Global Airways

TUIfly Brussels

Japan Aerospace Exploration Agency (JAXA)

Universidad Federico Santa Maria

Berufsschule Pfaffenhofen

WM Simulator Co

Aviation Australia

Prokitor (VOL) Flight Training

Center Air Pilot Academy

HS RheinMain

EXIN Sp. z o.o

Dento Aviation Ltd

TransPac Aviation Academy

AEROMET Escuela de Vuelo

Escuela Peruana de Aviacion Civil S.A

Academia Antioqueña de Aviación

Solihull College

SPŠ dopravní

Auburn University

Escuela de Aviación Los Halcones

Hogschule für Angewandte Wissenschaften Hamburg

Nelson Aviation College

Boliviana De Aviacion

2Fly Airborne

iFly Escuela de Vuelo SA de CV

University of South Australia

Ntl Institute for Aerospace Research Elie Carafoli

University of new south wales

Air Venture Flight Center

Florida Institute of Technology (FIT)

Er-Ah

WASIM

Westavia Fluggesellschaft

Exin Aviation School

ERAH Aviation Academy

PRAAT Escuela de Vuelo

ADF Airways

ADAC

Solaseed Air

RENTSIM SpA

Rajamangala University of Technology Thanyaburi

Hamburg University of Applied Sciences

J. F. Oberlin University

Sojo University

Apex Flight Academy

Ardmore Flying School

ATO

Ansett Aviation Training

Sierra Bravo Escola de Aviacao

AeroGuard Flight Training Center

Goldwings Flight Academy

Svensk Pilotutbildning

TAE Aviation Academy SA

LOT Crew

TAAG Angola Airlines

The Federico Santa María Technical University

RheinMain University of Applied Sciences

Technical University of Applied Sciences Wildau

Military University of Technology Warsaw

ProSimA320 implemented systems and features

Fly-by-Wire Implementation:

- Modes
 - Normal Law
 - Alternate Law
 - Direct Law
- Protections:
 - Overspeed
 - Alpha Floor
 - High AoA
 - Pitch
 - Bank

Navigation Engine

- Independent of Flight Simulator (Prepar3D)
- Internal calculations for VOR, NDB, ADF, ILS, Markers and GPS signals
- Thus 100 % matching the provided ARINC navigation data

ECAM implementation

- Emulation of A320 Flight Warning Computer
- Over 800 ECAM items

PFD

- FMA
- Horizon
- Speed Indicator
- Altitude Indicator
- Vertical Speed Indicator
- Heading Indicator
- Localizer
- Glideslope
- ILS Information
- L/DEV and R/DEV options
- Marker Information
- Barometric Reference Indicator
- TCAS Resolution Mode
- Backup speed scale Mode

ND

- ILS Mode
- VOR Mode
- NAV Mode
- ARC Mode
- PLAN Mode

- TCAS Display
- Terrain Display
- E-GPWS Functionality

Upper ECAM:

- Engine N1 Instrument
- Engine EGT Instrument
- Engine N2 Instrument
- Engine FF Instrument
- FOB Indicator
- Flaps Indicator
- Left Lower Memo Display:
ECAM Actions calculated and displayed in real-time
- Right Lower Memo Display:
Information about in-operational systems

Lower ECAM:

- Pages:
 - APU:
 - GEN Percent/Voltage/Hertz
 - Bleed
 - N Instrument
 - EGT Instrument
 - Flap Indication
 - Fault Indication
 - BLEED:
 - Wing Anti Ice
 - Air Mix Left Temperature
 - Air Mix Left Valve
 - RAM AIR
 - Air Mix Right Temperature
 - Air Mix Right Valve
 - Cross Bleed Valve
 - APU Bleed Valve
 - Inlet Bleed Air Pressure
 - Inlet Bleed Air Temperature
 - IP Valve Left
 - HP Valve Left
 - IP Valve Right
 - HP Valve Right
 - CAB PRESS:
 - LDG ELEV
 - Delta Pressure
 - Cabin Vertical Speed
 - Cabin Altitude

