Sweep Control

Antidoc v2.0.5, Patrick Irvin

Table of Contents

Chapter 1. Project description

No description found (add content in project description)

No description found (add content in project description)
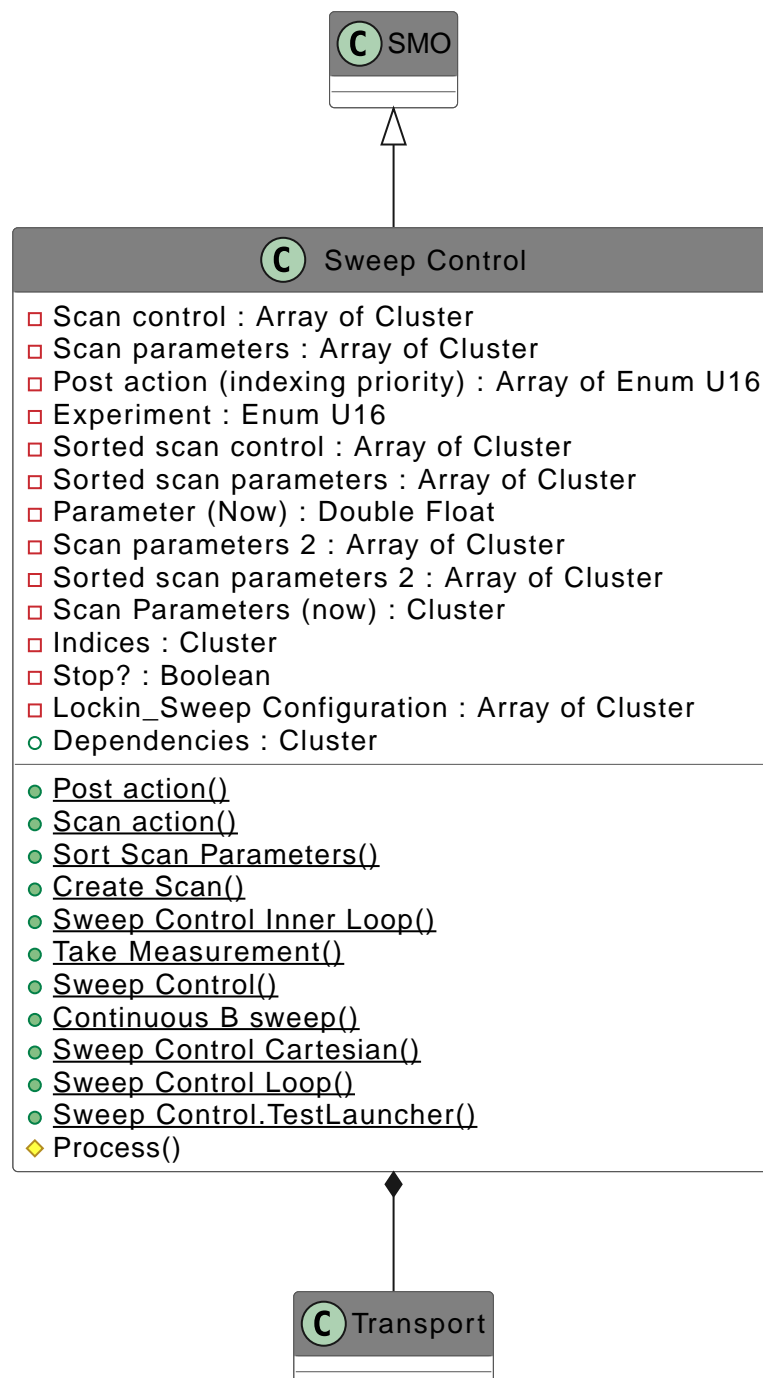
Chapter 2. Classes

This section describes the classes contained in the project.

2.1. Classes overview

This project contains 1 classe and 0 interface.

