

Southern African Large Telescope

PFIS Spare Control System Statement of Work

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Change History

Rev	Date	Description
1.0	8 June, 2005	Original

1 Scope

This document describes the spare control system to be constructed and tested by Space Astronomy Lab as a contribution to the SALT spares and maintenance system.

2 Applicable Documents

The following electronics drawings define the PFIS control system:

3140AD0000: Control System - Top Level

3140AD0001: Power Distribution System

3140AD0002: Signal Conditioning Box

3140AD0003: Satellite Controller Box #1

3140AD0004: Satellite Controller Box #2

3140AD0005: Slitmask Mechanism

3140AD0006: Waveplate Mechanism

3140AD0007: Shutter Mechanism

3140AD0008: Focus Mechanism

3140AD0009: Etalons Mechanism

3140AD0010: Gratings Mechanism

3140AD0011: Beamsplitter Mechanism

3140AD0012: Filter Mechanism

3140AD0013: Articulation Mechanism

3140AD0014: Environment Sensors

3 Spare Control System Statement of Work

Refer to Figure 1 below for a control system top level block diagram.

The Space Astronomy shall

- Procure parts for and assemble the following PFIS control system boxes. These will be plug-and mechanical- compatible functional spares for the originally delivered boxes.

Power Distribution System (PDS)

Signal Conditioning Box (SCB)

PFIS Satellite Controller Box #1 (PSC1)

PFIS Satellite Controller Box #2 (PSC2)