- Safety Valve
- Inlet Valve
- Extract Valve
- Outlet Valve
- PACK 1
- PACK 2
- Manual mode available
- COND:
 - CKPT Temperature/Mix Valve
 - FWD Temperature/Mix Valve
 - AFT Temperature/Mix Valve
 - HOT AIR
 - Cargo heating optional
- CRUISE:
 - ENG F.USED
 - ENG OIL QT
 - ENG N1 Vibrations
 - ENG N2 Vibrations
 - COCKPIT TEMP
 - FWD CABIN TEMP
 - AFT CABIN TEMP
 - FWD CARGO TEMP
 - AFT CARGO TEMP
 - LDG EVEL
 - CAB V/S
 - CAB ALT
- DOOR:
 - CKPT OXY Pressure
 - CABIN ALT V/S
 - Forward Avionics Door
 - Left Avionics Door
 - Right Avionics Door
 - Forward Entry Left
 - Forward Entry Right
 - Aft Avionics Door
 - Forward Cargo Door
 - Left Wing Door 1
 - Left Wing Door 2
 - Right Wing Door 1
 - Right Wing Door 2
 - Aft Cargo Door
 - Bulk Door
 - Aft Entry Left
 - Aft Entry Right

- ELEC:
 - BAT 1 Voltage/Ampere
 - BAT 2 Voltage/Ampere
 - TR 1 Voltage/Ampere
 - TR 2 Voltage/Ampere
 - GEN 1 Percent/Voltage/Hertz
 - GEN 2 Percent/Voltage/Hertz
 - EXT PWR Voltage/Hertz
 - IDG 1 Temperature
 - IDG 2 Temperature
 - DC BAT Bus
 - DC Bus
 - AC Bus
 - DC ESS Bus
 - AC ESS Bus
 - EMER GEN
 - ESS TR
- ENGINE:
 - F.USED
 - OIL
 - PSI
 - Temperature
 - VIB N1
 - VIB N2
- F/CTRL:
 - SPD BRK Indicator
 - L AIL
 - ELAC 1/2
 - SEC 1/2/3
 - R AIL
 - PITCH TRIM
 - L ELEV
 - RUD
 - R ELEV
- FUEL:
 - F.USED
 - ENG 1 Fuel Valve
 - ENG 2 Fuel Valve
 - APU Fuel Valve
 - Cross Feed Valve
 - Left Fuel Tank Pump 1
 - Left Fuel Tank Pump 2
 - Center Fuel Tank Pump 1
 - Center Fuel Tank Pump 2

- Right Fuel Tank Pump 1
- Right Fuel Tank Pump 2
- Left Tip Fuel Tank
- Left Fuel Tank
- Center Fuel Tank
- Right Fuel Tank
- Right Tip Fuel Tank
- Left Fuel Temperature
- Right Fuel Temperature
- Transfer valves
- HYD:
 - GREEN HYD Reservoir/Pump/Pressure
 - BLUE HYD Reservoir/Pump/Pressure
 - YELLOW HYD Reservoir/Pump/Pressure
 - PTU
 - RAT
 - ELEC
- WHEEL:
 - SPD BRK Indicator
 - Left Gear Indicator
 - Nose Gear Indicator
 - Right Gear Indicator
 - Outer Left Wheel Pressure
 - Inner Left Wheel Pressure
 - Nose Wheel Pressure
 - Inner Right Wheel Pressure
 - Outer Right Wheel Pressure
 - ASKID Indicator
 - Auto Brake Indicator
 - N/W Steering Indicator
 - NORM BRK
 - ALTN BRK
 - ACCU ONLY
- Lower Information Area:
 - TAT (True Air Temperature)
 - SAT (Static Air Temperature)
 - Clock
 - Gross Weight

MCDU:

- FMGC:
 - Independent Systems for CPT and F/O
 - Pages:
 - DIR:

- WAIPOINT
 - DIRECT TO
 - RADIAL IN
 - RADIAL OUT
- **PROG:**
 - CRZ
 - OPT
 - REC MAX
 - REPORT
 - UPDATE AT
 - BRG/DIST
 - PREDICTIVE
 - GPS
 - ESTIMATED ACCUR (based on selected nav sources)
- **REPORT:**
 - SAT
 - T.WIND
 - FOB
 - T/D
 - UTC
 - DIST
- **GPS:**
 - DEST:
 - PRIMARY
 - ETA
 - WPT:
 - PRIMARY
 - ETA
 - DESELECTED SATELLITES
- **PERF:**
 - TAKE OFF:
 - V1
 - VR
 - V2
 - FLP RETR
 - SLT TETR
 - TO SHIFT
 - CLEAN
 - FLAPS/THS
 - TRANS ALT
 - FLEX TO TEMP
 - THR RED/ACC
 - ENG OUT ACC
 - CLB:
 - ACT MODE