Table 1. Classes list

Classes	Interfaces
Sweep Control.lvclass	

```
                              ┌──────────────┐
                              │  C  SMO      │
                              ├──────────────┤
                              │              │
                              └──────────────┘
                                     △
                                     │
            ┌────────────────────────────────────────────────┐
            │              C   Sweep Control                  │
            ├────────────────────────────────────────────────┤
            │ □ Scan control : Array of Cluster                │
            │ □ Scan parameters : Array of Cluster             │
            │ □ Post action (indexing priority) : Array of Enum U16 │
            │ □ Experiment : Enum U16                          │
            │ □ Sorted scan control : Array of Cluster         │
            │ □ Sorted scan parameters : Array of Cluster      │
            │ □ Parameter (Now) : Double Float                 │
            │ □ Scan parameters 2 : Array of Cluster           │
            │ □ Sorted scan parameters 2 : Array of Cluster    │
            │ □ Scan Parameters (now) : Cluster                │
            │ □ Indices : Cluster                              │
            │ □ Stop? : Boolean                                │
            │ □ Lockin_Sweep Configuration : Array of Cluster  │
            │ ○ Dependencies : Cluster                         │
            ├────────────────────────────────────────────────┤
            │ ● Post action()                                  │
            │ ● Scan action()                                  │
            │ ● Sort Scan Parameters()                         │
            │ ● Create Scan()                                  │
            │ ● Sweep Control Inner Loop()                     │
            │ ● Take Measurement()                             │
            │ ● Sweep Control()                                │
            │ ● Continuous B sweep()                           │
            │ ● Sweep Control Cartesian()                      │
            │ ● Sweep Control Loop()                           │
            │ ● Sweep Control.TestLauncher()                   │
            │ ◆ Process()                                      │
            └────────────────────────────────────────────────┘
                                     ◆
                                     │
                              ┌──────────────┐
                              │ C Transport  │
                              ├──────────────┤
                              │              │
                              └──────────────┘
```

2.2. Sweep Control.lvclass

Responsibility: By value SMO class with very small footprint. It includes a process and a launcher.
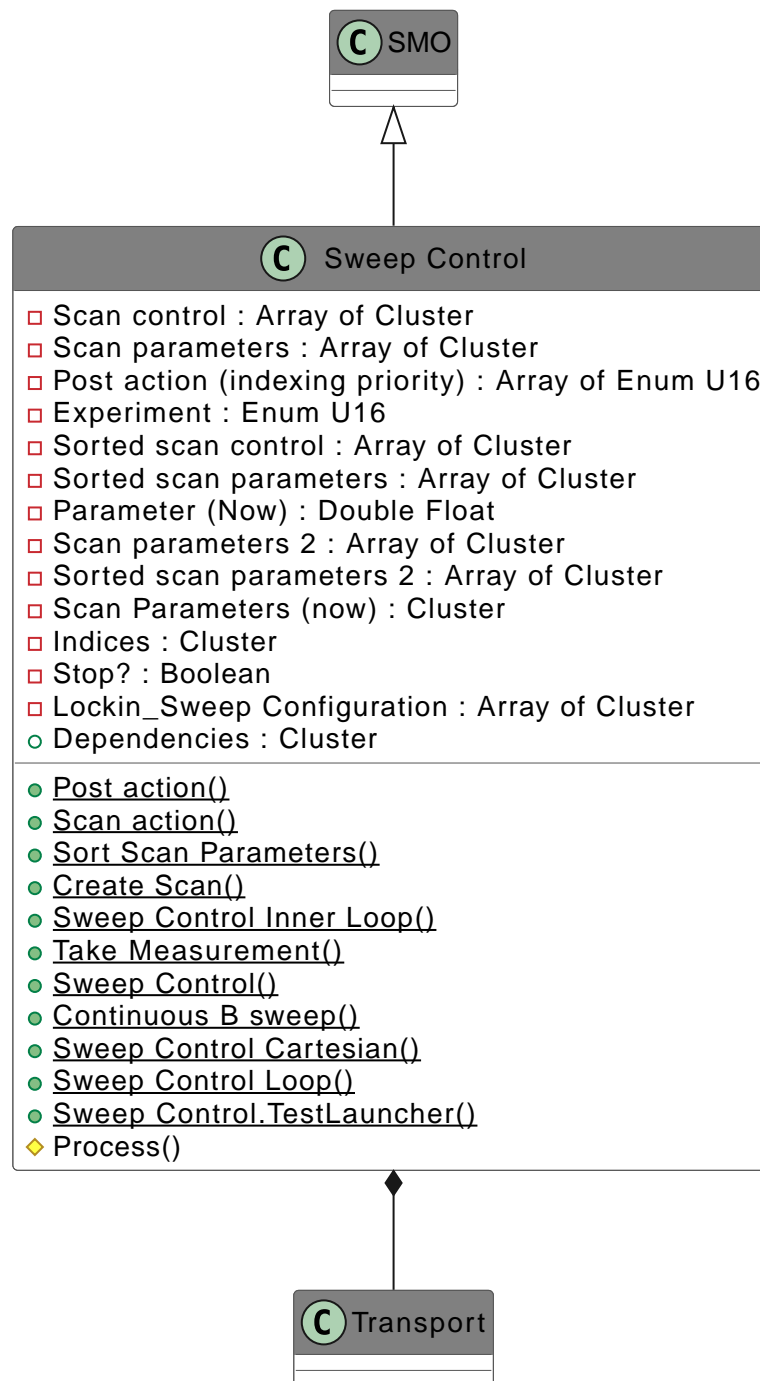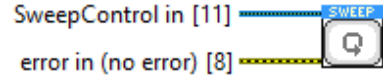
Version: 1.0.0.2

