



GUIs for ALBA Experiment Control

Miquel Navarro
(Beamlines Controls Group)

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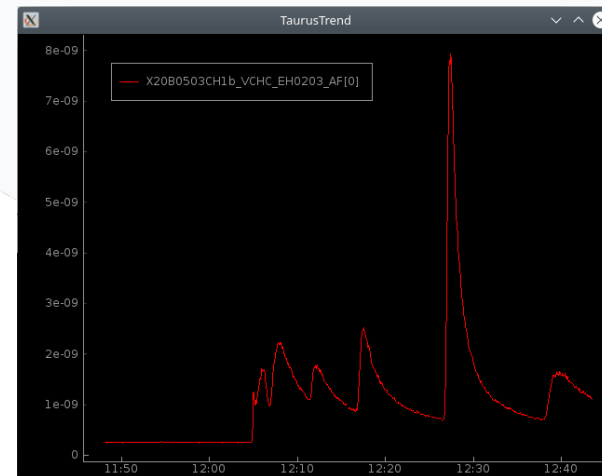
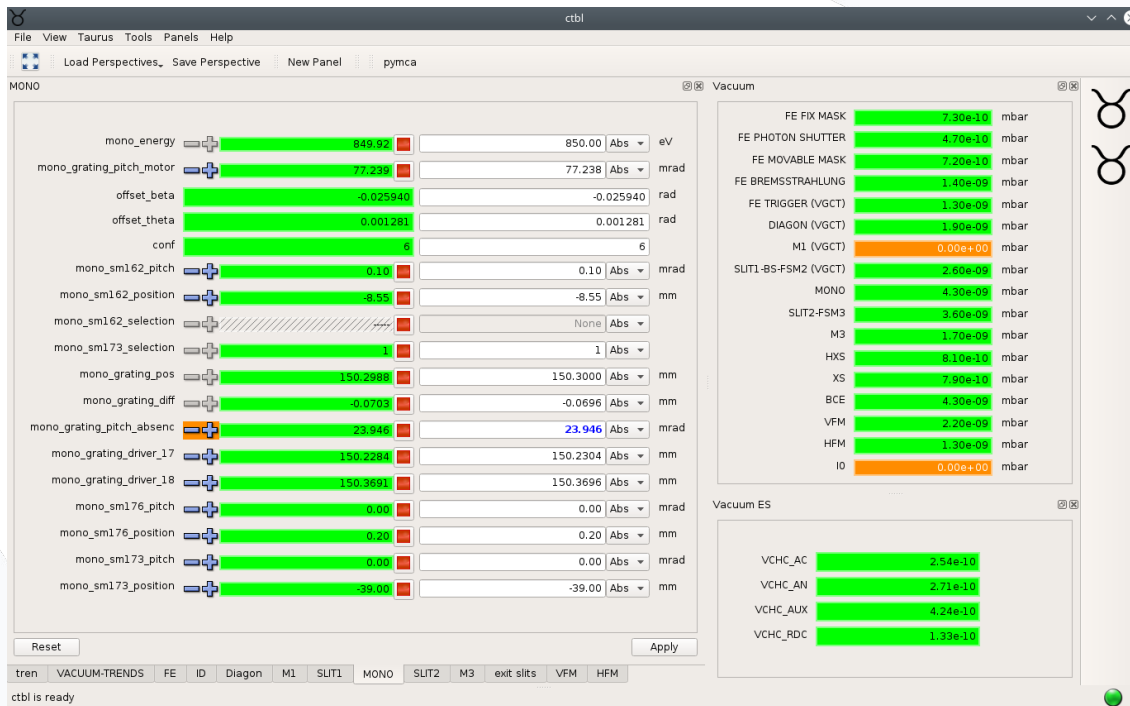
Summary

- GUIs made by scientists
- GUIs made by Controls Engineers
 - External Users GUI
 - On Axis View GUI
 - Gas System GUI