- CI
 - MANAGED
 - PRESEL
- CRZ:
 - ACT MODE
 - CI
 - MANAGED
 - PRESEL
 - DES CABIN RATE
- DES:
 - ACT MODE
 - CI
 - MANAGED
- APPR:
 - DEST QNH
 - DEST TEMP
 - DEST MAG/WIND
 - DEST TRANS ALT
 - DEST VAPP
 - FLP RETR
 - SLT RETR
 - CLEAN
 - MDA
 - DH
 - LDG CONF
 - VLS
- GO AROUND:
 - FLP RETR
 - SLT RETR
 - CLEAN
 - THR RED/ACC
 - ENG OUT ACC
- INIT A:
 - CO RTE
 - FROM/TO
 - ALTN/CO RTE
 - FLT NBR
 - IRS INIT
 - COST INDEX
 - CRZ FL/TEMP
 - WIND
 - GND TEMP
- INIT B:
 - ZFW/ZFWCG
 - TAXI

- TRIP/TIME
- RTE RSV
- ALT/TIME
- FINAL/TIME
- TRIP WIND
- MIN DEST FOB
- EXTRA/TIME
- BLOCK
- TOW/LW
- DATA 1:
 - POSITION MONITOR:
 - FMGC1
 - FMGC2
 - GPIRS
 - MIX IRS
 - IRS 1/2/3
 - FREEZE
 - SEL NAVAIDS
 - DESELECT
 - RADIONAV DESELCT
 - GPS DESELECT
 - IRS 1/2/3 MONITOR:
 - POSITION
 - TTRK
 - THDG
 - WIND
 - GPIRS POSITION
 - GS
 - MHDG
 - GPIRS ACCUR
 - FREEZE
 - GPS MONITOR:
 - GPS 1/2 POSITION
 - TTRK UTC/GS
 - MERIT GPS ALT MODE/SATA
 - A/C STATUS:
 - ENG
 - ACTIVE NAV DATA BASE
 - SECOND NAV DATA BASE
 - CHG CODE
 - IDLE/PERF
 - CLOSEST AIRPORTS (List):
 - ICAO
 - BRG
 - DIST

- TIME
- DATA 2:
 - WAYPOINTS:
 - IDENT
 - LAT/LON
 - PILOTS WAYPOINTS:
 - IDENT
 - LAT/LONG
 - PLACE/BRG/DIST
 - PLACE-BRG/PLACE-BRG
 - NAVAID:
 - IDENT
 - LAT/LON
 - ROUTES:
 - CO RTE
 - FROM/TO
 - PILOTS ROUTES:
 - CO RTE
 - STORE ACTIVE F-PLN
 - STORE SECONDARY F-PLN
 - ACTIVE F-PLN WINDS:
 - CLIMB/DESCENT WIND
 - TRU WIND/ALT
 - HISTORY WIND
- F-PLN:
 - List:
 - IDENT
 - BRG/TRK
 - SPD/ALT Limits
 - UTC/DIST/EFOB Calculations
 - LAT REV:
 - ARRIVAL/DEPARTURES
 - ALTN
 - FIX INFO:
 - REF FIX
 - HOLD
 - LL XING/INCR/NO
 - NEXT WPT
 - NEW DEST
 - AIRWAYS
 - VERT REV:
 - CLB SPD LIM
 - SPD CSTR
 - RTA:
 - AT WPT

- DIST
- MANAGED
- ACT MODE
- ETA
- ETT
- CONST MACH:
 - MACH
 - START WPT
 - END WPT
 - SELECTABLE F-PLN WPTS
- ACCESS WIND DATA:
 - CLIMB/CRZ/DECENT WIND
 - TRU WIND/ALT
 - SAT/ALT
- STEP ALTS
 - ALT/WPT
 - DIST
 - UTC
- DEPARTURE:
 - SID
 - TRANS
- ARRIVALS:
 - APPR
 - STAR
 - TRANS
- RAD/NAV:
 - VOR1 IDENT/FREQ/CRS
 - VOR2 IDENT/FREQ/CRS
 - ILS IDENT/FREQ/CRS
 - ADF1 IDENT/FREQ
- FUEL/PRED:
 - ICAO UTC/EFOB
 - RTE RSV/%
 - ALTN/TIME
 - FINAL TIME
 - MIN DEST FOB
 - ZFW/ZFWCG
 - FOB
 - GW/CG
 - EXTRA/TIME
- SEC F-PLN:
 - COPY ACTIVE
 - SEC F-PLN
 - INIT
 - PERF

