KONFIGURATIONER **ESH10000599**

Accordion A2 Plus

Fulladdad Accordion A2 — 96 mixed-signal-kanaler, programmerbar kraft och protokollkommunikation i en nätverksansluten nod.

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Accordion A2 Plus är en fulladdad konfiguration av Accordion A2-testplattformen, levererad som en färdig bundle för PCBA-test, NPI och produktionstest där du behöver både mixed-signal-kanaler och programmerbar kraft och protokollkommunikation på samma nod. Chassit är förmonterat med fyra moduler — MPIO-96, 6× IDC N-TOP-breakout, M.2 PSU och kommunikationsmodulen — så att en enda nätverksansluten enhet kan mäta, mata, exercera och övervaka din DUT utan att du bygger ihop konfigurationen från enskilda moduler.

Användningsområden

- Funktions- och parametrisk PCBA-test som kombinerar 96 mixed-signal-kanaler med en eller två programmerbara matningar.
- Mjukvarustyrda kraftaggregat med per-kanals telemetri.
- Bring-up-bänkar som pratar med DUT:en över I²C, UART, SPI eller JTAG samtidigt som de matar och mäter den.
- Produktionsfixturer med fläktstyrd kylning och operatörssynlig RGB-statusindikering.
- Höghastighets numerisk insamling för läckagetest, rail-stabilitet och sensorkarakterisering.

Specifikationer

System

Parameter	Value	Notes
Product name	Accordion A2 Plus	
Part number	ESH10000599	
Platform	Accordion A2	
Power input	USB-C (USB-PD), via bundled 130 W power supply	Use bundled supply only.
Power consumption, typical	< 5 W	At idle, all channels INPUT, PSU outputs disabled.
Network interface	1× RJ45, 10/100/1000 Mbit/s	Back panel.
Auxiliary host ports	2× USB-A 2.0, 2× USB-A 3.0	Back panel.
M.2 slots	2, on the front panel (M1, M2)	M1 populated by the PSU module; M2 free.
Module slots populated	SO-DIMM T1 (MPIO-96), N-TOP N1 (IDC breakout), dedicated communication TOP, front-panel M.2 M1 (PSU)	

Parameter	Value	Notes
Module slots free	3× SO-DIMM (T2, T3, A1), 3× N-TOP (N2, N3, N4), 1× M.2 (M2)	For future expansion.
Dimensions (W × D × H)	233 × 129 × 60 mm	
Weight	1.08 kg	
Compliance	CE, RoHS, REACH	

Included hardware

Item	Qty	Notes
Accordion A2 unit	1	Pre-configured with the modules below.
ESH10000568 — MPIO-96 SPI Module	1	96 reconfigurable channels, AD5592R-based. SO-DIMM slot T1.
ESH10000355 — 6× IDC N-TOP Breakout Module	1	96-signal breakout to 6× IDC 20-pin. N-TOP slot N1.
ESH10000533 — M.2 PSU Module	1	Dual programmable supply, 60 W total. Front-panel M.2 slot M1.
ESH10000359 — Communication Module	1	I²C / UART / SPI / JTAG, fan control, RGB status LEDs.
USB-C power supply	1	130 W, USB-PD.
USB-C power cable	1	1 m.

Included software licenses (lifetime)

Product	License	Notes
Accordion Shell	Lifetime, single-unit	CLI tool. `dotnet tool install -g AccordionQ2.Shell`.
Accordion Pilot	Lifetime, single-unit	Windows GUI.

The Web API, the Python package `accordionq2`, and the .NET client `AccordionQ2.WebApiClient` are open clients and are usable without separate licensing.

Channel summary

MPIO-96 (ESH10000568)

Parameter	Value
User channels	96, bidirectional
Modes per channel	Analog input, analog output, pseudo-digital I/O
ADC / DAC resolution	12-bit / 12-bit
Analog range	0–5 V typical (AD5592R 2× mode)
High-speed acquisition	Supported, exposed via `NumericResult`
Max voltage / current at IDC pin	5 V / 2 A

Parameter	Value
ESD on IDC connectors	IEC 61000-4-2, ±30 kV contact, ±30 kV air

M.2 PSU (ESH10000533)

Parameter	Value
Channels	2, independent (CH1, CH2)
Output voltage	0–20 V
Output current	0–10 A
Maximum total output power	60 W (derated, summed across both channels)
Controller	Linear Technology LTC3889 (PMBus)
Telemetry	READ_VOUT, READ_IOUT, READ_POUT, READ_VIN, READ_IIN, READ_TEMPERATURE_1/2

Communication module (ESH10000359)

Parameter	Value
Communication interfaces	2× I²C, UART (RS232), SPI, JTAG
Analog channels	4× VOUT (output-only), 4× MPIO (bidirectional)
Fan control	2× PWM with tachometer feedback (MAX6650)
Status LEDs	8× RGB (I2C1, I2C2, UART, SPI, JTAG, POWER, FAN, ADCIO)
Always-on chassis power rails	20 V, 12 V, 5 V, 3.3 V; each thermal-fused at 0.5 A

Constraints

96 user signals on the IDC connectors are routed 1:1 from the MPIO-96 — no conditioning, no multiplexing.

