



ITER Contribution to Control System Studio (CSS) Development Effort

Nadine Utzel, Lana Abadie, Franck Di Maio, Jean-Yves Journeaux, Anders Wallander, Izuru Yonekawa
F. Arnaud, G. Darcourt, D. Dequidt

ITER Organization
Sopra Group

Poster Reference: TUPPC103



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7 partners delivering ~220 local controls systems



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ITER, currently under construction in the South of France, aims to demonstrate that fusion is an energy source of the future



- 7 partners delivering ~220
- Integration risk mitigation
- Definition of guidelines & standards
 - Development and distribution of a framework based on EPICS



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ITER, currently under construction in the South of France, aims to demonstrate that fusion is an energy source of the future



7 partners delivering ~220
Integration risk mitigation
Control System Studio is an
key element of this framework
for the **operator interface**, the
alarm system, the **engineering
archival** and the **electronic
logbook**

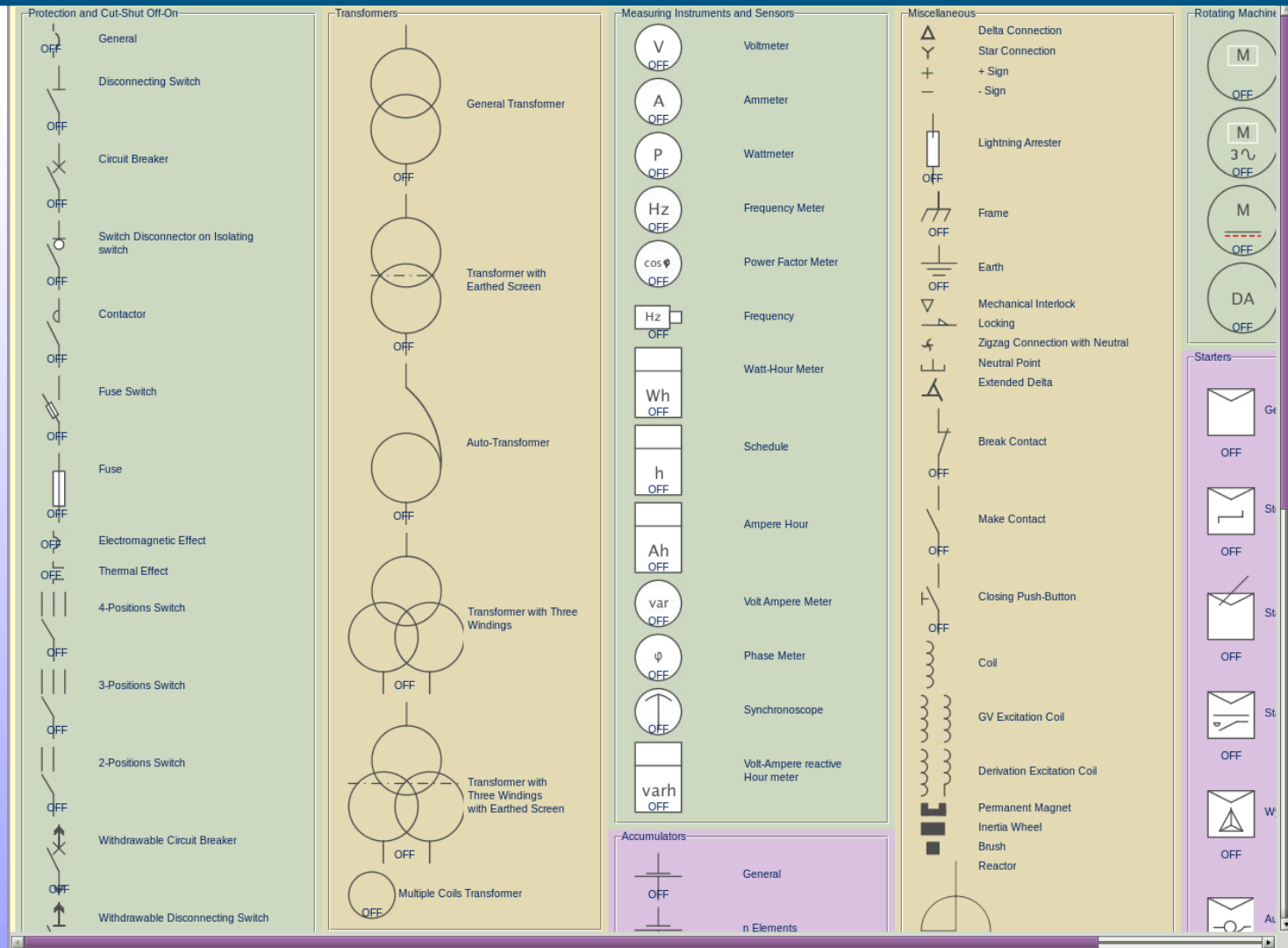




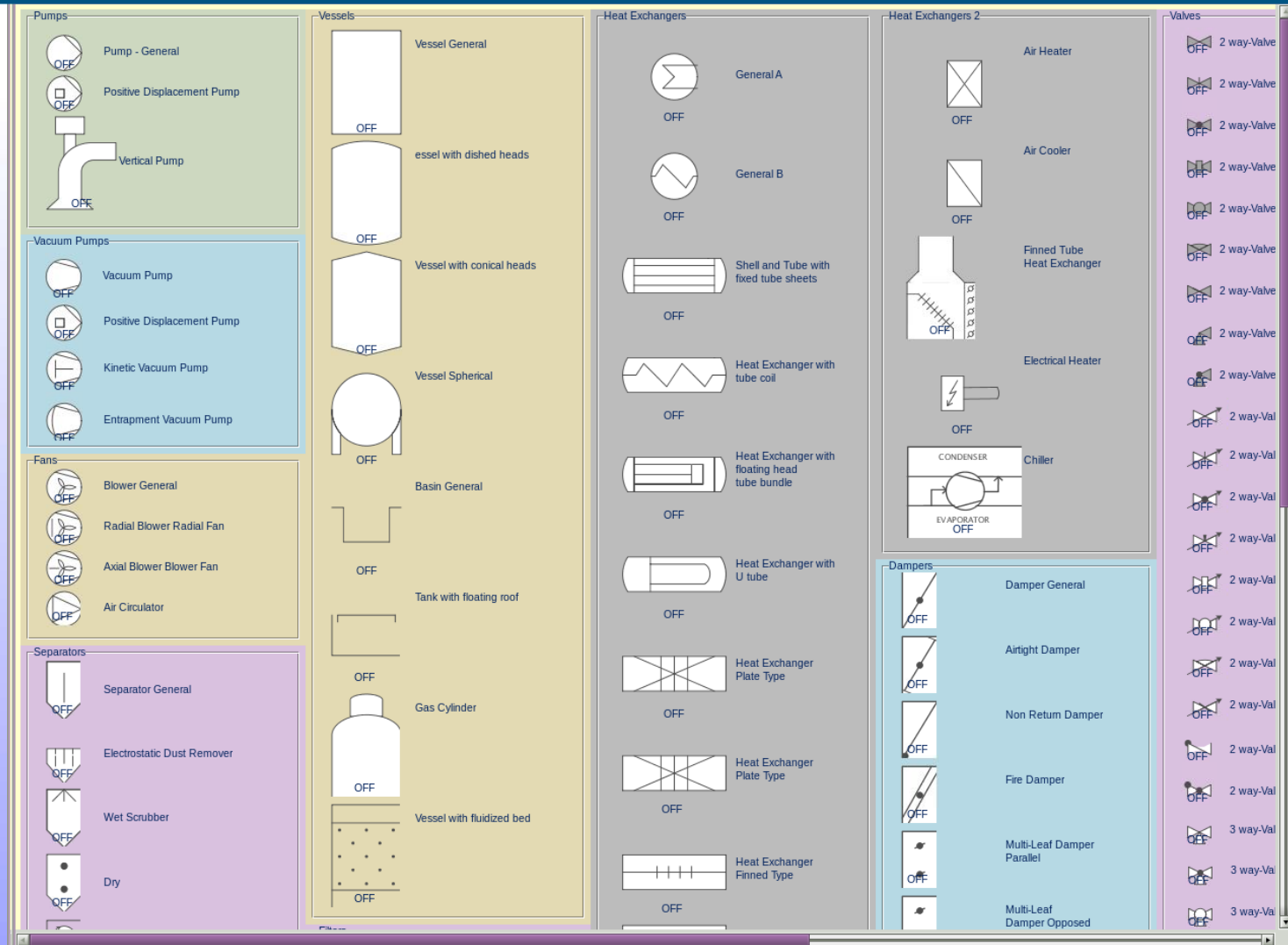
Industrial Symbol Library of ~250 symbols