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GUIs made by scientists

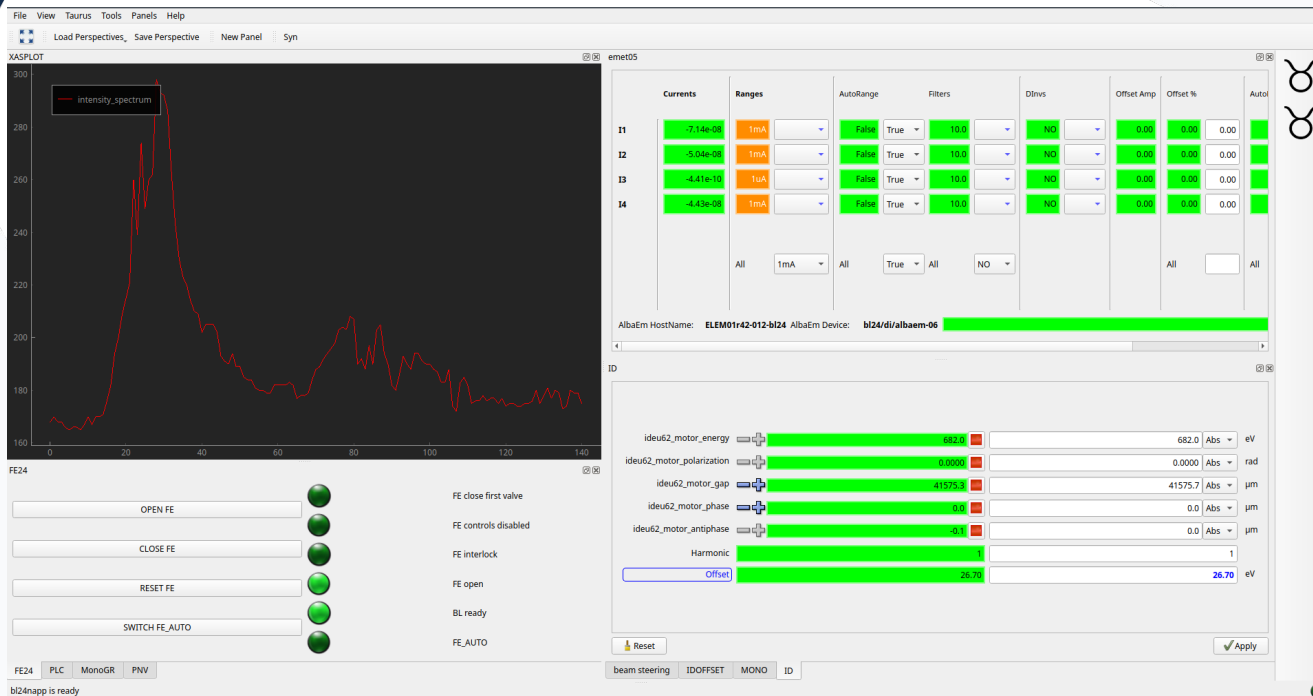


Simple widgets to view or edit Tango Attributes

Simple GUIs with a lot of Taurus Forms and Labels

GUIs made by scientists

More complex Taurus GUIs to control the full experiment



```
GUI_NAME = 'bl24napp'
ORGANIZATION = 'ALBA'
```

```
layoutSynoptic = resource_filename('circe.gui.resources',
                                   'circeLayout.jdw')
SYNOPTIC = [layoutSynoptic]
```

```
INSTRUMENTS_FROM_POOL = False
```

```
tblDomainName='tango://tbl24.cells.es:10000/'
albaDomainName='tango://alba03.cells.es:10000/'
eps1 = f'{tblDomainName}bl24/ct/eps-plc-01/'
eps2 = f'{tblDomainName}BL24/ct/eps-plc-02/'
```

```
fe24 = PanelDescription('FE24',
                        classname='taurusFE',
                        modulename='taurusfe',
                        model='bl24/ct/eps-plc-01')
```

```
albaem03 = PanelDescription('emet03',
                            classname='AlbaEmGui',
                            modulename='AlbaEmGui',
                            model='bl24/di/albaem-04')
```

```
id = PanelDescription('ID',
                      classname='taurus.qt.qtgui.panel:TaurusForm',
                      model=[f'{albaDomainName}pm/ideu62_energy/1',
                             f'{albaDomainName}pm/ideu62_energy/2',
                             f'{albaDomainName}pm/ideu62_pseudomotor_z/1',
                             f'{albaDomainName}pm/ideu62_pseudomotor_y/1',
```