Table 2. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
Post action		No description found (add content in vi description)			
Scan action		No description found (add content in vi description)			

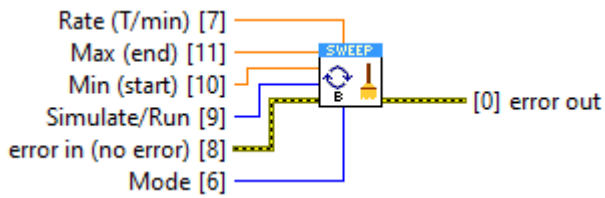| Name	Connector pane	Description	S.	R.	I.
Sort Scan Parameters	SweepControl [11], error in (no error) [8], [3] SweepControl, [2] Sorted scan control, [1] Sorted scan parameters, [0] error out	No description found (add content in vi description)			
Create Scan	SweepControl [11], Scan control [10], Scan parameters [9], Post action (indexing prior... [6], [3] SweepControl	No description found (add content in vi description)			
Sweep Control Inner Loop	SweepControl in [11], loop # [10], inner loop index [9], error in (no error) [8], [3] SweepControl out, [2] Stop?, [0] error out	No description found (add content in vi description)			
Read Sweep Configuration File	SweepControl in [11], Path [10], error in (no error) [8], [3] SweepControl out, [2] Data, [0] error out	No description found (add content in vi description)			
Read Sweep Configuration Example		No description found (add content in vi description)			
Read Dependencies	SweepControl in [11], error in (no error) [8], [3] SweepControl out, [2] Transport, [0] error out	No description found (add content in vi description)		P	→□□
Write Dependencies	SweepControl in [11], Transport [10], error in (no error) [8], [3] SweepControl out, [0] error out	No description found (add content in vi description)		P	→□□
Take Measurement	SweepControl in [11], error in (no error) [8], [3] SweepControl, [0] error out	No description found (add content in vi description)			
Read Sweep Control.json	SweepControl in [11], file (use dialog) [10], error in (no error) [8], [3] SweepControl out, [2] data, [0] error out	No description found (add content in vi description)			
Read Continuous B Sweep.json	SweepControl in [11], file (use dialog) [10], error in (no error) [8], [3] SweepControl out, [0] error out	No description found (add content in vi description)			
Sweep Control	Stop [1], Experiment subVI [5], Experiment Folder (## - Des... [7], Scan control [11], Scan parameters [10], Post action (indexing prior... [9], error in (no error) [8], Experiment Description [4], [0] error out	- Priority 0 is the fastest loop - You can put multiple scan names in one priority. - OFF has to be the last priority - Choose an Experiment (Lockin_Sweep, IV, etc) to run at each Scan Setting - Open the Exeriment subVIs to choose settings			
Continuous B sweep	Rate (T/min) [7], Max (end) [11], Min (start) [10], Simulate/Run [9], error in (no error) [8], Mode [6], [0] error out	No description found (add content in vi description)			