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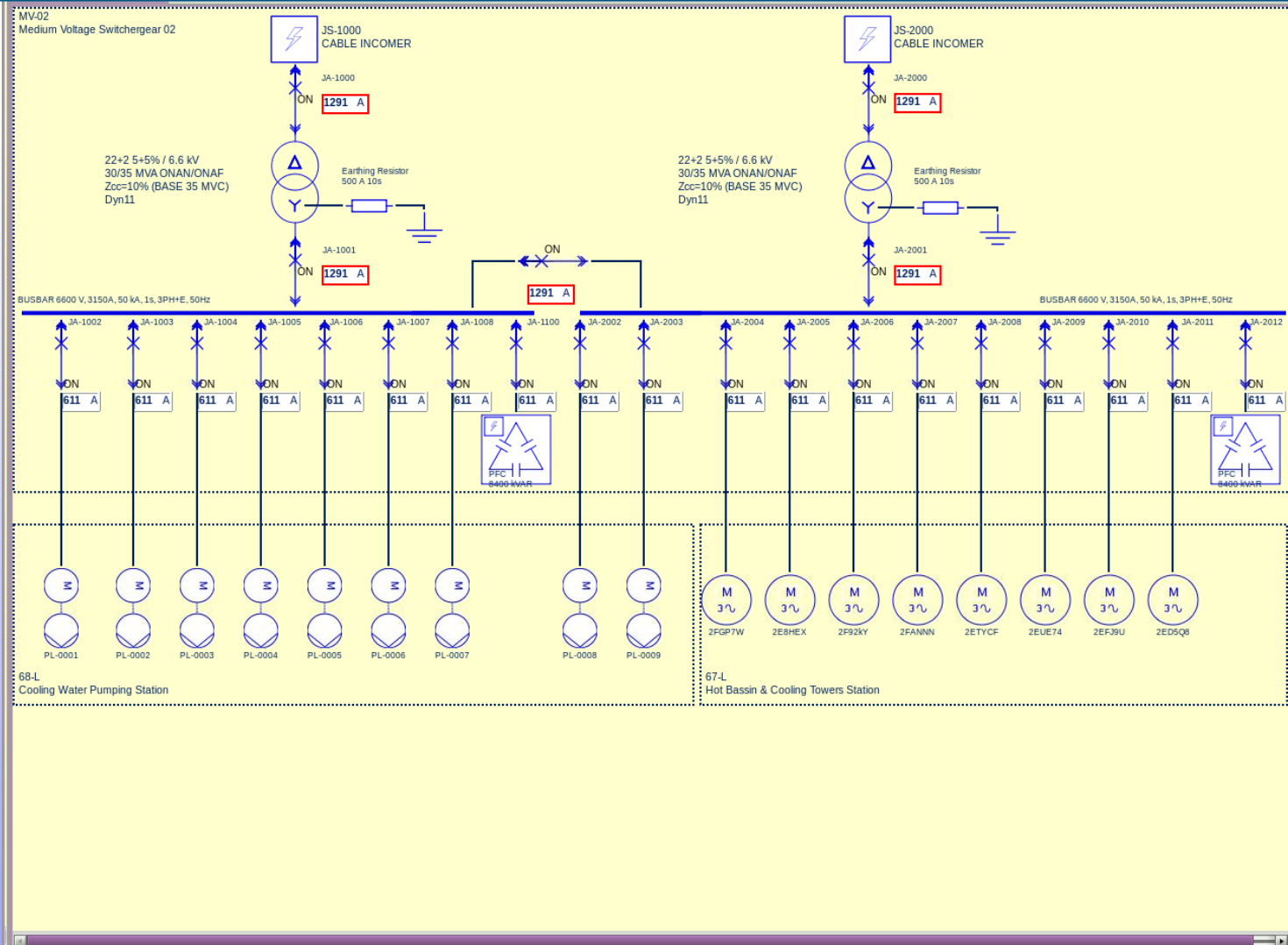