Summary

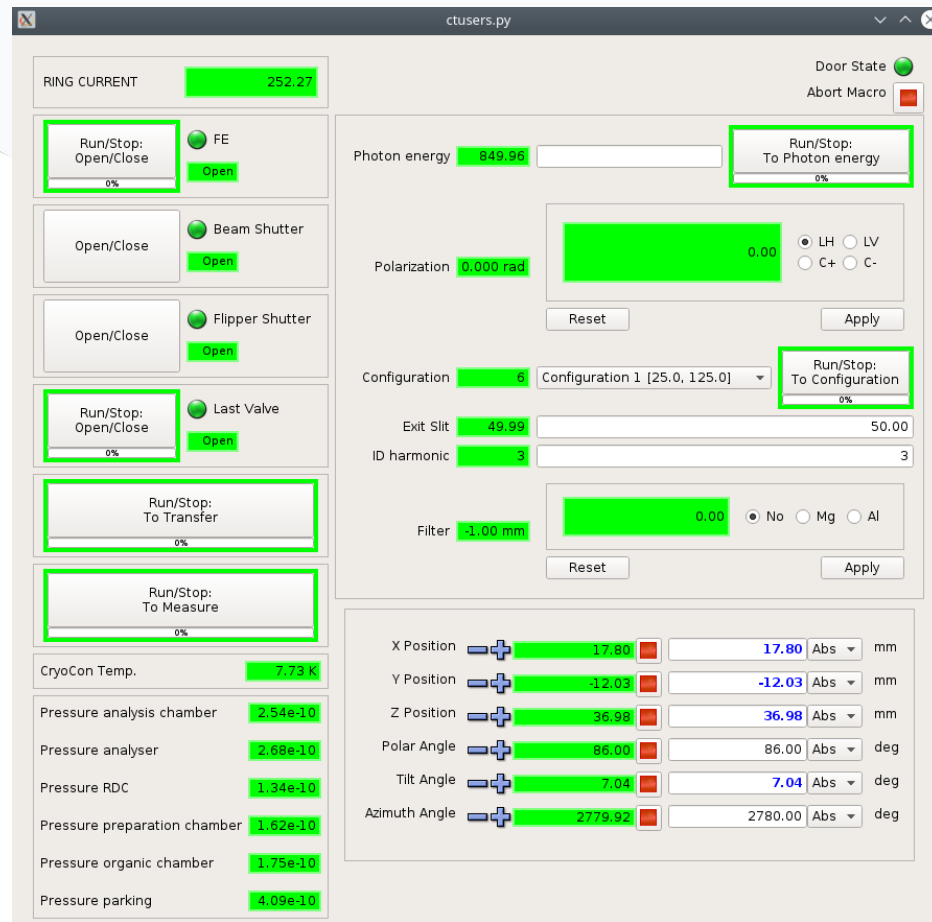
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External Users GUI

- Used by beamline users with basic knowledge
- Layout created using taurus designer
- Taurus widgets (forms, line edits, labels, leds) for simple elements
- Custom implementation of some widgets with new logic: radio buttons and dropdowns

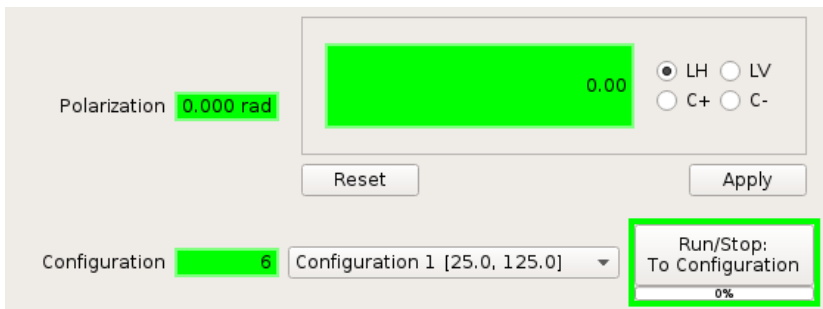


The screenshot displays the 'ctusers.py' GUI interface, which is organized into several functional panels:

