Hardware overview diagrams

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Released by Paolo Palazzi

Address suggestions for improvements to
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Foreword

This document shows hardware overview diagrams for all subcomponents of TOTEM DCS. It has been assembled with input provided by Michele Battistin, Robert Gomez-Reino Garrido, Paolo Guglielmini, Michel Jonker, Roberto Losito, Marco Oriunno, Emilio Radicioni, Leszek Ropelewski, Gennaro Ruggiero, Walter Snoeys.

The format is derived from an equivalent document designed by André Augustinus for the ALICE experiment:

http://alicedcs.web.cern.ch/AliceDCS/URD

Revision record

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<th>Version</th>
<th>Date</th>
<th>Author</th>
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<td>08-AUG-2006</td>
<td>Jari Kuusela</td>
<td>Draft of T2</td>
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<td>0.2</td>
<td>14-OCT-2006</td>
<td>Fernando Lucas Rodriguez</td>
<td>Copy ALICE infrastructure and legend slides. Update RP silicon detectors.</td>
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<td>0.3</td>
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<td>Update RP mechanics Update LV Wiener crates Draft of RP mechanics</td>
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<td>05-MAR-2007</td>
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<td>Update RP mechanics Detail Ethernet networks</td>
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<td>04-MAY-2007</td>
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<td>Update FEE and DAQ</td>
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</tbody>
</table>

Table of contents

- Foreword .............................................. 2
- Revision record .................................... 2
- Table of contents .................................. 2
- Review table ....................................... 2
- Hardware diagrams
  - Roman Pots motors ............................... 3
  - Roman Pots silicon detectors ............... 4
  - T1 .................................................. 5
  - T2 .................................................. 6
  - Counting room infrastructure ............... 7
- Legenda of the DCS font-end ..................... 9
- Legenda of the DCS back-end ..................... 10

Review table

<table>
<thead>
<tr>
<th>Page</th>
<th>To be reviewed by</th>
<th>To be approved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Marco Oriunno</td>
<td>Ernst Radermacher</td>
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<tr>
<td></td>
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<td></td>
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<td></td>
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<tr>
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<td>Paul Burkimsher</td>
<td></td>
</tr>
</tbody>
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by now only one way:
• LSA database Values
• … to be finalized

CMW:
• Readout of Resolvers, LVDT, microswitches
• Target position, limits
• Heartbeat

Needs update
TOTEM DCS – Hardware overview diagrams

User interface

Database(s)

PSX - XDAQ

PSX - XDAQ

PVSS II

PVSS II

PVSS II

PVSS II

PVSS II

PVSS II

PVSS II

Detector cooling:
flow, temperature

Detector cooling:
flow, temperature

Detector

Detector

VFAT

DCU

Detector

Detector

Detector

Detector

Detector

Detector

High voltage

Low voltage

FEE

Environment monitor

Environment monitor
humidity, pressure, temperature, radiation

Detector cooling:
flow, temperature

Gas system

CMS rack cooling system

PLC

Gas

Mixer unit

Distribution unit
Legenda of the DCS “font-end”

Cable and/or Bus

- **E**: Ethernet network
- **C**: CAN bus
- **P**: Profibus
- **OF**: Optic fiber
- **MV**: MV cables
- **HV**: HV cables
- **LV**: LV cables (+busbar)
- **---**: Other/Unknown
- **-**: Liquid or Gas

Areas at TOTEM

- Totem Control Room (TCR)
- Counting Rooms
- Cavern, outside L3 magnet
- Cavern, inside L3 magnet
- Subcontracted

This depicts a task on a PC, each box does not necessarily correspond to a single PC.

The software interface at the client side (e.g. OPC client in PVSSII).

The software interface to the equipment (e.g. commercial OPC server).

The interface to the equipment (e.g. CAN or Profibus interface). [Ethernet interfaces are not indicated]

This depicts the communication media or type of cable (see table).

This indicates the number of busses or cables.

This depicts equipment to be controlled.

This indicates the number of units (usually crates).

This depicts the cable from the equipment to the hardware (see table).

This indicates the number of channels.

This depicts the hardware connected.
Legenda of the DCS “back-end”

User interface; main console for detector operation

Main PVSS tasks; interface to field layer, Finite State Machine, …

Database tasks (reading and writing).

User interface

PVSS II

 OPC client

 DIM client

[FSM?]

PVSS II

OPC client

Wiener OPCserver

PVSS II

OPC client

CAEN OPCserver

Field layer, with field layer processes

Database(s)

Ethernet