- AIRPORT (List):
 - ICAO
 - BRG
 - SPD/ALT Restrictions
 - DEST UTC/DIST/EFOB
- MAINT:
 - PAUSE
 - FLIGHT FREEZE
 - GROUND SERVICE
 - APU QUICKSTART
 - GROUND POWER ON/OFF
 - GROUND AIR ON/OFF
 - STOP PUSHBACK
 - PUSHBACK STRAIGHT/LEFT/RIGHT
 - FMS RESET
- Flight Control Unit (FCU):
 - QNH Control
 - QNH Setting inHG/hPa
 - FD
 - LS
 - ND Display Control independent for CPT and F/O:
 - CSTR
 - WPT
 - VORD
 - NDB
 - ARPT
 - ND MODE LS/VOR/NAV/ARC/PLAN/END
 - ND RANGE 10/20/40/80/160/320 NM
 - ADF/OFF/VOR
 - SPD Selection
 - SPD Managed/Selected Mode
 - HDG Selection
 - HDG Managed/Selected Mode
 - LOC
 - HDR TRK and V/S FPA
 - AP1
 - AP2
 - A/THR
 - ALT Selection (100 or 1.000 ft.)
 - ALT Managed/Selected Mode
 - EXPED
 - V/S Selection
 - APPR

Glareshield Left/Right:

- AUTO LAND
- MASTER WARNING
- MASTER CAUTION
- CHRONO
- SIDE STICK PRIORITY

MIP:

- CPT and F/O:
 - GPWS TEST
 - PFD OFF/BRT
 - PFD/ND XFR
 - ND OFF/BRT
 - LOUD SPEAKER OFF/MAX
 - CONSOLE/FLOOR BRT/DIM/OFF
 - FOOT WARMER ON/OFF
- LDG GEAR Indications
- LDG UP/DOWN
- BRKFAN
- AUTO BRK LO/MED/MAX
- A/SKID & N/W STRG ON/OFF
- TERR ON ND
- Standby Displays:
 - ISIS
 - RDME
- DCDU 1 and 2
- CHRONO
- Brake Pressure Gauge

Overhead:

- GNADIRS:
 - Display control
 - Num Pad control
 - IR1, IR3 and IR2 indicators
 - ADR1, ADR3 and ADR2 buttons and rotaries
- FLT CTL (Left):
 - ELAC 1
 - SEC 1
 - FAC 1
- EVAC:
 - COMMAND
 - HORN SHUT OFF
 - CAPT & PURS
- EMER ELEC PWR:
 - EMER GEN TEST
 - GEN 1 LINE

- RAT & EMER GEN
- MAN ON
- GPWS:
 - TERR
 - SYS
 - G/S MODE
 - FLAP MODE
 - LDG FLAP 3
- RCDR:
 - GND CTL
 - CVR ERASE
 - CVR TEST
- OXYGEN:
 - MASK MAN ON
 - PASSENGER
 - CREW SUPPLY
- CALLS:
 - MECH
 - FWD
 - AFT
 - EMER
- FIRE:
 - ENG 1:
 - FIRE
 - TEST
 - AGENT 1 DISCH
 - AGENT 2 DISCH
 - APU:
 - FIRE
 - TEST
 - AGENT
 - ENG 2:
 - FIRE
 - TEST
 - AGENT 1 DISCH
 - AGENT 2 DISCH
- HYD:
 - GREEN ENG 1 PUMP
 - BLUE ELEC PUMP
 - YELLOW ENG 2 PUMP
 - YELLOW ELEC PUMP
 - RAT MAN ON
 - PTU
- FUEL:
 - LTK PUMP 1