Industrial Symbol Library of ~250 symbols

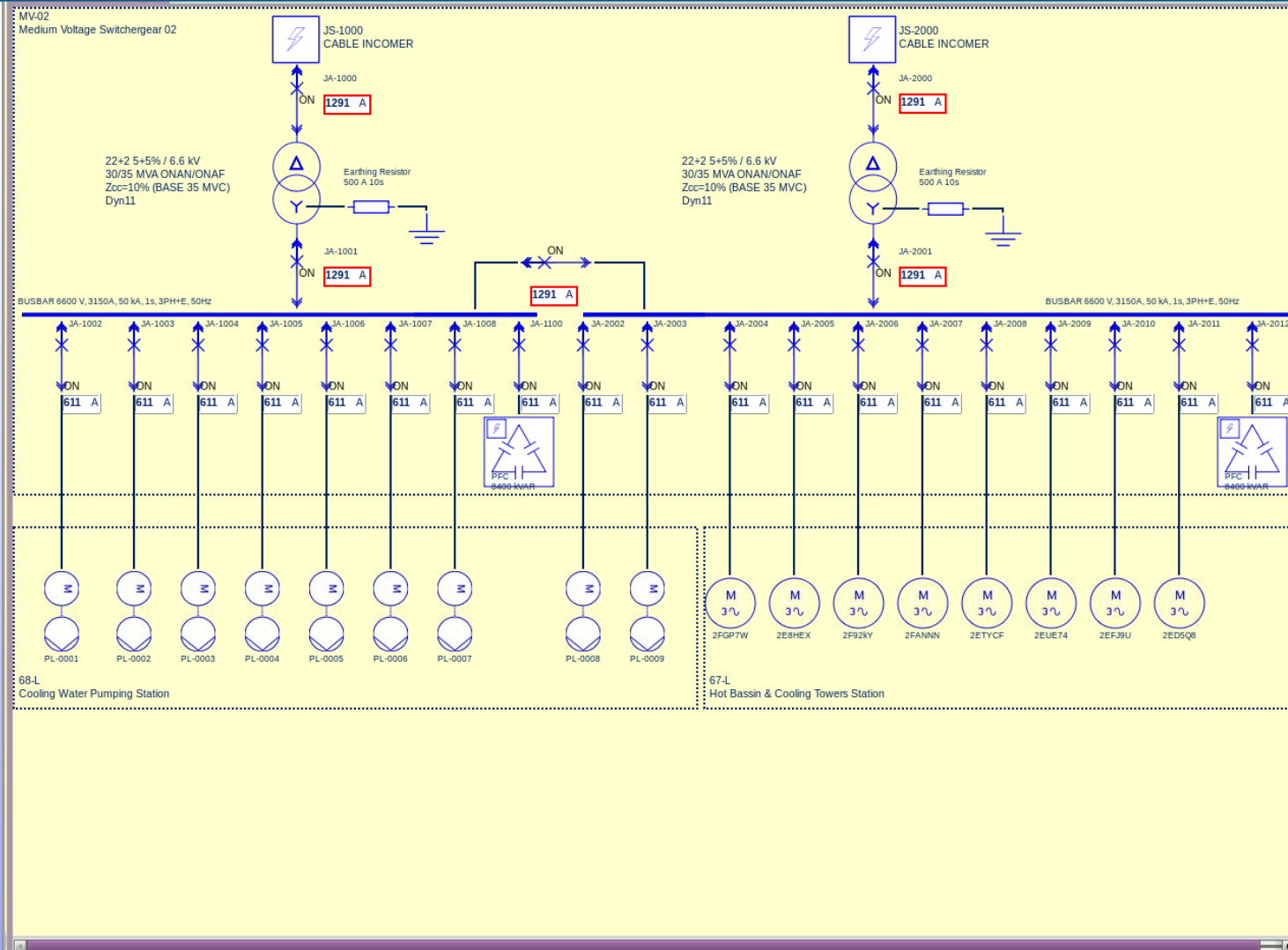




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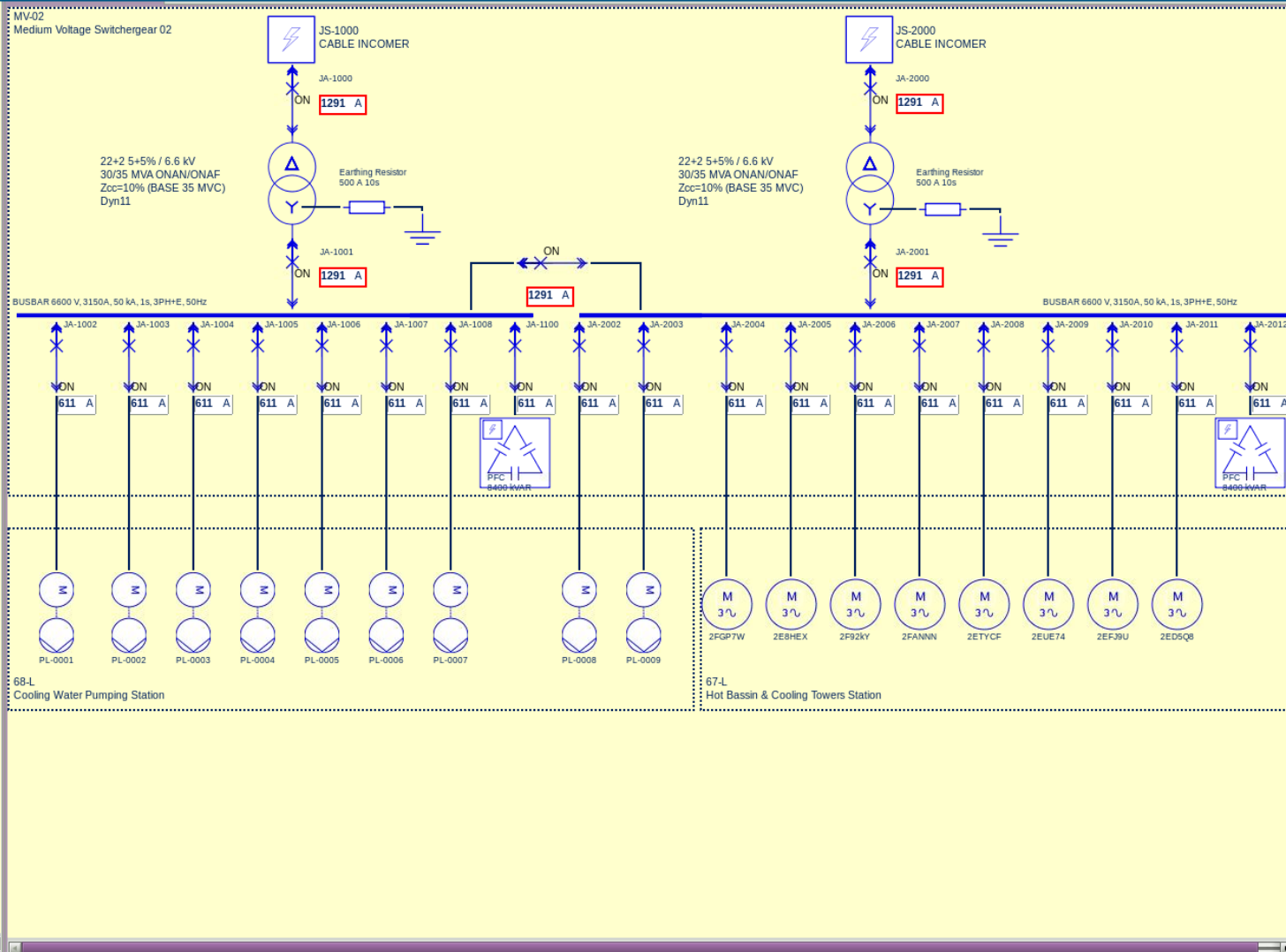




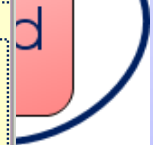
Industrial Symbol Library of ~250 symbols

When

Higher
severity
PV OK
without
delay



Power
Severity



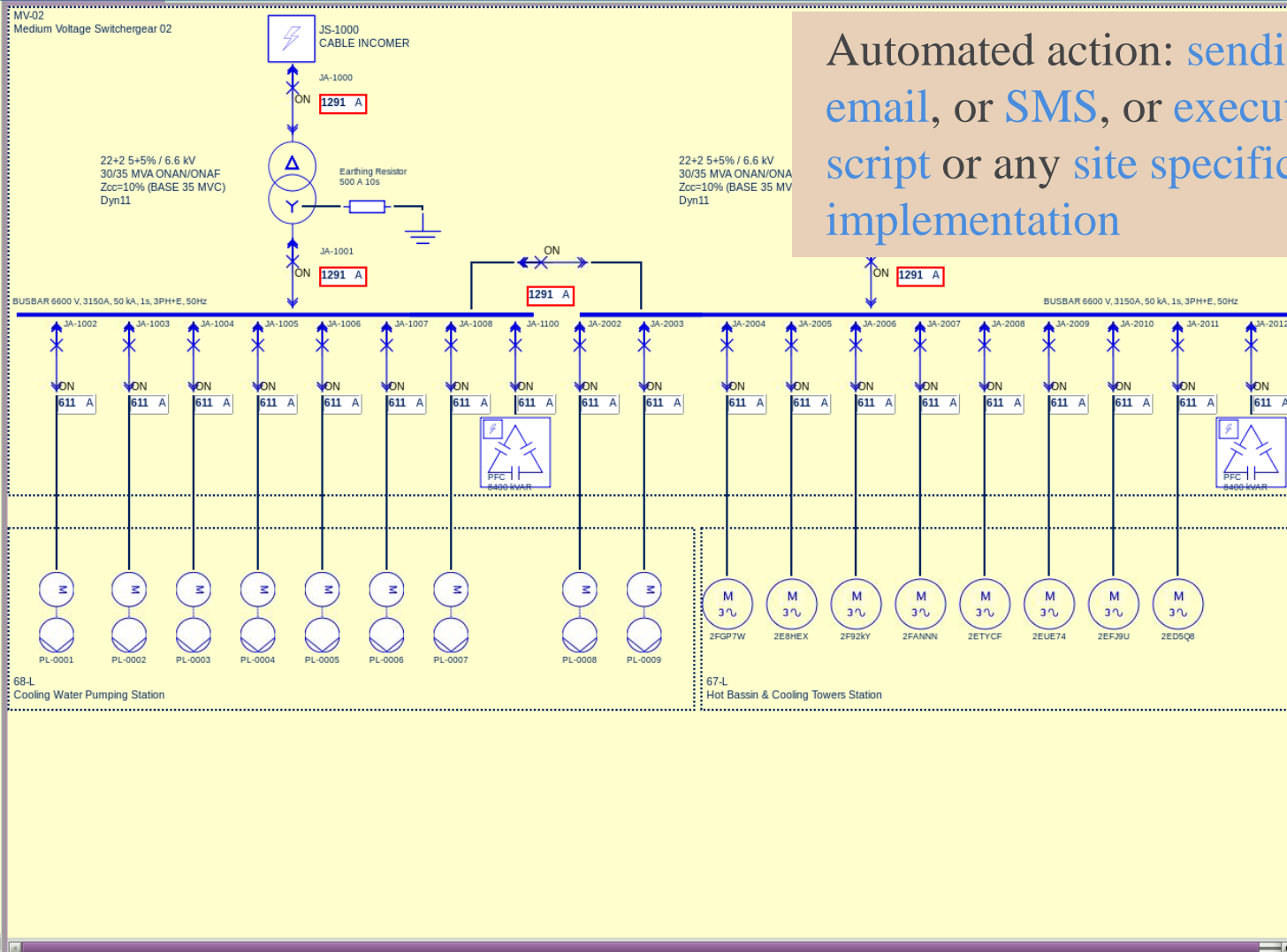


Industrial Symbol Library of ~250 symbols

When

Automated action: sending an email, or SMS, or executing a script or any site specific implementation