PSU module: 60 W **total** across both channels (derated from per-channel maximum).

IDC connectors: 5 V max, 2 A max per signal pin; +5 V and +12–20 V rails are thermistor-fused at 0.25 A.

USB-C powered. The bundled 130 W USB-PD supply is the only supported supply.

Anslutningar (pinout)

Back-panel chassis connectors

Designator	Type	Direction	Description	Notes
NET	RJ45	Bidirectional	Ethernet to control network	10/100/1000 Mbit/s.
POWER	USB-C	Power input	5–20 V (USB-PD) from bundled supply	Use bundled 130 W supply only.
USB1–USB4	USB-A	Bidirectional	Auxiliary host ports	2× USB-A 2.0 + 2× USB-A 3.0.

Front-panel M.2 PSU module — output connectors (J2, J3)

Pin	Signal (CH1 / CH2)	Direction	Description
J2_1 / J3_1	VPSU_0 / VPSU_1	Power out	Settable supply (0–20 V), per-channel.
J2_2 / J3_2	VSENSE+_0 / VSENSE+_1	Input	Remote sense, positive terminal.
J2_3 / J3_3	VSENSE-_0 / VSENSE-_1	Input	Remote sense, negative terminal.
J2_4 / J3_4	GND	—	Common ground.

Top — IDC signal connectors (J1–J6)

Six 20-pin (2×10, 2.54 mm pitch) IDC connectors. Connector → DATA-line mapping (1:1 to MPIO-96 via SO-DIMM slot T1):

Connector	Signals (DATA[...])	Mapped MPIO channels
J1	DATA[0–15]	MPIO00–MPIO15
J2	DATA[16–31]	MPIO16–MPIO31
J3	DATA[32–47]	MPIO32–MPIO47
J4	DATA[48–63]	MPIO48–MPIO63
J5	DATA[64–79]	MPIO64–MPIO79
J6	DATA[80–95]	MPIO80–MPIO95

Per-connector fixed pins: pin 1 = +5 V (thermistor-fused 0.25 A), pin 2 = +12–20 V (thermistor-fused 0.25 A), pins 3–20 = 16× DATA + GND returns.

Manual

Power-on procedure

1. Connect the USB-C power supply to mains.
2. Connect the USB-C cable from the supply to the **POWER** port on the front of the unit.
3. Connect an Ethernet cable from the front-panel RJ45 to the same network as the controlling PC.
4. Press the power button on the back of the unit and wait for it to boot.
5. The unit is reachable by hostname (printed on the quick start card) or by DHCP-assigned IP.

The chassis power rails (20 V, 12 V, 5 V, 3.3 V) are live at boot and thermal-fused at 0.5 A. The **PSU outputs (`VPSU_0` , `VPSU_1`) are NOT enabled at boot** — they require explicit software enable (`OPERATION` / `OUTPUT_ENABLE` per channel).

Channel naming

Module	Convention	Example
MPIO-96 (ESH10000568)	`{ModuleIndex}.ESH10000568.MPIO{00–95}`	`1.ESH10000568.MPIO42`
Communication (ESH10000359)	`{ModuleIndex}.ESH10000359.{ChannelName}`	`15.ESH10000359.I2C1`

Module	Convention	Example
PSU (ESH10000533)	`{ModuleIndex}.ESH10000533.{Address}.{Channel}.{Register}`	`0.ESH10000533.0x4F.CH1.VOUT_COMMAND`

Driving the MPIO-96

```
from accordionq2 import Pilot

pilot = Pilot(host="accordion-a2-plus-XXXX")
pilot.attach()

# Configure MPIO00 as analog output, drive 2.500 V
ch = pilot.get_channel("1.ESH10000568.MPIO00")
ch.configure(mode="analog_output")
ch.write_analog(2.500)

# Read MPIO01 as analog input
v = pilot.get_channel("1.ESH10000568.MPIO01").read_analog()
```

Driving the M.2 PSU module

```
psu_ch1 = pilot.get_channel("0.ESH10000533.0x4F.CH1.VOUT_COMMAND")
psu_ch1.write(3.300)                                  # 3.3 V on CH1

en = pilot.get_channel("0.ESH10000533.0x4F.CH1.OPERATION")
en.write(True)

vout = pilot.get_channel("0.ESH10000533.0x4F.CH1.READ_VOUT").read()
```

The 60 W ceiling is a **total** across both PSU channels. Plan combined V × I to stay below 60 W or expect over-power protection to fire.

This document was prepared by E-Sharp AB with the assistance of AI.