- LTK PUMP 2
- CTR TK PUMP 1
- CTR TK PUMP 2
- RTK PUMP 1
- RTK PUMP 2
- X-FEED
- MODE SEL
- ELEC:
 - COMMERCIAL
 - GALY & CAB
 - BAT 1 (including voltage indicator)
 - BAT 2 (including voltage indicator)
 - IDG 1
 - IDG 2
 - GEN 1
 - GEN 2
 - AC ESS FEED
 - APU GEN
 - BUS TIE
 - EXT PWR
- AIR COND:
 - PACK FLOW LO/NORM/HI
 - COCKPIT
 - FWD CABIN
 - AFT CABIN
 - HOT AIR
 - PACK 1
 - PACK 2
 - ENG 1 BLEED
 - ENG 2 BLEED
 - RAM AIR
 - APU BLEED
 - X BLEED SHUT/AUTO/OPEN
- ANTI ICE:
 - WING
 - ENG 1
 - ENG 2
- PROBE/WINDOW HEAT
- CABIN PRESS:
 - MAN V/S CTL UP/DOWN
 - MODE SEL
 - LDG ELEV AUTO
 - DITCHING
- EXT LT:
 - STROBE ON/AUTO/OFF

- BEACON ON/OFF
- WING ON/OFF
- NAV & LOGO 2/1/OFF
- RWY TURN OFF ON/OFF
- LAND L ON/OFF/RETRACT
- LAND R ON/OFF/RETRACT
- NOSE TO/TAXI/OFF
- APU:
 - MASTER SW
 - START
- INT LT:
 - OVHD INTEG LT Brightness Control
 - ICE IND & STBY COMPASS ON/OFF
 - DOME BRT/DIM/OFF
 - AMN LT TEST/DIM/OFF
- SIGNS:
 - SEAT BELTS ON/AUTO/OFF
 - NO SMOKING ON/AUTO/OFF
 - EMER EXIT LT ON/ARM/OFF
- FLT CTL (Right):
 - ELAC 2
 - SEC 2
 - SEC 3
 - FAC 2
- CARGO VENT:
 - AFT ISOL VALVE
- CARGO SMOKE:
 - DISCH
 - FWD
 - TEST
 - AFT
 - DISCH
- VENTILATION:
 - BLOWER
 - EXTRACT
 - CAB FANS
- ENG:
 - MAN START 1
 - MAN START 2
- WIPER Left & Right
- HYD (Aft Overhead):
 - BLUE PUMP OVRD
 - LEAK MEASUREMENT VALVES G
 - LEAK MEASUREMENT VALVES B
 - LEAK MEASUREMENT VALVES Y

- APU AUTO EXTING:
 - TEST
 - RESET
- ENG:
 - FADEC GND PWR 1
 - FADEC GND PWR 2

Simulated Failures:

- Air Conditioning:
 - Cargo aft isolation valve downstream
 - Cargo aft isolation valve upstream
 - Cargo fwd isolation valve downstream
 - Cargo fwd isolation valve upstream
 - Cargo ventilation controller
 - CPC 1
 - CPC 2
 - Pack 1 overheat
 - Pack 2 overheat
 - Rapid decompression
 - Recirculation fans
 - Slow decompression
 - Trim air system fault
 - Vent extract valve
 - Vent inlet valve
 - Ventilation AEVC
 - Ventilation blower fault
 - Ventilation extract fault
 - Zone controller primary
 - Zone controller secondary
- APU:
 - APU Low oil level
 - ECB
- AutoFlight:
 - A/THR 1
 - A/THR 2
 - Alternate law with protection
 - Alternate law without protection
 - AP 1
 - AP 2
 - Direct law
 - FAC 1
 - FAC 1 resettable fault
 - FAC 2
 - FAC 2 resettable fault
 - FCU Channel 1
 - FCU Channel 2

- Reactive W/S det channel 1
- Reactive W/S det channel 2
- Rudder travel limiter channel 1
- Rudder travel limiter channel 2
- Rudder trim channel 1
- Rudder trim channel 2
- Communications:
 - Capt stuck mic
 - F/O stuck mic
- Doors:
 - Aft avionics door
 - Aft cargo door
 - Aft entry left door
 - Aft entry right door
 - Bulk door
 - Forward avionics door
 - Forward cargo door
 - Forward entry left door
 - Forward entry right door
 - Left avionics door
 - Left wing 1 door
 - Left wing 2 door
 - Right avionics door
 - Right wing 1 door
 - Right wing 2 door
- Electrical Power:
 - AC bus 1
 - AC bus 2
 - AC Ess Bus Altn
 - AC Essential bus
 - AC Essential shed bus
 - AC Static inverter bus
 - APU Generator
 - DC Bat bus
 - DC bus 1
 - DC bus 2
 - DC Essential bus
 - DC Essential shed bus
 - ESS TR failure
 - Generator 1
 - Generator 1 disconnect
 - Generator 2
 - Generator 2 disconnect
 - Hot bus 1
 - Hot bus 2