Higher severity
PV OK
without delay



Power
Verity



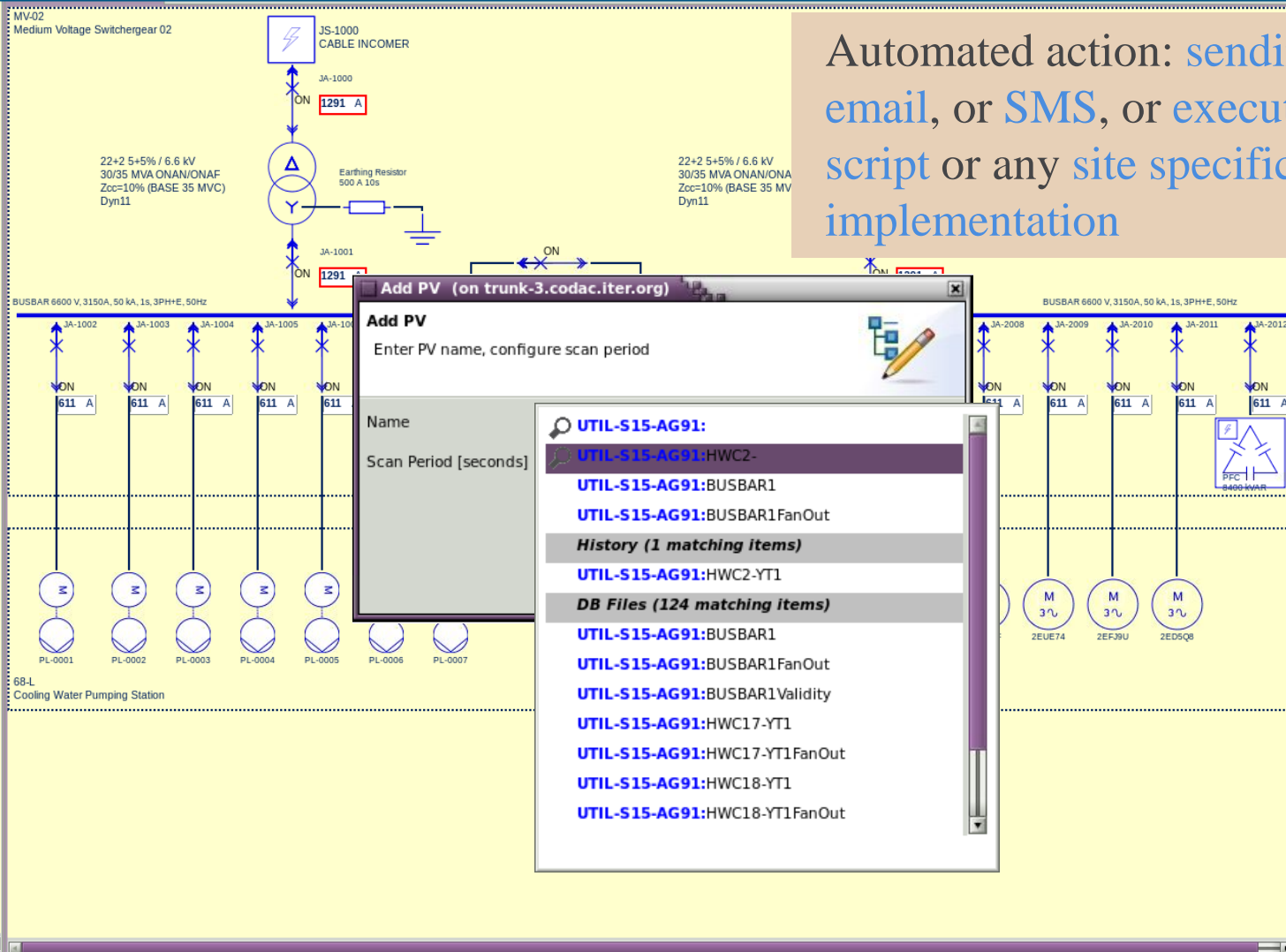


Industrial Symbol Library of ~250 symbols

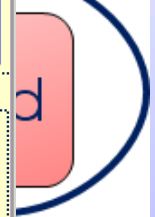
When

Automated action: sending an email, or SMS, or executing a script or any site specific implementation

Higher
severity
PV OK
without
delay



Lower
severity



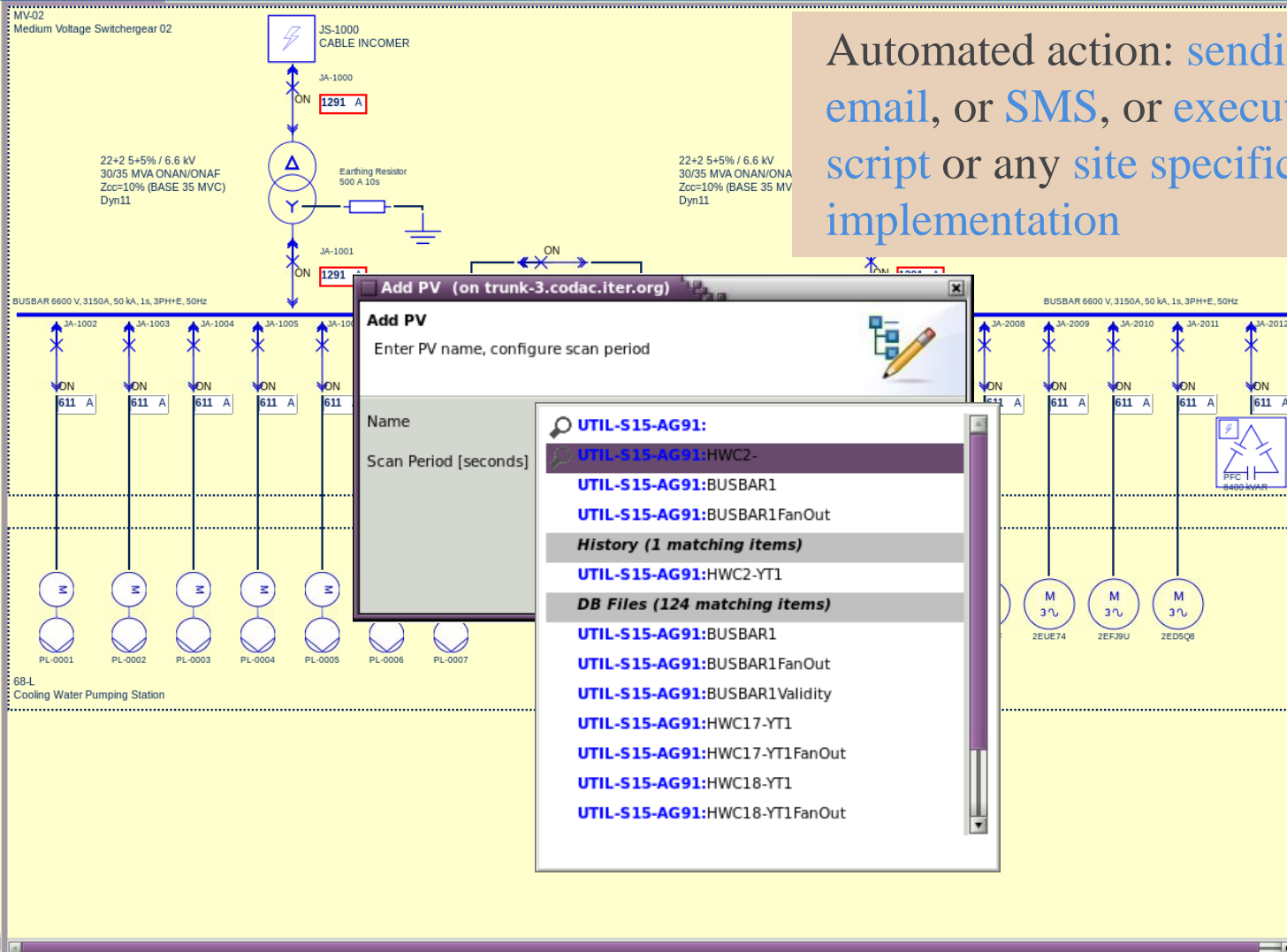


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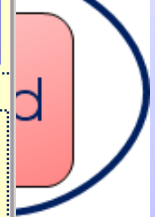
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Higher
severity
PV OK
without
delay