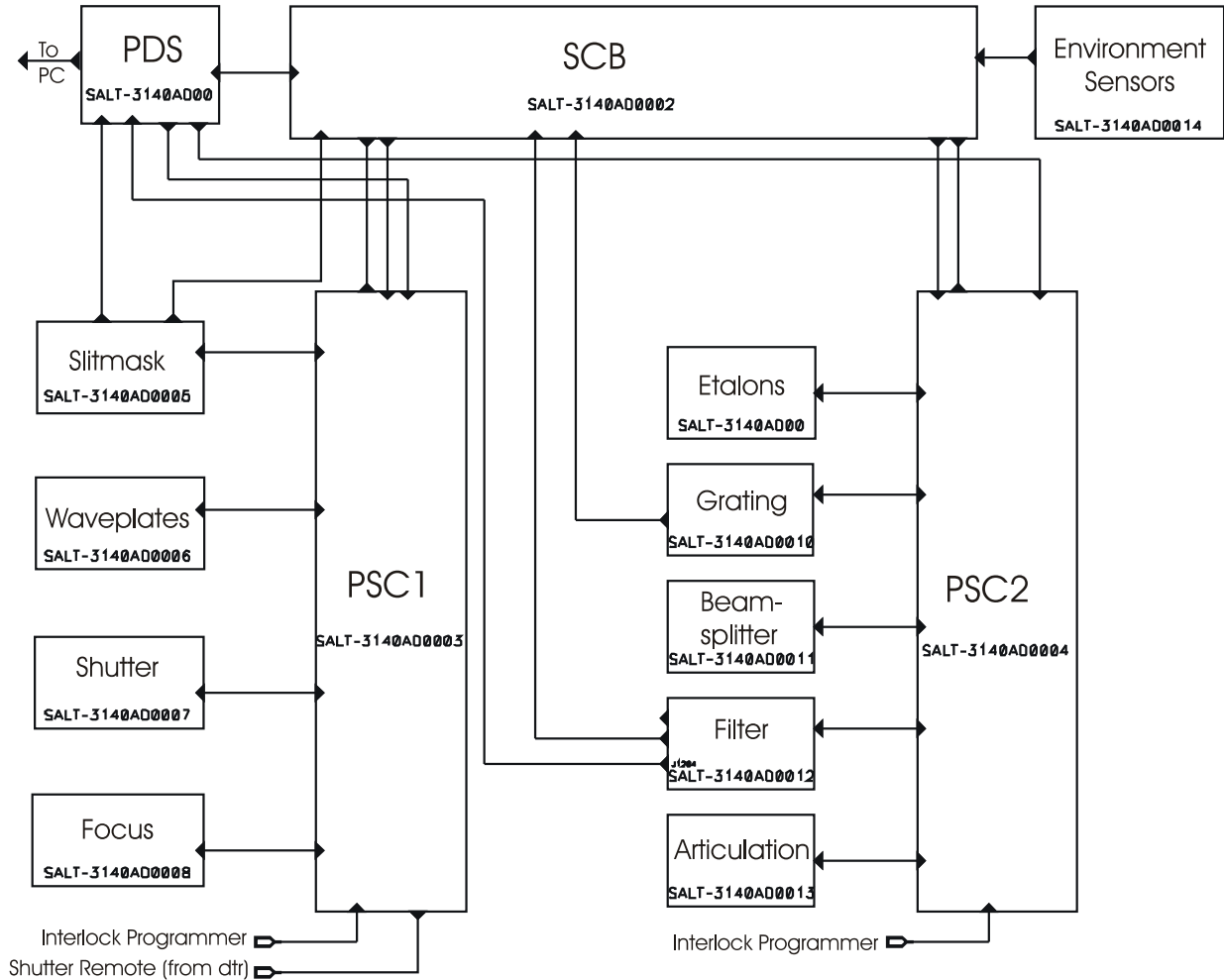


Figure 1. PFIS Control System Block Diagram

- Procure parts for and assemble Simulator/ Spare boxes for each of the subsystems listed in Table 1 below. These will be plug-compatible with the corresponding PFIS subsystems, with sufficient sensors and actuators to act as electronic equivalents, for control system troubleshooting and for spare parts.
- Test functionality of the above system.

Table 1. Subsystem Simulators

Subsystem	Part Number	Description
Slitmask Mechanism	MS-3 CCD	BarCode Scanner
	LX-PA-15-P10K	Magazine Position Transducer
	003-1380-01	Optical Switch
	SME-8-K-LED-24	Carrier Proximity Sensor
	VN101503	Vane Switch
	SMEO-4-K-LED-24-B	FocusPusher Proximity Sensor/ Mount
	PK266-02A	Stepper Motor
Waveplate Mechanism	SME-8-K-LED-24	WP Proximity Sensors
	Custom	HWP Encoder
	M3000	WP Encoder Head
	MP101301	WP Hall Sensor
	PMC35A3	Stepper Motor
Shutter Mechanism	VN101503	Shutter Vane Switch
	SME-8-K-LED-24	Shutter Assist Proximity Sensor
	ADVU-12-15-A-P	Shutter Assist Pneumatic
Focus Mechanism	100DCSE0006	Focus LVDT
	M-230.25S	StepperMike
Etalons Mechanism	SME-8-K-LED-24	Proximity Sensor
	SMEO-4-K-LED-24-B	Proximity Sensor
Gratings Mechanism	LX-PA-15-P10K	Magazine Position Transducer
	E5D-512-197-1	Rotation Encoder
	003-1380-01	Optical Switch
	SMEO-4-K-LED-24-B/ SMBR-12	Insertion Proximity Sensor/ Mount
	VN101503	Vane Switch
	PK545AMA	Magazine Motor
	SH4009L-1206-B	Rotation Motor
Beamsplitter Mechanism	SMEO-4-K-LED-24-B/ SMBR-12	Proximity Sensor/ Mount
Filter Mechanism	MS-3 CCD	BarCode Scanner
	SMEO-4-K-LED-24-B/ SMBR-12	Insertion Proximity Sensor/ Mount
	LX-PA-15-P10K	Magazine Position Transducer
	003-1380-01	Optical Switch
	VN101503	Vane Hall Switch
	PK266-02	Stepper Motor
Articulation Mechanism	SME-8-K-LED-24	Detent Proximity Sensor
	VN101503	Vane Hall Switch
	KM063F13	High Torque SloSyn Motor
Environment Sensors	HM1500	Humidity Sensor
	TSI41211	Flow Sensor
	19586	Pressure Sensor
	AD590	Temperature Sensor
	7B47-J-02-2	Thermocouple
	7BP04-1	Thermocouple backplane

4 Deliverables

Deliverables include

- Four electronics boxes.
- 10 Subsystem simulators and electronic drawings.
- Cabling.
- PC PXI interface.

The following are not included:

- PC
- Detector electronics