- IDG 1 oil low pressure
- IDG 1 oil overheat
- IDG 2 oil low pressure
- IDG 2 oil overheat
- Static inverter
- TR 1 failure
- TR 2 failure
- Engine Faults:
 - Fadec Left Channel A
 - Fadec Left Channel B
 - Fadec Right Channel A
 - Fadec Right Channel B
 - Left failure
 - Left high EGT
 - Left high N1
 - Right failure
 - Right high EGT
 - Right high N1
- Fire Protection:
 - Aft cargo smoke detected
 - APU fire extinguished with 1 bottle
 - APU Loop A
 - APU Loop B
 - APU unextinguishable fire
 - Avionics smoke detected
 - Cargo bottle discharged
 - Eng 1 fire extinguished with 1 bottle
 - Eng 1 fire extinguished with 2 bottles
 - Eng 1 Loop A
 - Eng 1 Loop B
 - Eng 1 unextinguishable fire
 - Eng 2 fire extinguished with 1 bottle
 - Eng 2 fire extinguished with 2 bottles
 - Eng 2 Loop A
 - Eng 2 Loop B
 - Eng 2 unextinguishable fire
 - FDU 1
 - FDU 2
 - Fire APU agent discharged
 - Fire Eng 1 agent 1 discharged
 - Fire Eng 1 agent 2 discharged
 - Fire Eng 2 agent 1 discharged
 - Fire Eng 2 agent 2 discharged
 - Fwd cargo smoke detected
 - SDCU

- Flight Controls:
 - Alignment fault
 - ELAC 1
 - ELAC 1 resettable fault
 - ELAC 2
 - ELAC 2 resettable fault
 - Elev total failure
 - Flap locked
 - L Elev failure
 - R Elev failure
 - SEC 1
 - SEC 1 resettable fault
 - SEC 2
 - SEC 2 resettable fault
 - SEC 3
 - SEC 3 resettable fault
 - SFCC 1
 - SFCC 2
 - Sidestick fault Capt
 - Sidestick fault F/O
 - Sidestick reversal Capt
 - Sidestick reversal F/O
 - Slat locked
 - Stabilizer jam
 - Yaw damper channel 1
 - Yaw damper channel 2
- Fuel:
 - APU valve
 - Crossfeed valve
 - Eng 1 valve
 - Eng 2 valve
 - FQI Chan 1
 - FQI Chan 2
 - Fuel leak Center
 - Fuel leak Left inner
 - Fuel leak Left outer
 - Fuel leak Right inner
 - Fuel leak Right outer
 - Fuel pump center 1
 - Fuel pump center 2
 - Fuel pump left 1
 - Fuel pump left 2
 - Fuel pump right 1
 - Fuel pump right 2
 - HP Fuel valve left

- HP Fuel valve right
- Inner tank high fuel temp Adv
- Inner tank high fuel temp ECAM
- Inner tank low fuel temp Adv
- Inner tank low fuel temp ECAM
- Left transfer 1
- Left transfer 2
- Outer tank high fuel temp Adv
- Outer tank high fuel temp ECAM
- Outer tank low fuel temp Adv
- Outer tank low fuel temp ECAM
- Right transfer 1
- Right transfer 2
- Hydraulic Power:
 - Blue hydraulic leak
 - Blue low reservoir air pressure
 - Blue reservoir overheat
 - Elec blue pump overheat
 - Elec yellow pump overheat
 - Eng 1 pump failure
 - Eng 2 pump failure
 - Green hydraulic leak
 - Green low reservoir air pressure
 - Green reservoir overheat
 - PTU Fault
 - RAT Deployed
 - Reverser valve left
 - Reverser valve right
 - Yellow hydraulic leak
 - Yellow low reservoir air pressure
 - Yellow reservoir overheat
- Ice and Rain Protection:
 - EAI Valve
 - EAI Valve
 - Moderate icing buildup in 5 minutes
 - Severe icing buildup in 5 minutes
 - WAI Valve
 - WAI Valve
 - WHC 1
 - WHC 2
- Indicating/Recording System:
 - CVR
 - DMC 1
 - DMC 2
 - DMC 3