Lower
severity

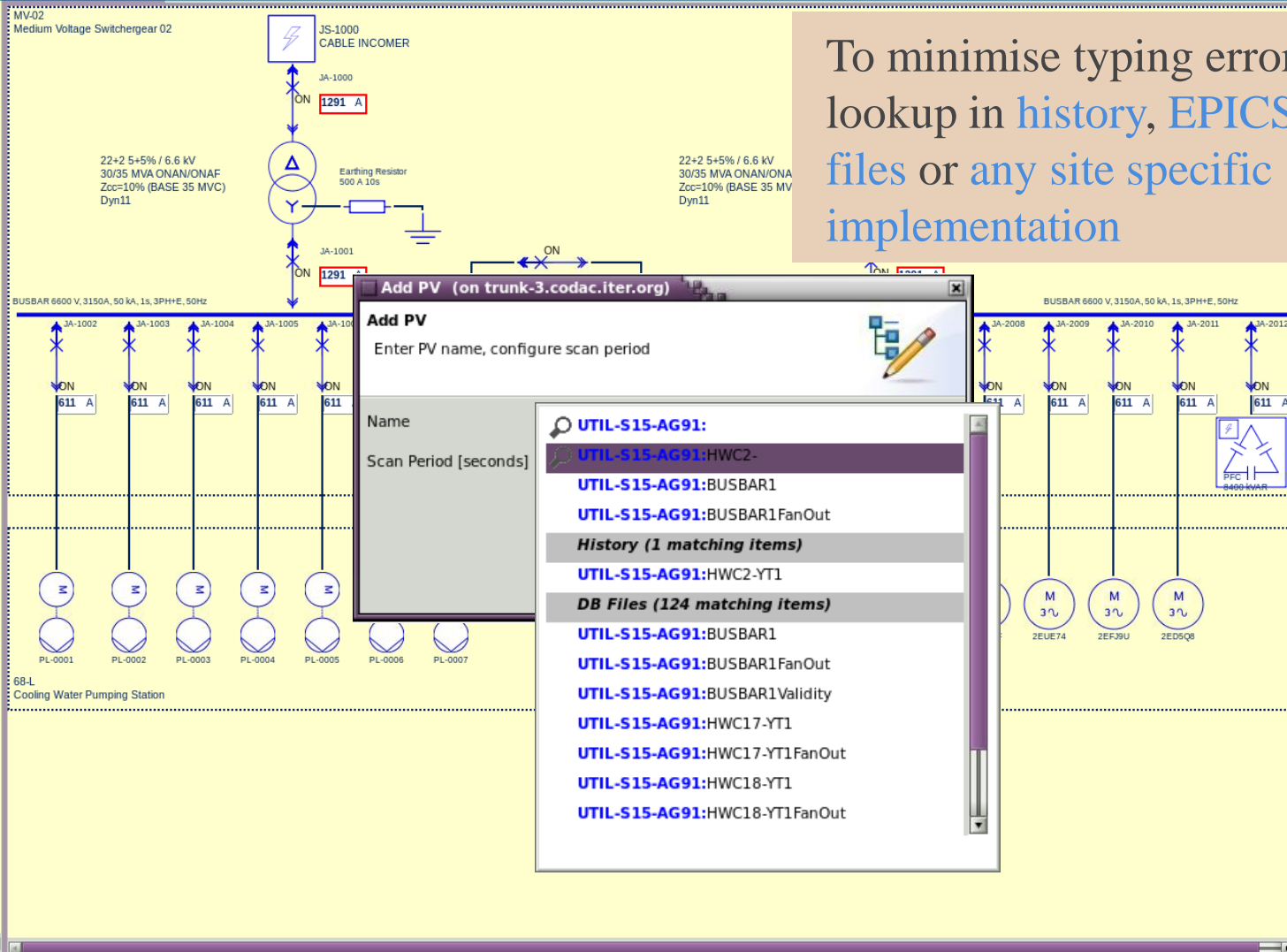




Industrial Symbol Library of ~250 symbols

When

Higher
severity
PV OK
without
delay



To minimise typing errors. PV
lookup in [history](#), [EPICS db
files](#) or any site specific
implementation

