DRAFT

MEP HANDOFF

PJ-D POWER DRIVE · ANNEX · REV 3.4

Home Automation Integration

Engineering reference for project MEP and HA integrators connecting PRIVASEE® PJ-D smart-film power adapters to building automation

The PRIVASEE method — the relay is a remote wall switch

HA system energises the relay coil · the relay's NO contact closes the PJ-D SWITCH terminals (X3) — same as a wall switch does. PJ-D mains stays connected at all times.

One drawing · works with any third-party HA / BMS system

DOCUMENT

PVS-SGS-MAN-PJD-HA-01 · Rev 3.4

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ISSUED BY

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01 The principle — one sentence

The PJ-D's **SWITCH terminals (X3)** are a passive dry-contact pair, just like a wall-switch input. To bring home-automation control to the panel, we use a **Schneider Telemecanique RXM2AB1P7** plug-in relay as a remote-controlled wall switch: the HA system energises the relay coil, and the relay's NO contact closes the two SWITCH cables on the PJ-D — exactly as a manual wall switch would.

BEHAVIOUR

HA COMMAND	RELAY COIL	RELAY NO CONTACT	PJ-D SWITCH	PANEL STATE
Privacy ON	energised	closed	closed	switches (per X3 logic)
Privacy OFF	de-energised	open	open	switches back

WHAT THIS DESIGN PRESERVES

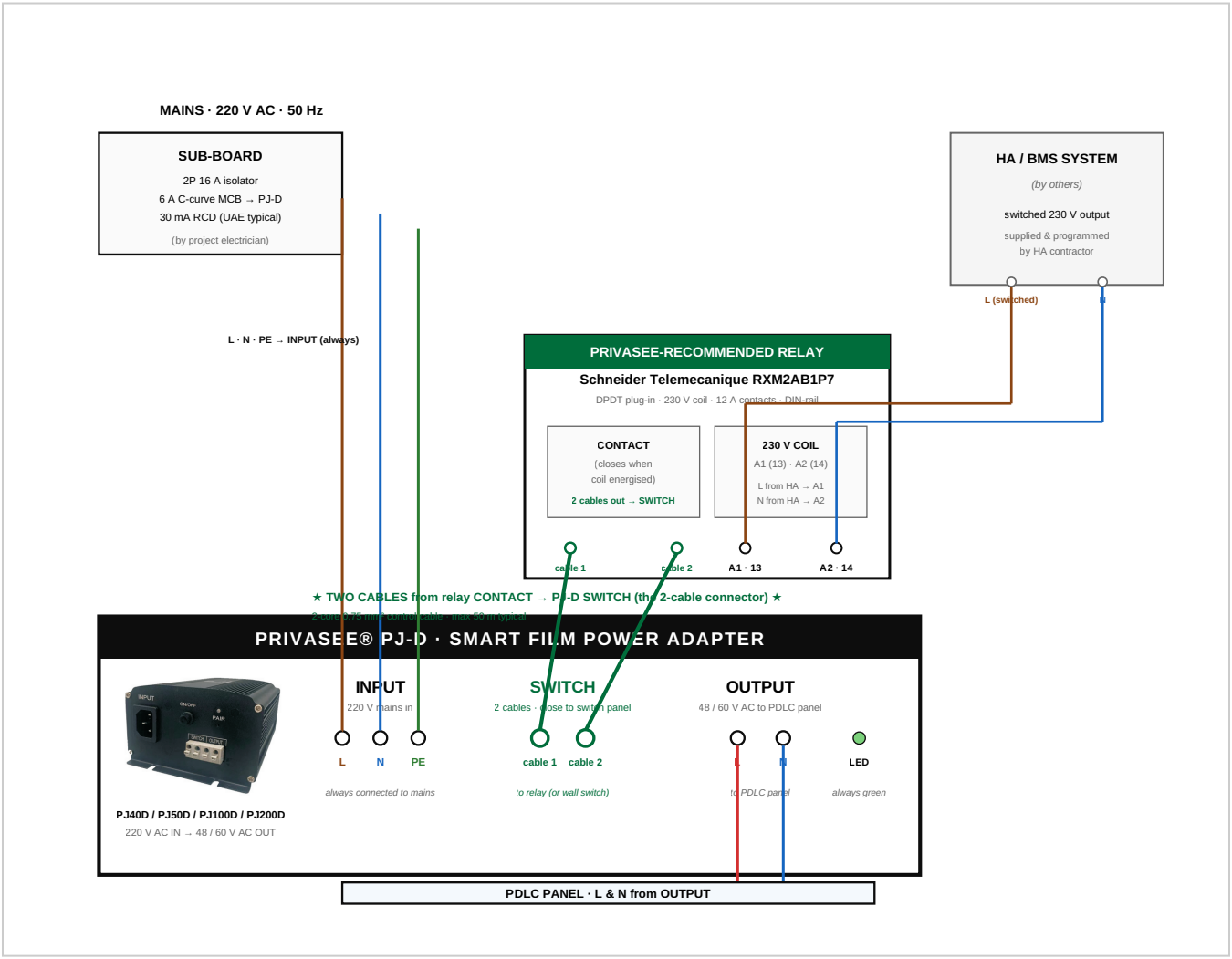
- **The PJ-D is always powered** — X1 mains supply is wired direct to the consumer unit, independent of the HA system. No power cycling.
- **The wall switch (if fitted) and the supplied RF remote keep working** — the PJ-D internally combines all three control sources (X3 wired switch + RF remote + HA-driven relay closure on X3).
- **HA failure does not disable the panel** — the user can still operate it manually.
- **Two cables only between the relay and the PJ-D** — the relay's NO contact pair connects across PJ-D SWITCH. 1 / X3.2.