- DU Capt ND
- DU Capt PFD
- DU ECAM Lower
- DU ECAM Upper
- DU F/O ND
- DU F/O PFD
- ECP
- FWC 1
- FWC 2
- SDAC 1
- SDAC 2
- Landing Gear:
 - BSCU 1 brake fault
 - BSCU 2 brake fault
 - BSCU Channel 1
 - BSCU Channel 2
 - Gear locked down
 - Gear locked up
 - Gear safety valve
 - Left main gear does not lock
 - LGCUI 1
 - LGCUI 2
 - Nose gear does not lock
 - Reset brake temperature
 - Right main gear does not lock
- Navigation:
 - ADF 1
 - ADF 2
 - ADR1 ADR failure
 - ADR2 ADR failure
 - ADR3 ADR failure
 - ATC 1
 - ATC 2
 - FMGC 1
 - FMGC 2
 - Glideslope
 - GPS 1
 - GPS 2
 - GPWC
 - ILS 1 G/S
 - ILS 1 LOC
 - ILS 2 G/S
 - ILS 2 LOC
 - IR1 alignment
 - IR1 position failure

- IR1 total failure
- IR2 alignment
- IR2 position failure
- IR2 total failure
- IR3 alignment
- IR3 position failure
- IR3 total failure
- Localizer
- MCDU 1
- MCDU 2
- Radio altimeter 1
- Radio altimeter 2
- TCAS
- VOR 1
- VOR 2
- Oxygen:
 - Crew oxygen low pressure
 - Oxygen supply valve
 - Passenger oxygen deployed
- Pneumatic:
 - ACSC 1
 - ACSC 2
 - APU Bleed valve
 - Bleed leak APU
 - Bleed leak pylon engine 1
 - Bleed leak pylon engine 2
 - Bleed leak wing engine 1
 - Bleed leak wing engine 2
 - BMC 1
 - BMC 2
 - Crossbleed valve
 - Eng 1 HP Valve
 - Eng 1 bleed low temp
 - Eng 1 bleed valve
 - Eng 2 HP Valve
 - Eng 2 bleed low temp
 - Eng 2 bleed valve
 - Hot air valve
 - Hot air valve aft cargo
 - Lavatory/Galley fan
 - Pack 1 flow control valve
 - Pack 2 flow control valve
 - Ram air valve
 - Start valve left
 - Start valve right

- Power Plant:
 - EIU 1
 - EIU 2
 - Engine 1 low oil quantity
 - Engine 1 oil temperature high
 - Engine 1 oil temperature high advisory
 - Engine 2 low oil quantity
 - Engine 2 oil temperature high
 - Engine 2 oil temperature high advisory
- Start Faults:
 - Left hot start
 - Left hung start
 - Right hot start
 - Right hung start
- Simulated Circuit Breakers
 - Braking & Steering sys 1 ctl
 - Braking & Steering sys 1 sply
 - Braking & Steering sys 2 ctl
 - Braking & Steering sys 2 sply
 - Capt ND SPLY
 - Capt PFD SPLY
 - COM HF1
 - COM HF2
 - COM RMP1
 - COM VHF1
 - COM VHF2
 - COM VHF3
 - DMC1/SPLY
 - DMC2/SPLY
 - DMC3/SPLY
 - DMC3/STNDBY_SPLY
 - ELAC 1 Norm sply
 - ELAC 1 Stby sply
 - ELAC 2 Norm sply
 - ELAC 2 Stby sply
 - F/O ND SPLY
 - F/O PFD SPLY
 - FAC 1 Norm sply
 - FAC 1 Stby sply
 - FAC 2 Norm sply
 - FAC 2 Stby sply
 - FCU 1
 - FCU 2
 - FMGC 1
 - FMGC 2

- FQI Chan 1
- FQI Chan 2
- FWC 1 Supply
- GPWS 115V AC
- LGCIU SYS 1
- LGCIU SYS 1 GND Supply
- Lower ECAM SPLY
- LP Valve MOT1 ENG1
- LP Valve MOT1 ENG2
- LP Valve MOT2 ENG1
- LP Valve MOT2 ENG2
- MCDU 1
- MCDU 2
- NAV ATC1
- NAV ILS1
- NAV VOR1
- SDAC 1 Supply
- SDAC 2 Supply
- SEC 1 Norm sply
- SEC 2 sply
- SEC 3 sply
- Upper ECAM SPLY
- XFR VALVE1 L
- XFR VALVE1 R
- XFR VALVE2 L
- XFR VALVE2 R