Lower
severity

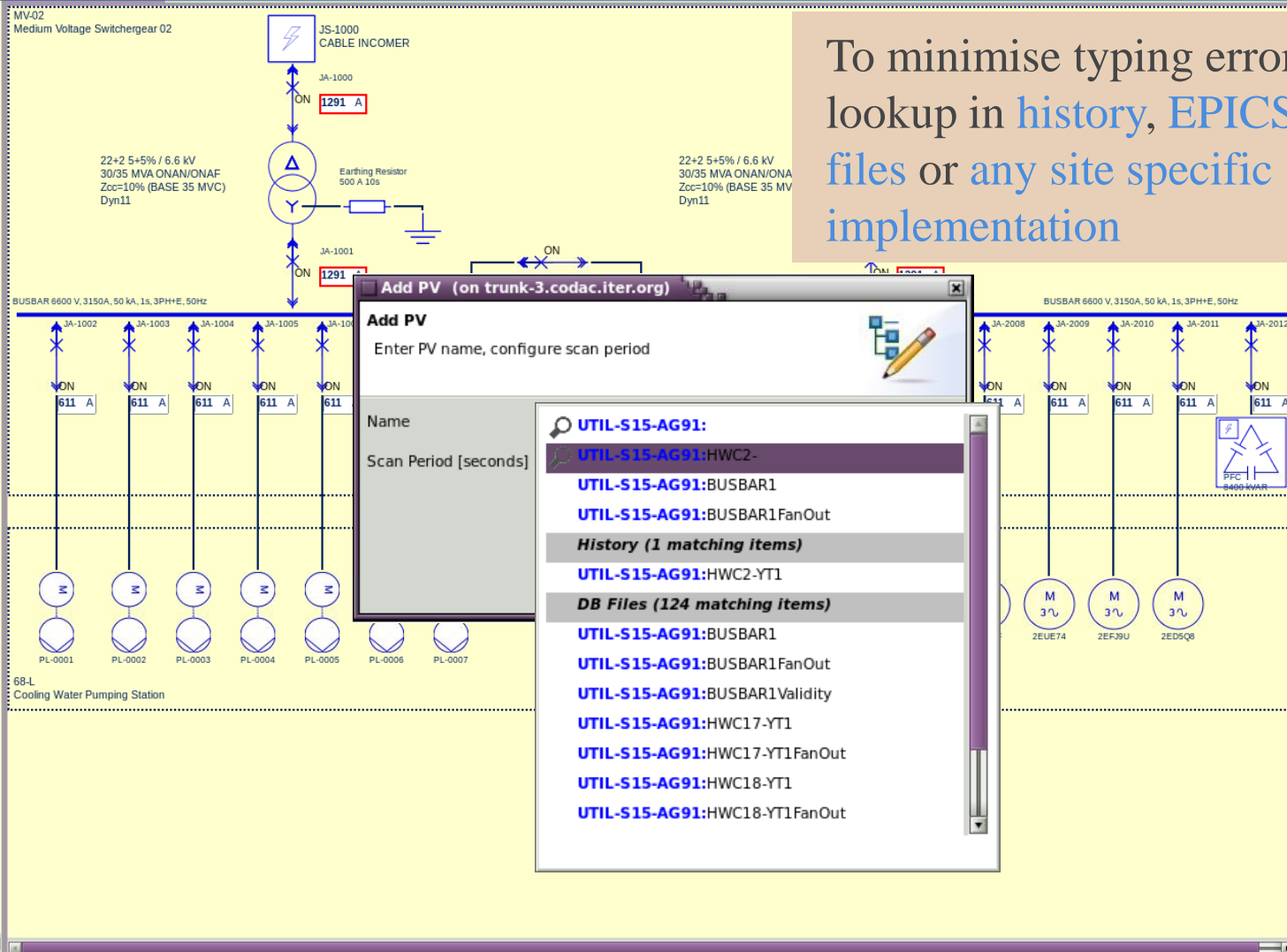
d



Industrial Symbol Library of ~250 symbols

When

Higher
severity
PV OK
without
delay

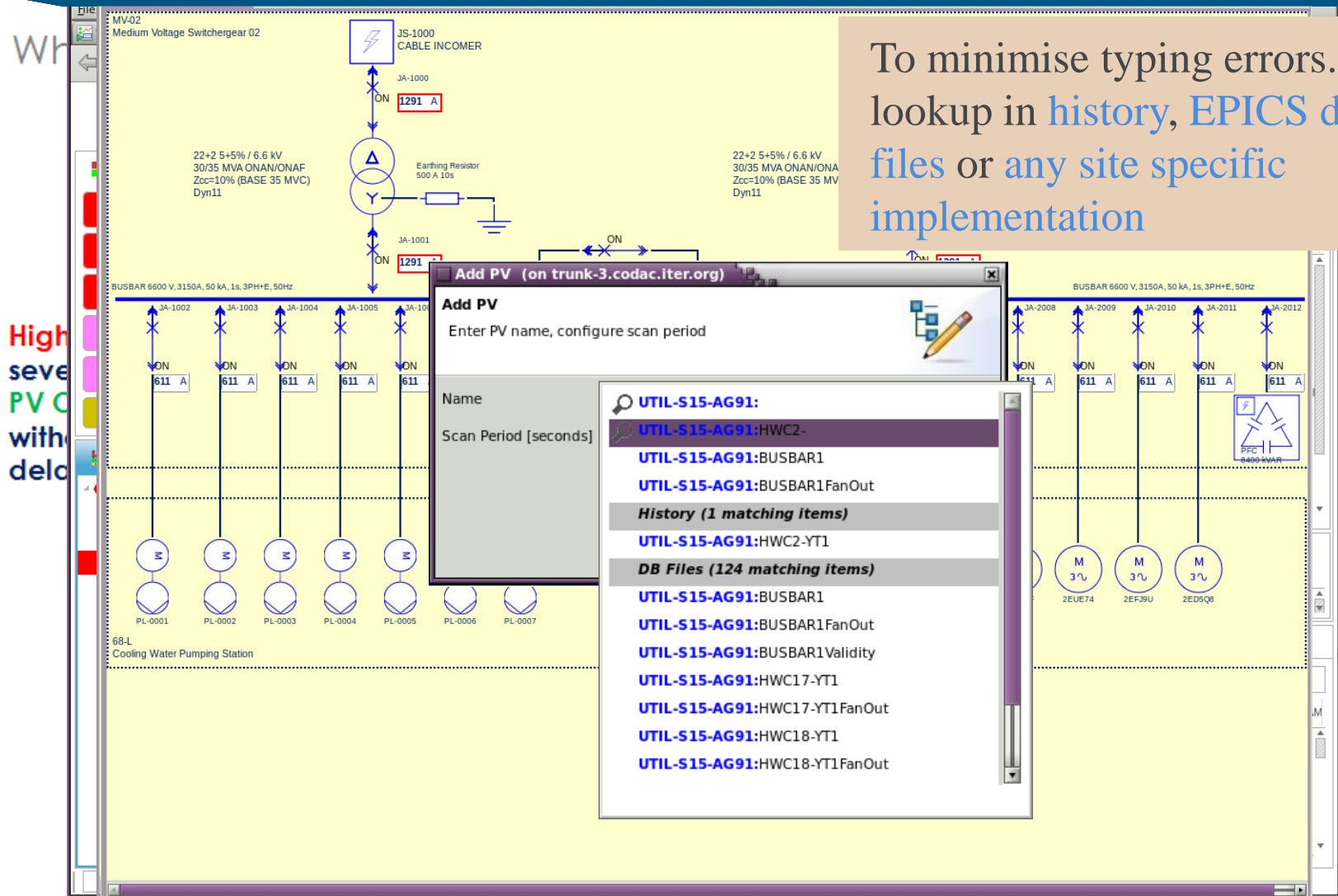


To minimise typing errors. PV
lookup in [history](#), [EPICS db
files](#) or any site specific
implementation



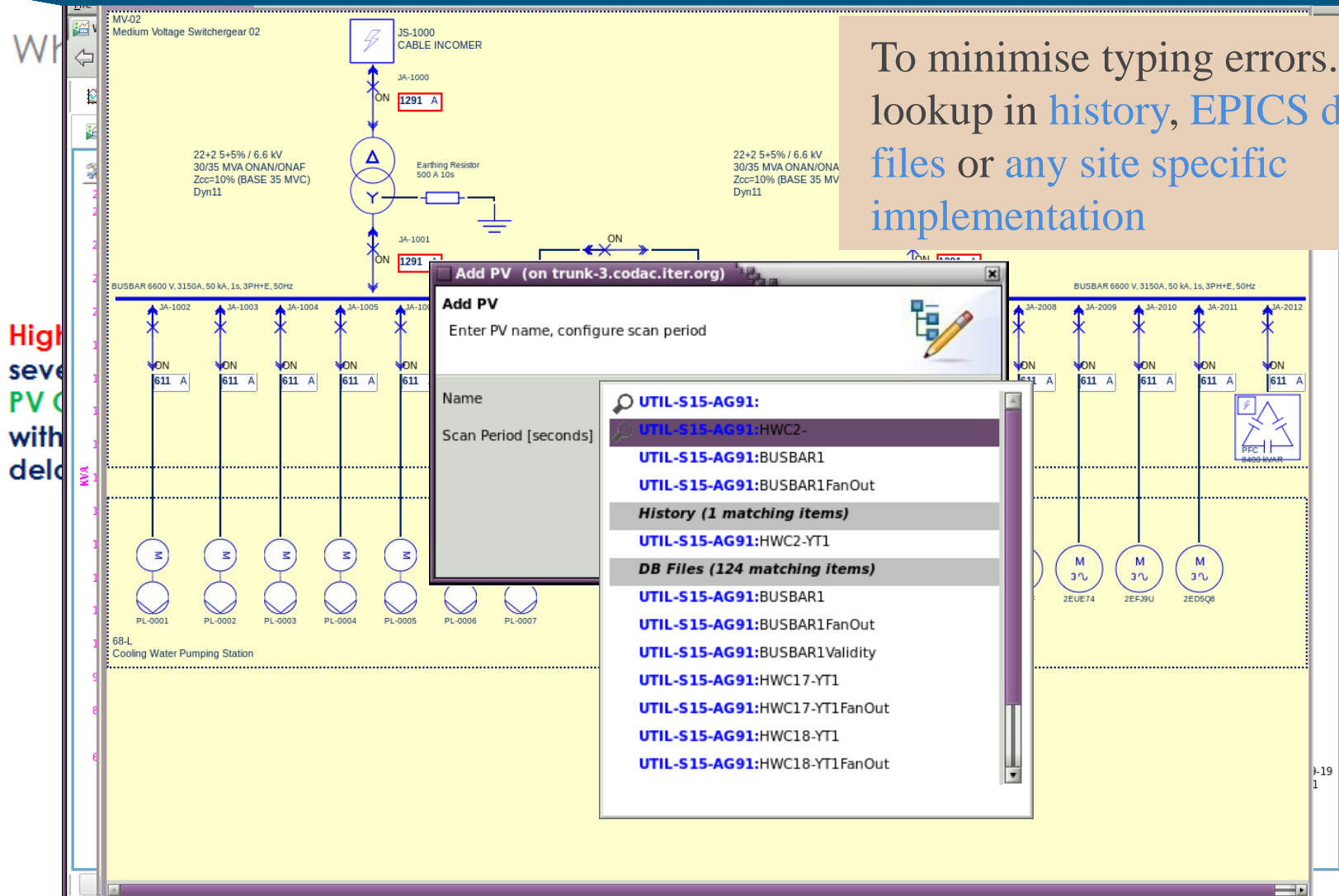
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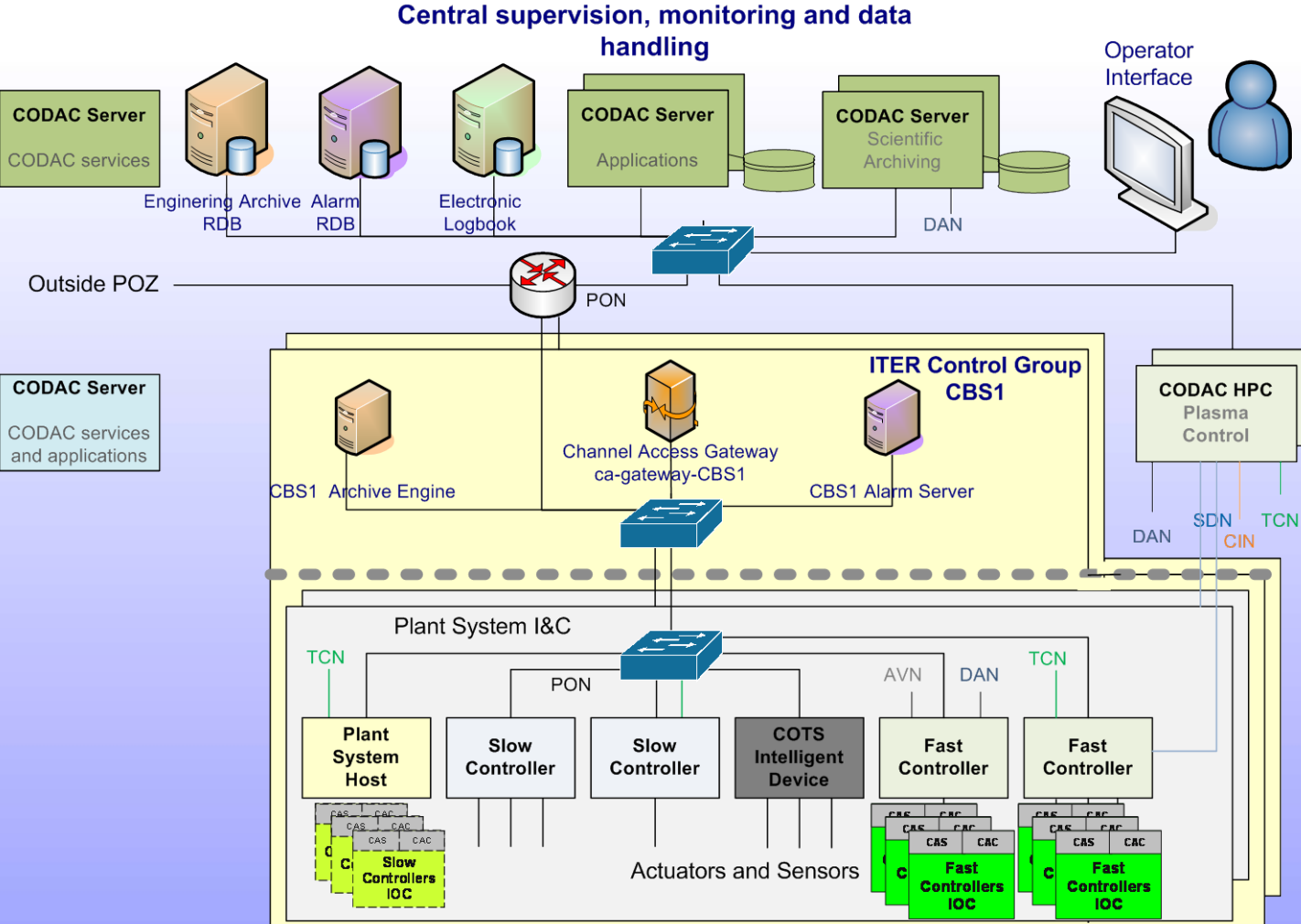