Name	Connector pane	Description	S.	R.	I.
Sweep Control Cartesian		- Priority 0 is the fastest loop - You can put multiple scan names in one priority. - OFF has to be the last priority - Choose an Experiment (Lockin_Sweep, IV, etc) to run at each Scan Setting - Open the Exeriment subVIs to choose settings			
Sweep Control Loop	SweepControl in [11] error in (no error) [8]	No description found (add content in vi description)			
Sweep Control.TestLauncher		No description found (add content in vi description)			
Process	SweepControl [11] error in [8] [3] SweepControl out [0] error out	--- JKI State Machine Objects™ http://jki.net/state-machine-objects/ Copyright (C) 2005-2015, JKI <info@jki.net> ALL RIGHTS RESERVED	🔑	🄢	

Scope: 🔑 → Protected | 🔑 → Community

Reentrancy: 🄟 → Preallocated reentrancy | 🄢 → Shared reentrancy

Inlining: ⊞ → Inlined

Chapter 3. JKI State Machines

This section describes the JKI State Machines contained in the project.

3.1. Preamble

A JKI State Machine ™ is a State Machine built using the template provided by JKI.

This section describes all JKI State Machine found in the project.

3.2. Sweep Control.lvclass:Sweep Control.vi
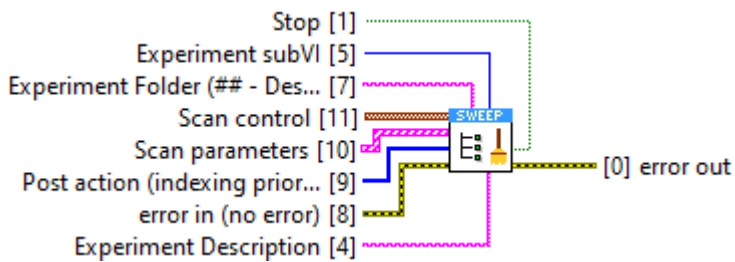
Description: - Priority 0 is the fastest loop - You can put multiple scan names in one priority. - OFF has to be the last priority - Choose an Experiment (Lockin_Sweep, IV, etc) to run at each Scan Setting - Open the Exeriment subVIs to choose settings