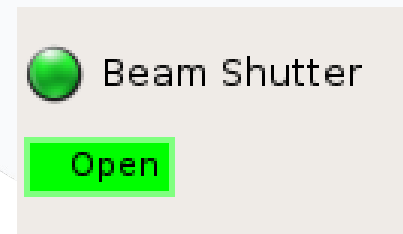
- Top Panel:** Displays 'RING CURRENT' at 252.27 and 'Door State' (green indicator). It includes 'Run/Stop: Open/Close' buttons for 'FE' (0%), 'Beam Shutter' (0%), 'Flipper Shutter' (0%), and 'Last Valve' (0%). A 'Run/Stop: To Photon energy' button (0%) is also present.
- Photon Energy Section:** Features a 'Photon energy' input field set to 849.96 and a 'Run/Stop: To Photon energy' button (0%).
- Polarization Section:** Shows 'Polarization' at 0.000 rad with a large green display area showing 0.00. It includes radio buttons for 'LH', 'LV', 'C+', and 'C-'. A 'Reset' button and an 'Apply' button are also visible.
- Configuration Section:** Displays 'Configuration' set to 6 and a dropdown menu for 'Configuration 1 [25.0, 125.0]'. A 'Run/Stop: To Configuration' button (0%) is highlighted.
- Exit Slit and ID Harmonic Section:** Shows 'Exit Slit' at 49.99 and 'ID harmonic' at 3.
- Filter Section:** Displays 'Filter' at -1.00 mm with a large green display area showing 0.00. It includes radio buttons for 'No', 'Mg', and 'Al', along with 'Reset' and 'Apply' buttons.
- Position and Angle Section:** Lists various parameters with their current values and units:
 - X Position: 17.80 mm
 - Y Position: -12.03 mm
 - Z Position: 36.98 mm
 - Polar Angle: 86.00 deg
 - Tilt Angle: 7.04 deg
 - Azimuth Angle: 2779.92 deg
- Pressure and Temperature Section:** Lists several pressure readings and 'CryoCon Temp.' at 7.73 K.

External Users GUI

Custom widgets



Reimplementation for Color Blind Users



```
class RadioOptions(Qt.QWidget, TaurusBaseWritableWidget):
```

```
    OPTIONS = {}
```

```
class PolarizationOptions(RadioOptions):
```

```
    OPTIONS = {'radioLH':'LH', 'radioLV':'LV', 'radioCPlus':'C+', 'radioCMinus':'C-'}
```

```
    def __init__(self, parent=None, designMode=False):
```

```
        super().__init__(parent=parent, designMode=designMode, name='PolarizationOptions',
```

