



Swift HCB (Home Convenience Box)

STATUS REPORT

v5.0

Update date: **8th October 2024**

Compiled for: **SwiftPower Technologies Ltd.**

Version	5.0		
Creation Date	Author	Version	Changes Made
28-07-2021	Joseph Wamicha	1.0	First Draft Mk2 PLC
09-09-2021	Joseph Wamicha	1.7	Updates to Mk3. Deprecated due to lack of components
15-09-2021	Joseph Wamicha	1.8.1	Upgrade to Mk4 with found components
07-01-2022	Joseph Wamicha	2.0	Working Mk4 Hardware
23-03-2022	Joseph Wamicha	2.1	Update to Mk5. Working firmware on Mk5.
11-02-2023	Joseph Wamicha	3.0	Upgrade to CPU, now on Mk6
17-02-2023	Joseph Wamicha	3.1	Also now includes Standards and Compliance Section. Upgrade from Allwinner A20 to Allwinner A64
26-02-2023	Joseph Wamicha	3.2	Project updates
05-03-2023	Joseph Wamicha	3.3	Project updates
29-03-2023	Joseph Wamicha	3.4	Phase 1 release report
14-03-2023	Joseph Wamicha	3.5	Phase 2 production run update 1
01-05-2023	Joseph Wamicha	3.6	Phase 2 production run update 2
06-06-2023	Joseph Wamicha	3.7	REV A&B End to End Testing
14-06-2023	Ngaruiya Kamau	3.8	Getting Ready for End to End Testing
22-06-2023	Ngaruiya Kamau	3.9	Getting Ready for End to End Testing
29-06-2023	Ngaruiya Kamau	4.0	Testing with Success.
06-07-2023	Ngaruiya Kamau	4.1	Getting Ready for Stakeholder Presentation
18-07-2023	Ngaruiya Kamau	4.2	Debugging the firmware

08-10-2024	Joseph Wamicha	5.0	Optimisation Update
08-10-2024	Phillip Nzau	5.1	Deliverable date review

Abbreviations

CIU -	Customer Interface Unit
DLMS -	Device Language Message Specification
COSEM -	Companion Specification for Energy Metering
PLC -	Powerline Communications
LoRaWAN -	Long Range Wide Area Network
CODEC -	Coder Decoder
MCU -	Microcontroller Unit
CPU -	Central Processing Unit
HCB -	Home Convenience Box
PMS -	Power Management System

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SPT Project Snapshot:

Project: swift-power-hcb-mk1

Component: SWIFT-HCB

Version: 1

Blockers and Critical Tasks: Procurement

Time Estimate: 1 day

Introduction

The Optimization Phase has commenced for the Swift HCB in Cape Town. Following the successful manufacture, powering up, flashing and initial testing, the Factory Acceptance Test (FAT) will be done in Durban. Following a successful FAT in Durban, 30 HCB units will be shipped to Kenya for the KPLC Pilot document.

Requirements Specification

The SwiftPower **Home Convenience Box (HCB)**, which performs the following 2 core functions:

- Reads G3-PLC telemetry readings from the meter and transmits it through LoRaWAN for devices
- Provides a **WiFi6 Hotspot (Access Point - AP Mode)** and **Mesh Network Capability (Station - STA mode)** for last mile broadband connectivity for humans

Status Reports

Hardware

Current Activity: Hardware Design and Manufacturing

Scope of Works:

- Clou PLC Meter setup in Kenya office - **14/10/2024**

- Setup Test Bench for Swift PLC prototyping - **08/10/2024**
- Board designs - **Done**
- Review the BOM - **Done**
- Review Power and PLC Board Designs - **Done**
- Procurement of Parts orders for SWIFT hardware - **09/10/2024**
 - Order Carts for Swift hardware loaded - **5/10/2024**
 - The chip used for **G3-PLC** communications is the **MPL360**
 - with **ATSAMG55J19B** Network Co-Processor Chip
 - And LoRaWAN Semtech **SX1262** chip
 - WiF6 Comms PCB Module will use the **Realtek RTL8852BS** chipset
- Power and PLC Board Test Bench - **19/11/2024**
- SMT Production review by Barracuda - **TBC**
- SMT Production with Barracuda Starts - **TBC**
- SMT Production with Barracuda Finishes - **TBC**
- **Factory Acceptance Test (FAT) in Durban - 25/11/2024**
- **30 Swift HCB Hardware Units** expected arrival in Kenya is - **15/12/2024**

LCD

Current Activity: LCD Sourcing and Manufacturing

Scope of Works:

- 4-inch HDMI LCD Screen Display Sourced
- I2C for the Touch Screen
- Requires an Adapter Board to plug into the Cona

Completion Date: 31/10/2024

Enclosure

- Design completed and approved - **25/10/2024**

- 2-qty 3D printing of test aesthetic enclosures - **31/10/2024**
- 30-qty for the Silicon Mold Enclosure - **22/11/2024**
- **30 Swift HCB Enclosure Units** expected arrival in Kenya is - **4/12/2024**

HCB Firmware

Current Activity: Swift PMS Test with G3-PLC Clou Meter

Scope of Works:

- Test successful G3-PLC Network with Clou Meters
- Test Clou DLMS / COSEM codec on G3-PLC Network

Completion Date: **31/10/2024**