WHY THE RXM2AB1P7

It is a globally available DIN-rail plug-in relay (Schneider Telemecanique). Coil 230 VAC 50/60 Hz, contacts 12 A / 250 VAC. Plugs into a standard RXZE socket base. Any equivalent plug-in relay with a 230 VAC coil and clean changeover contacts may be substituted — the RXM2AB1P7 is the PRIVASEE-recommended part because the founder has it specified on real installations.

02 Option A · 230 V AC relay

Use Option A when the home-automation system outputs **switched 230 V AC** (the most common case — KNX switch actuators, Crestron mains relay outputs, Lutron actuators, retail Wi-Fi smart relays). The relay coil is energised from the HA system's 230 V output; the relay's contact closes the 2 cables of the PJ-D **SWITCH**.



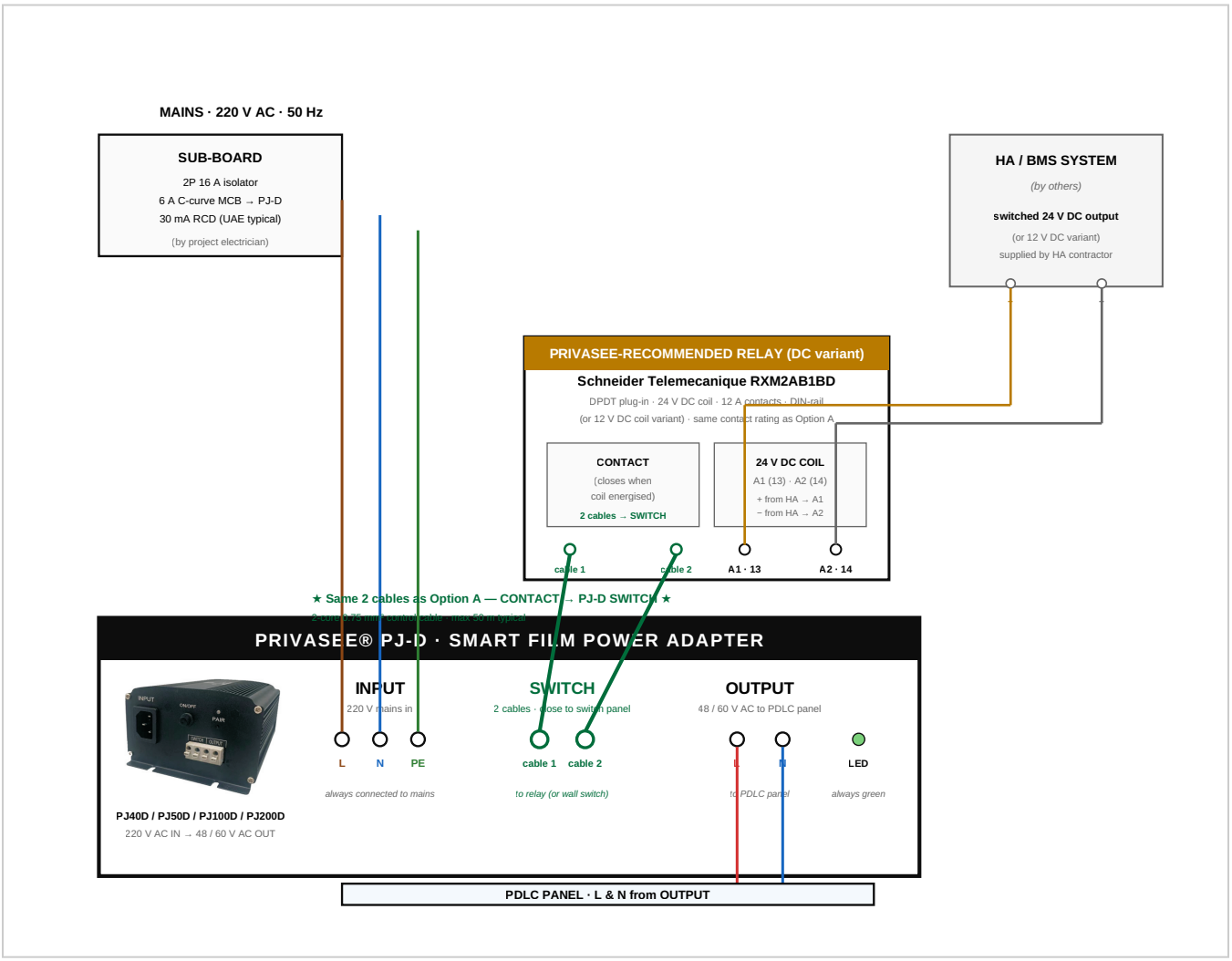
READING THE DRAWING IN THREE PLAIN SENTENCES

1. **Mains stays connected to the PJ-D INPUT all the time.** The PJ-D never loses power; the LED stays green.
2. **The HA system energises the relay COIL (terminals 13 and 14).** When HA commands "Privacy ON", 230 V appears on the coil and the relay clicks.
3. **The relay's CONTACT closes the 2 cables of the PJ-D SWITCH.** The PJ-D treats this exactly like a wall switch closing — the panel switches.

Customer-friendly summary: **the relay is a remote-controlled wall switch**. It sits between the HA system and the SWITCH terminals on the PJ-D. The HA presses the button; the panel responds.