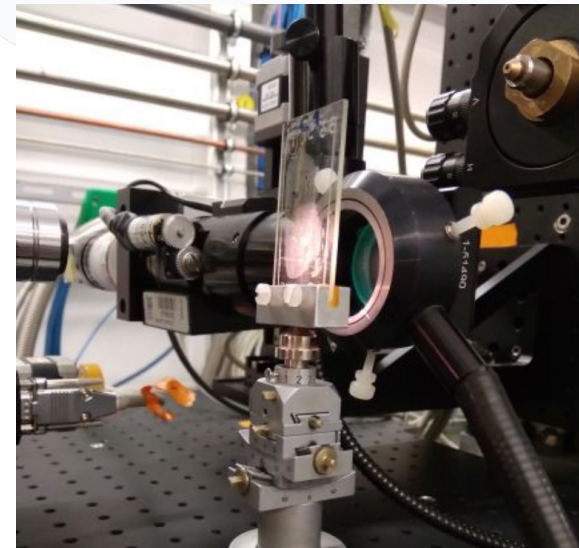
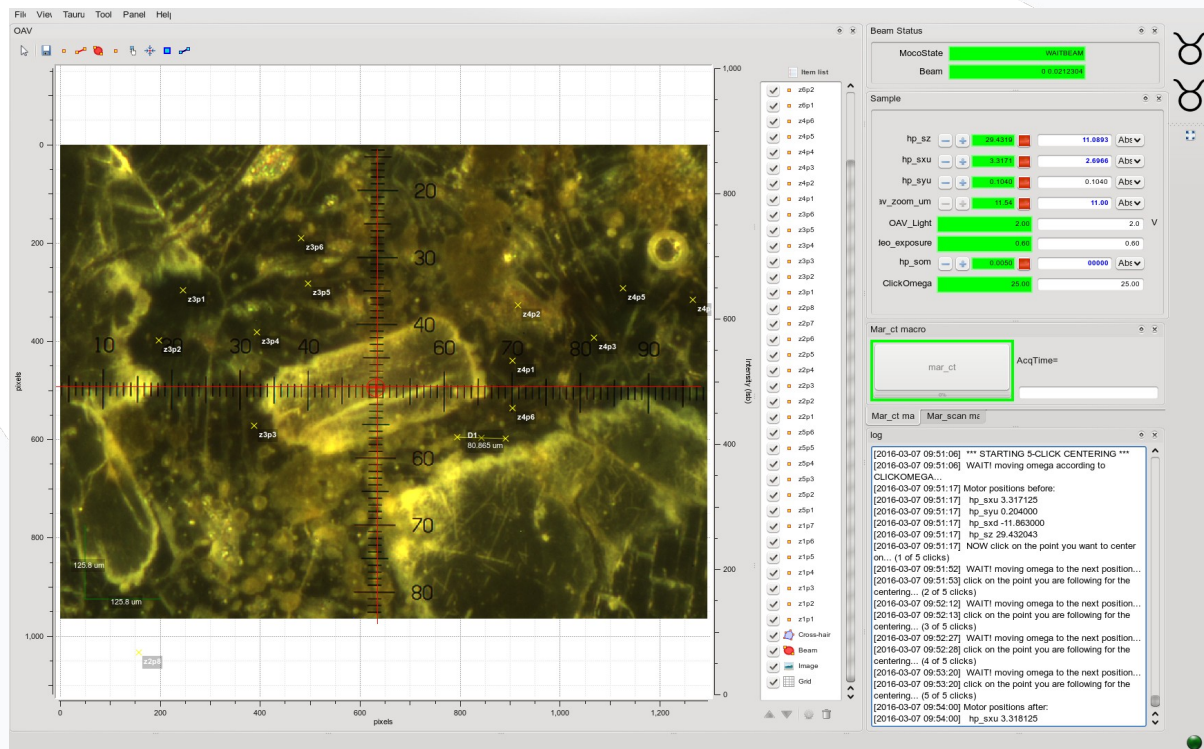
```
                        uiFile='polarizationOptions.ui', options=self.OPTIONS, dpName='tango://tbl20.cells.es:10000/pm/idctrl01/1')
```

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On Axis Viewer GUI

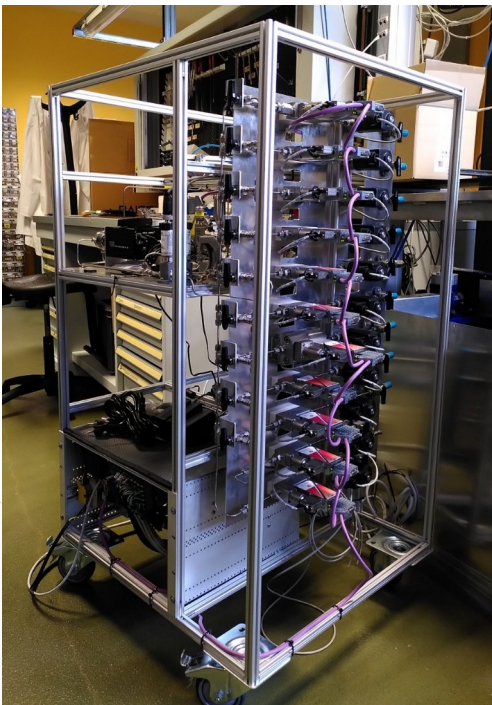
Gives the user different tools to visually work on a sample: move sample to beam, centering, select points, check sizes...