3.2.1. States relathionship
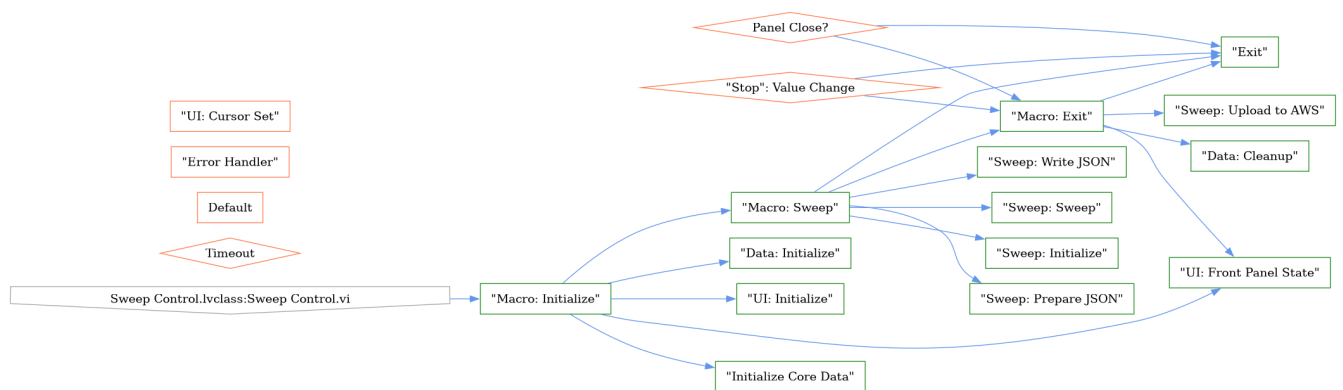
3.2.2. State machine detailed info

State Name	State Documentation	State Callers	States Called
"", "Event Structure", "Idle"			
Timeout			
"Stop": Value Change			"Exit" "Macro: Exit"
Panel Close?			"Exit" "Macro: Exit"
Core			

State Name	State Documentation	State Callers	States Called
Default	Do not delete, rename, or modify this frame. (this is used to capture unhandled states and typos)		
"Initialize Core Data"	Do not delete, rename, or modify this frame. (this is used to determine panel behavior on exit)	"Macro: Initialize"	
"Error Handler"	Handle any errors here. You can also output any states to clean-up after errors occur		
"Exit"	Do not put any code in this frame. (No errors that occur here will be handled.)	"Stop": Value Change Panel Close? "Macro: Sweep" "Macro: Exit"	
Data			
"Data: Initialize"	Initialize the shift-register data, here. (data names are defined by what you wire into the bundle function)	"Macro: Initialize"	
"Data: Cleanup"	Cleanup any data and references, here. (this is called automatically, by the Macro: Exit)	"Macro: Exit"	
UI			
"UI: Initialize"	Initialize the User Interface, here. (this is called automatically, by the Macro: Init)	"Macro: Initialize"	
"UI: Cursor Set"	Set and Unset Cursor Busy. (Usage: "UI: Cursor Set >> Busy|Idle")		
"UI: Front Panel State"	Set Front Panel Open or Closed (Usage: "UI: Front Panel State >> Open|Close")	"Macro: Initialize" "Macro: Exit"	

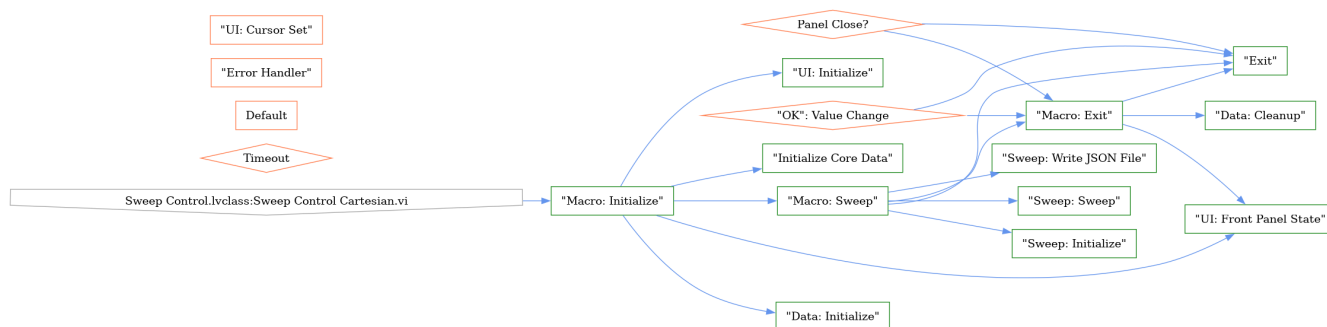| State Name	State Documentation	State Callers	States Called
Macro			
"Macro: Initialize"	Initialization Macro (This is called once, when the VI starts)		"Initialize Core Data" "Data: Initialize" "UI: Initialize" "UI: Front Panel State" "Macro: Sweep"
"Macro: Sweep"	Do not put any code in this frame. (It is a separator no-op. You can make a copy of this frame to create a new Macro frame)	"Macro: Initialize"	"Exit" "Macro: Exit" "Sweep: Initialize" "Sweep: Prepare JSON" "Sweep: Write JSON" "Sweep: Sweep"
"Macro: Exit"	Exit Macro (This is called once, when the VI exits)	"Stop": Value Change Panel Close? "Macro: Sweep"	"Exit" "Data: Cleanup" "UI: Front Panel State" "Sweep: Upload to AWS"
Sweep			
"Sweep: Initialize"	Your code here. (You can make a copy of, or modify, this frame)	"Macro: Sweep"	
"Sweep: Prepare JSON"	Write JSON File (Writes Sweep Control configuration to *.json file)	"Macro: Sweep"	
"Sweep: Write JSON"	Write JSON File (Writes Sweep Control configuration to *.json file)	"Macro: Sweep"	
"Sweep: Upload to AWS"	Template Separator (You can make a copy of, or modify, this frame)	"Macro: Exit"	
"Sweep: Sweep"	Your code here. (You can make a copy of, or modify, this frame)	"Macro: Sweep"	