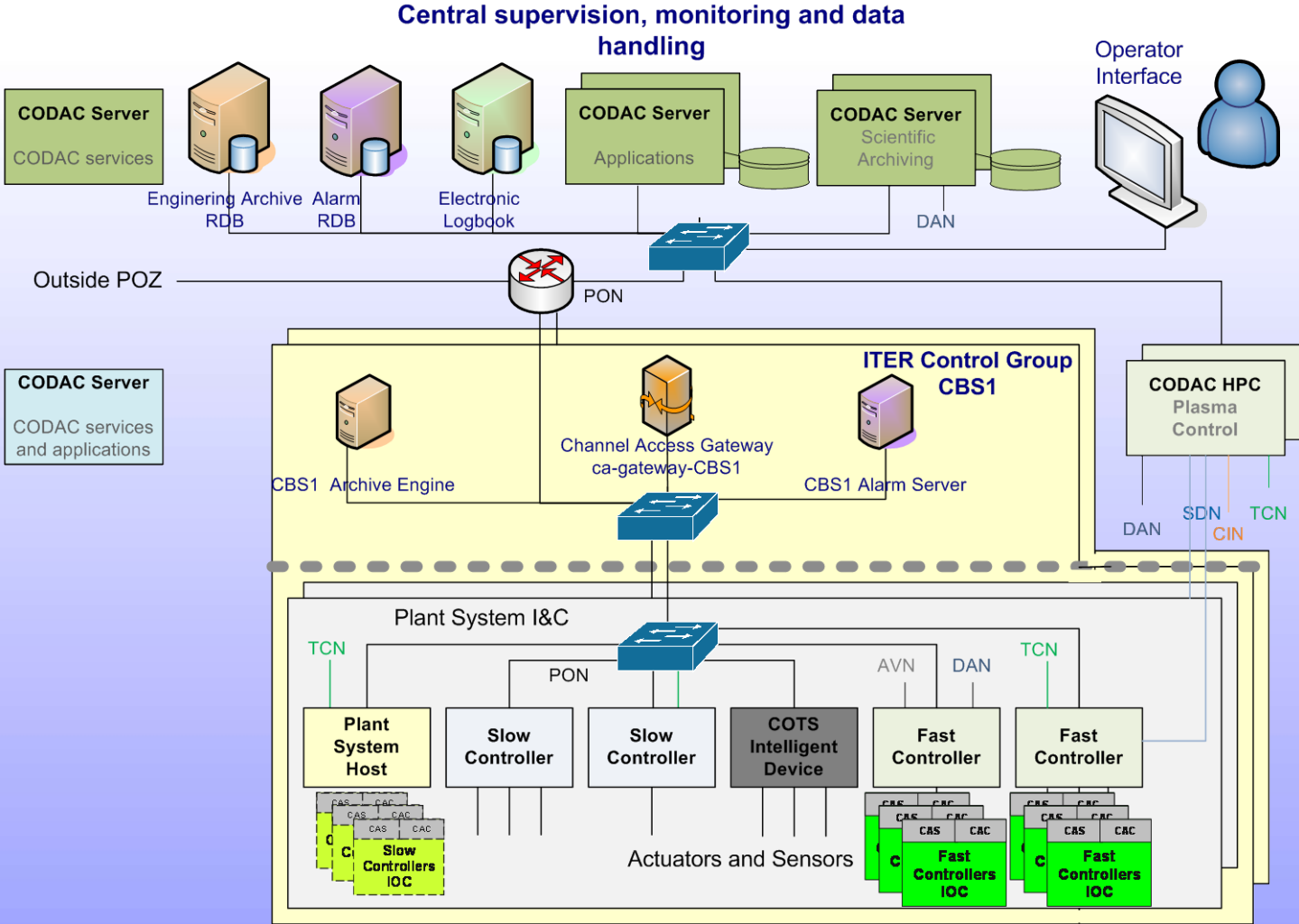


Integration of our 1st local control system

Integration of our 1st local control system



Web Reporting for Acceptance Tests



Web Reporting for Acceptance Tests

Alarms - Mozilla Firefox (on 4501as-srv-0004.codac.iter.org)