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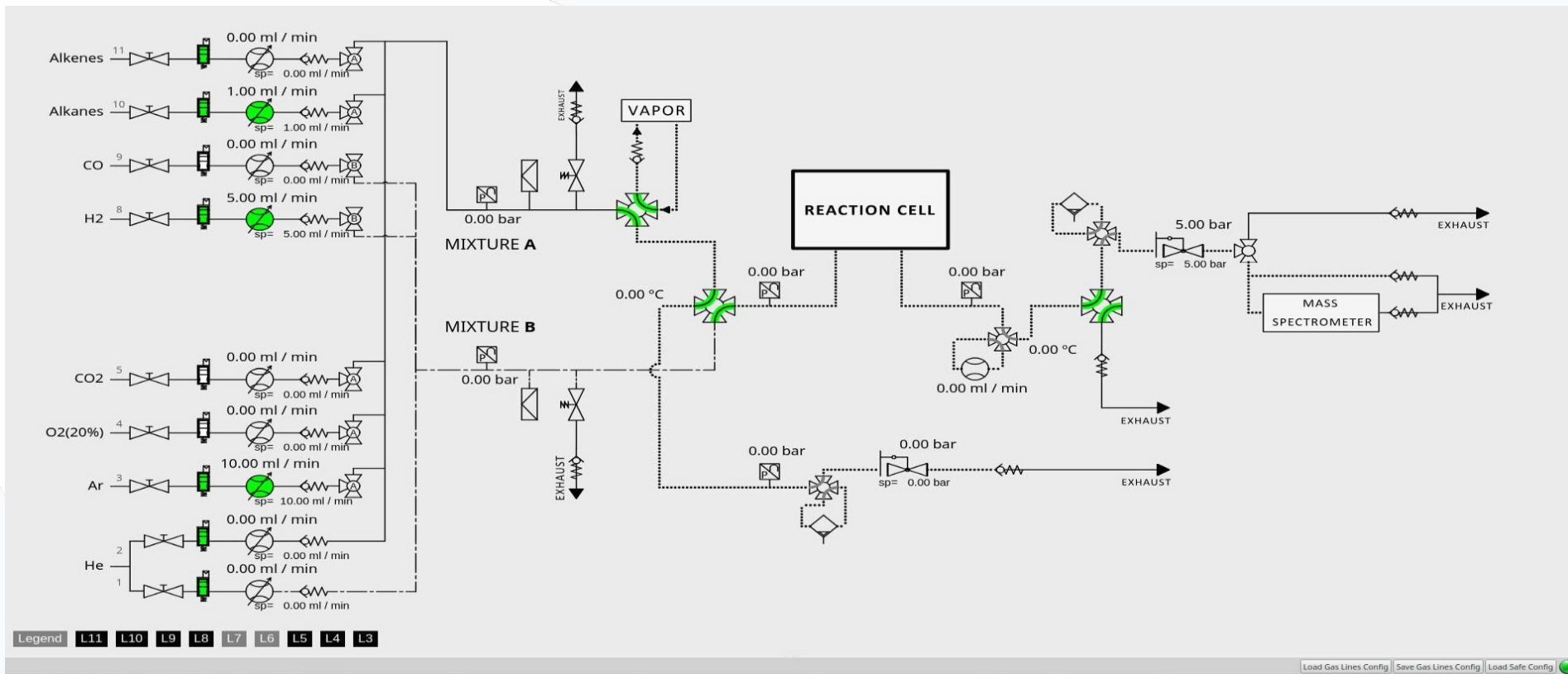
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Gas System GUI



- Gives the user the full control of the gas system (gas mix, gas flow, valves, pressures...)
- Created using Taurus SVGsynoptic library developed by MAXIV
- Easy to create
- Easy to expand using different layers (like showing new SVGs when zooming in)
- Great results both functionally and visually

Gas System GUI



Legend L11 L10 L9 L8 L7 L6 L5 L4 L3

Load Gas Lines Config Save Gas Lines Config Load Safe Config

Thank You