3.3. Sweep Control.lvclass:Continuous B sweep.vi

```
Rate (T/min) [7]
Max (end) [11]
Min (start) [10]
Simulate/Run [9]
error in (no error) [8]
Mode [6]
                          [0] error out
```

Description: No description found (add content in VI description)

3.3.1. States relathionship

3.3.2. State machine detailed info

State Name	State Documentation	State Callers	States Called
"", "Event Structure", "Idle"			
Timeout			
Panel Close?			"Exit" "Macro: Exit"
Core			
Default	Do not delete, rename, or modify this frame. (this is used to capture unhandled states and typos)		
"Initialize Core Data"	Do not delete, rename, or modify this frame. (this is used to determine panel behavior on exit)	"Macro: Initialize"	

State Name	State Documentation	State Callers	States Called
"Error Handler"	Handle any errors here. You can also output any states to clean-up after errors occur		
"Exit"	Do not put any code in this frame. (No errors that occur here will be handled.)	Panel Close? "Macro: Sweep" "Macro: Sweep" "Macro: Exit"	
Data			
"Data: Initialize"	Initialize the shift-register data, here. (data names are defined by what you wire into the bundle function)	"Macro: Initialize"	
"Data: Cleanup"	Cleanup any data and references, here. (this is called automatically, by the Macro: Exit)	"Macro: Exit"	
UI			
"UI: Initialize"	Initialize the User Interface, here. (this is called automatically, by the Macro: Init)	"Macro: Initialize"	
"UI: Cursor Set"	Set and Unset Cursor Busy. (Usage: "UI: Cursor Set >> Busy|Idle")		
"UI: Front Panel State"	Set Front Panel Open or Closed (Usage: "UI: Front Panel State >> Open|Close")	"Macro: Initialize" "Macro: Exit"	
Macro			
"Macro: Initialize"	Initialization Macro (This is called once, when the VI starts)		"Initialize Core Data" "Data: Initialize" "UI: Initialize" "UI: Front Panel State" "Macro: Sweep"

State Name	State Documentation	State Callers	States Called
"Macro: Sweep"	Do not put any code in this frame. (It is a separator no-op. You can make a copy of this frame to create a new Macro frame)	"Macro: Initialize"	"Exit" "Macro: Exit" "Sweep: Initialize" "Sweep: Initialize Sweep Control" "Sweep: Initialize Transport" "Sweep: Prepare JSON" "Sweep: Write JSON" "Sweep: Simulate Sweep" "Sweep: Sweep"
"Macro: Exit"	Exit Macro (This is called once, when the VI exits)	Panel Close? "Macro: Sweep" "Macro: Sweep"	"Exit" "Data: Cleanup" "UI: Front Panel State"
Sweep			
"Sweep: Initialize"	Your code here. (You can make a copy of, or modify, this frame)	"Macro: Sweep" "Macro: Sweep"	
"Sweep: Initialize Sweep Control"	Template Separator (You can make a copy of, or modify, this frame)	"Macro: Sweep"	
"Sweep: Initialize Transport"	Template Separator (You can make a copy of, or modify, this frame)	"Macro: Sweep"	
"Sweep: Prepare JSON"		"Macro: Sweep"	
"Sweep: Write JSON"		"Macro: Sweep"	
"Sweep: Simulate Sweep"	Template Separator (You can make a copy of, or modify, this frame)	"Macro: Sweep"	
"Sweep: Sweep"		"Macro: Sweep"	