File Edit View History Bookmarks Tools Help

WebOPi DataBrowser WebAlarm Alarms

io-ls-sopra-dev4:8080/web.alarms.b20.b21/

Alarms

Alarm Configuration: ☐ All ☐ CODAC_AlarmHandler ☒ UTIL

View Alarm Configuration

Locate channel(s) by PV name: Enabled: ☒

Active Alarms

Active Alarms details

#	Trigger PV Name	Alarm Time	Alarm Severity	Current Severity
1	UTIL-S15-AG91-MUT1-ET4	2013-09-20 08:48:56	MINOR	OK
2	UTIL-S15-AG92-MUT3-ET4	2013-09-20 08:48:56	MINOR	OK
3	UTIL-S15-AG92-MUT1-ET4	2013-09-20 08:48:56	MINOR	OK

Stale Alarms

Stale Alarms details for last hours

#	Trigger PV Name	Duration [HH:MM:SS]	Alarm Severity	Current Severity
1	UTIL-S15-AG92-HWC27-YT1	10 days, 04:03:51	MAJOR	MAJOR
2	UTIL-S15-SYSM-H0-SYSHLTS	14 days, 08:18:41	MINOR	MINOR
3	UTIL-S15-BG07-HWC41-YT1	14 days, 08:35:25	MAJOR	MAJOR

Annunciations

Annunciation Messages details for last hours

Date Type Config Severity Text

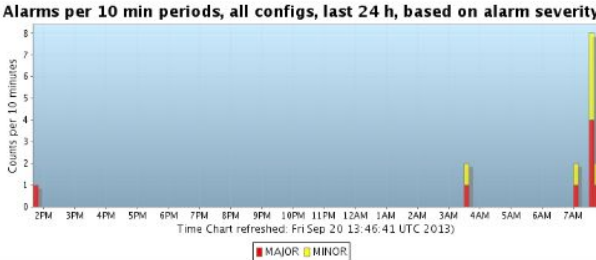
Alarms Statistics and Details Reports

PV pattern: Use ☐ current severity ☒ severity

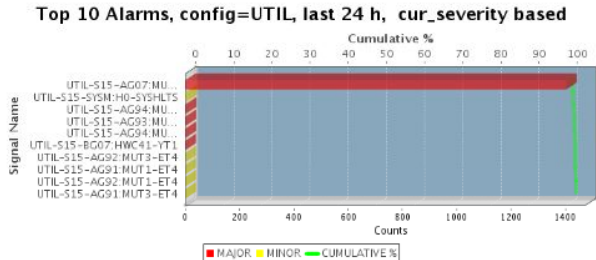
☐ Time period: last days

☒ Time period: start on at days hours

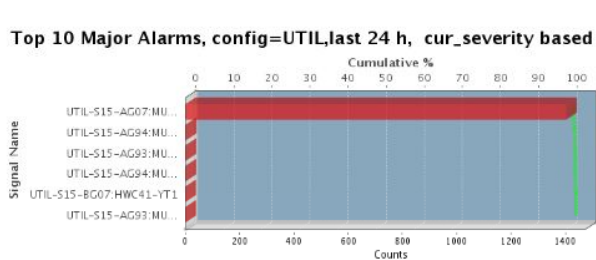
Alarms per 10 min periods, all configs, last 24 h, based on alarm severity



Top 10 Alarms, config=UTIL, last 24 h, cur_severity based



Top 10 Major Alarms, config=UTIL, last 24 h, cur_severity based



Experiment Automation

Alarms - Mozilla Firefox (on 4501as-srv-0004.codac.iter.org)

File Edit View History Bookmarks Tools Help

WebOPi DataBrowser WebAlarm Alarms

io-ls-sopra-dev4:8080/web.alarms.b20.b21/

Alarms

Alarm Configuration: ☐ All ☐ CODAC_AlarmHandler ☒ UTIL

View Alarm Configuration

Locate channel(s) by PV name: Enabled: ☒

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Active Alarms details

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Annunciations

Annunciation Messages details for last hours

Date Type Config Severity Text

Alarms Statistics and Details Reports

PV pattern: Use ☐ current severity ☒ severity

☐ Time period: last days

☒ Time period: start on at days hours

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Experiment Automation

Alarms - Mozilla Firefox (on 4501as-srv-0004.codac.iter.org)

File Edit View History Bookmarks Tools Help

WebOPi DataBrowser WebAlarm Alarms

io-is-sopra

Alarms

Alarm Configuration:

View Alarm C

Locate channel(s) by

Active Alarm:

Active Alarms details

#	Trigger
1	UTIL-S15-AG91-M
2	UTIL-S15-AG92-M
3	UTIL-S15-AG92-M

Stale Alarms

Stale Alarms details

#	Trigger
1	UTIL-S15-AG92-H
2	UTIL-S15-SYSM-H
3	UTIL-S15-BG07-H

Annunciation

Annunciation Message

#	Date	Type	Config
1	2013-08-09 12:51:27.523	MyFirstScan	Running
2	2013-08-09 12:48:21.859	MyFirstScan	Finished - OK

Alarms Status

PV pattern: %

Time period: last

Time period: start

Scan Server Memory: 95.5 MB / 227.6 MB (42.0 %)

Scan 'MyFirstScan' [15]: Running, 66% done

My first automation

- ☒ Log mode: automatically
- Wait for 'TEST-BST0:TANK-LEVEL' >= 40.0
- * Set 'TEST-BST0:MID-SWITCH-FAIL' = "ON"
- Wait for 'TEST-BST0:TANK-LEVEL' >= 60.0
- * Set 'TEST-BST0:MID-SWITCH-FAIL' = "OFF"

Scan Command Palette

- This is a comment
- ☒ Log mode: on demand
- Delay 1.0 sec
- Include 'other.scn', macro=value
- Log 'device'
- Loop 'device' = 0.0 ... 10.0, step 1.0 (wait for 'device')
- Script 'the_script.py'
- Set 'device' = 0.0 (wait for 'device' +0.1)
- Wait for 'device' = 0.0 (+0.1)

Properties Probe

PV Name: TEST-BST0:TANK-LEVEL

Value: 47.92 ☒ Meter

Timestamp: 2013/08/09 12:51

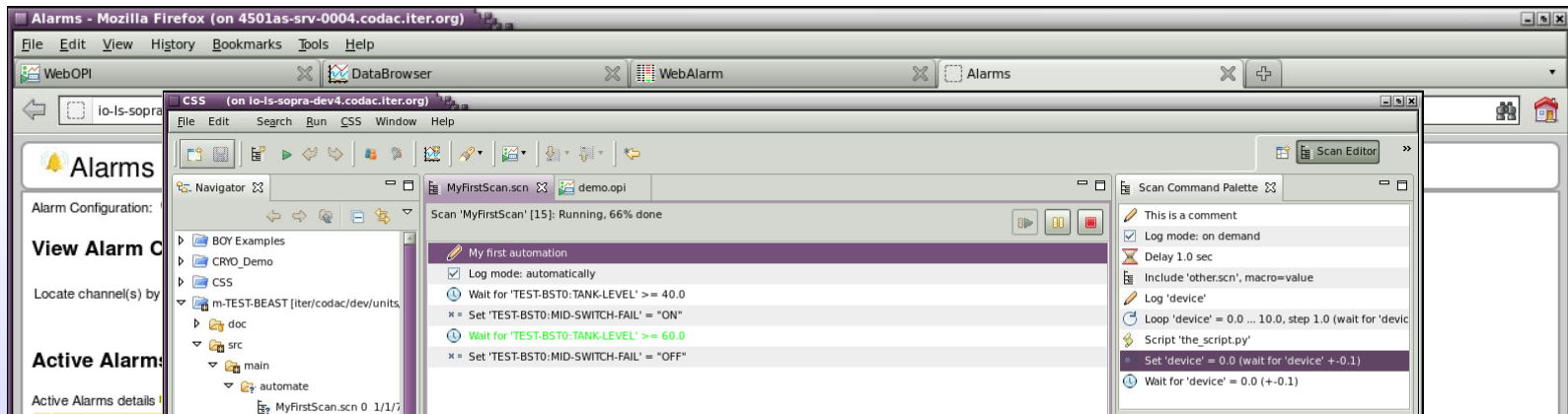
New Value: 47.92 ☒ Adjust

Status: Event period 2.00 seconds

uteln

MAJOR CUMULATIVE %

Experiment Automation



This project could not exist without the outstanding work provided by EPICS and Control System Studio collaborations

