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Sorensenxg12.5-120 EPICS module Documentation

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Contents

List of abbreviations	2
1 Scope	3
2 Issuing Organisation	3
3 Context	3
4 Interface Description	3
4.1 Local Control	3
4.2 Digital Control	3
4.2.1 Streamdevice	3
4.2.2 EPICS	3
5 EPICS PV list	3
6 Manual	4
6.1 EPICS Commands	4
6.2 IOC Configuration	4

List of abbreviations

CSS	Control System Studio
EPICS	Experimental Physics and Industrial Control System
ESS	European Spallation Source
GUI	Graphical User Interface
PV	Process Variable

1 Scope

This document provides information about the use and control with EPICS of the Sorensen XG 12.5-120 power supply in the context of the ESS's LEBT at Catania. The module has been developed after documentation version M550129-03 Rev J.

2 Issuing Organisation

CEA Saclay was in charge of the EPICS control of the solenoid power supplies of the ESS source.

3 Context

The `sorensenXG12.5-120` module ¹ has been written to support Sorensen XG 12.5-120 power supply. This document provides an overview of the module structure and explain the purpose of its signals.

This module is a source EPICS module dependency.

4 Interface Description

4.1 Local Control

Local control is possible from the front panel, as described in the manufacturer's manual.

4.2 Digital Control

4.2.1 Streamdevice

Sorensen XG 12.5-120 use the standard SCPI protocol. The file `SorensenXG125120.proto` in the `protocol` folder contains the commands used by `streamdevice` EPICS module. Please note that only a subset of the full command list has been implemented (only those required by the source).

4.2.2 EPICS

The folder `db` contains templates and substitutions files, the `startup` folder contains startup files, the `opi` folder contains sample graphical interface. The `src` folder contains a C file used to return error codes.

The module is installed in `/opt/epics/module/sorensensgaxg125120/`.

5 EPICS PV list

Each command is prefixed with macros to setup section and device name. Those macros are replaced with values present in the `.substitutions` files present in the

¹<https://bitbucket.org/europeanspallationsource/m-epics-sorensenxg125120/>.

module's db folder. Only signals (the last part of PV) are listed below.

When the EPICS command corresponds directly to a SCPI command, it is listed in the following table.

Signal	SCPI command	Unit	Description
CurR	MEAS:CURRE?	A	Get current measure value
CurS	SOUR:CURRE	A	Set current value
ErrClr	*CLS		Clear errors buffer
ErrR			Read error message
LckR	SYST:LOCAL?		Get lock status
LckS	SYST:LOCAL		Set lock status
NxtErrR	SYST:ERR?		Read next error
OvpErrR	SOUR:VOLT:PROT:TRIP?		Read over-voltage protection error
OvpS	SOUR:VOLT:PROT	V	Set over-voltage protection limit
PwrR	OUTP:STAT?		Get power status
PwrS	OUTP:STAT		Set power status
Rst	*RST		Reset power supply
Status	*STB?		Status byte
VolRB	SOUR:VOLT?	V	Read-back voltage value
VolR	MEAS:VOLT?	V	Get voltage measure value
VolS	SOUR:VOLT	V	Set voltage value
EnableIntlk	SENS:PROT:INT		Enable/Disable Intlk
getStatIntlk	SENS:PROT:INT		Get Intlk status

Table 1: Signals description

6 Manual

6.1 EPICS Commands

You can interact with previous PV List by using the provided example or the source's CSS GUI, or with `capget` and `caput` utilities.

6.2 IOC Configuration

A startup file looks like this:

```
require streamdevice, 2.7.1
require sorensenxg125120, 0.2.0

## Asyn
drvAsynIPPortConfigure("SteerPS-H1", "10.10.1.52:5025")

dbLoadRecords("sorensenXG125120.db")
```