3.4. Sweep Control.lvclass:Sweep Control Cartesian.vi

Description: - Priority 0 is the fastest loop - You can put multiple scan names in one priority. - OFF has to be the last priority - Choose an Experiment (Lockin_Sweep, IV, etc) to run at each Scan Setting - Open the Exeriment subVIs to choose settings

3.4.1. States relathionship

3.4.2. State machine detailed info

State Name	State Documentation	State Callers	States Called
"", "Event Structure", "Idle"			
Timeout			
"OK": Value Change			"Exit" "Macro: Exit"
Panel Close?			"Exit" "Macro: Exit"
Core			
Default	Do not delete, rename, or modify this frame. (this is used to capture unhandled states and typos)		
"Initialize Core Data"	Do not delete, rename, or modify this frame. (this is used to determine panel behavior on exit)	"Macro: Initialize"	
"Error Handler"	Handle any errors here. You can also output any states to clean-up after errors occur		
"Exit"	Do not put any code in this frame. (No errors that occur here will be handled.)	"OK": Value Change Panel Close? "Macro: Sweep" "Macro: Exit"	
Data			

State Name	State Documentation	State Callers	States Called
"Data: Initialize"	Initialize the shift-register data, here. (data names are defined by what you wire into the bundle function)	"Macro: Initialize"	
"Data: Cleanup"	Cleanup any data and references, here. (this is called automatically, by the Macro: Exit)	"Macro: Exit"	
UI			
"UI: Initialize"	Initialize the User Interface, here. (this is called automatically, by the Macro: Init)	"Macro: Initialize"	
"UI: Cursor Set"	Set and Unset Cursor Busy. (Usage: "UI: Cursor Set >> Busy|Idle")		
"UI: Front Panel State"	Set Front Panel Open or Closed (Usage: "UI: Front Panel State >> Open|Close")	"Macro: Initialize" "Macro: Exit"	
Macro			
"Macro: Initialize"	Initialization Macro (This is called once, when the VI starts)		"Initialize Core Data" "Data: Initialize" "UI: Initialize" "UI: Front Panel State" "Macro: Sweep"
"Macro: Sweep"	Do not put any code in this frame. (It is a separator no-op. You can make a copy of this frame to create a new Macro frame)	"Macro: Initialize"	"Exit" "Macro: Exit" "Sweep: Initialize" "Sweep: Write JSON File" "Sweep: Sweep"
"Macro: Exit"	Exit Macro (This is called once, when the VI exits)	"OK": Value Change Panel Close? "Macro: Sweep"	"Exit" "Data: Cleanup" "UI: Front Panel State"
Sweep			
"Sweep: Initialize"	Your code here. (You can make a copy of, or modify, this frame)	"Macro: Sweep"	

State Name	State Documentation	State Callers	States Called
"Sweep: Write JSON File"	Write JSON File (Writes Sweep Control configuration to *.json file)	"Macro: Sweep"	
"Sweep: Sweep"	Your code here. (You can make a copy of, or modify, this frame)	"Macro: Sweep"	

State Name	State Documentation	State Callers	States Called
	Write JSON File (Writes Sweep Control configuration to *.json file)	"Macro: Sweep"	

Chapter 4. Legal Information

4.1. Document creation

This document has been generated using the following tools.

4.1.1. Antidoc

Project website: Antidoc

Maintainer website: Wovalab

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4.1.2. Asciidoc for LabVIEW™

Project website: Asciidoc toolkit

Maintainer website: Wovalab

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4.1.4. classy Diagram Viewer

Project website: classy Diagram Viewer

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4.2. Product used in the project

The documented project has been developed with the following products.

4.2.1. JKI State Machine™

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