03 Option B · 24 V DC (or 12 V DC) relay

Use Option B when the home-automation system outputs **low-voltage DC** instead of switched 230 V (e.g. Loxone Tree/ Air outputs, some Crestron LV outputs, BMS controllers with 24 VDC binary output cards, retail control boards). Everything on the PRIVASEE side stays identical to Option A — only the relay's coil version changes from 230 VAC to 24 VDC (or 12 VDC).



WHAT CHANGES BETWEEN OPTION A AND OPTION B

ASPECT	OPTION A	OPTION B
HA system output	switched 230 V AC	switched 24 V DC (or 12 V DC)
Relay coil version	RXM2AB1P7 (230 VAC coil)	RXM2AB1BD (24 VDC coil) or 12 VDC variant
Cable from HA to relay	2-core 1.5 mm², L_SW + N	2-core 0.75 – 1.0 mm², + and −
Polarity matters	no (AC)	yes — respect + and − on the coil
Free-wheeling diode	not needed	built into RXM2AB1BD

PJ-D side wiring	**identical · CONTACT → SWITCH (the 2 cables)**

Customer-friendly summary: the relay does the same job either way — it is a remote-controlled wall switch. The only choice is whether the home-automation system pushes the button using 230 V mains (Option A) or low-voltage DC (Option B). The PRIVASEE® PJ-D side is identical.

03 Bill of materials & cable schedule

BILL OF MATERIALS · PER PANEL

REF	ITEM	REFERENCE PRODUCT	QTY
U1	PRIVASEE® PJ-D smart-film power adapter	PJ40D / PJ50D / PJ100D / PJ200D per panel size	1
KR1	**Plug-in interface relay · 230 VAC coil · DPDT · 12 A contacts**	**Schneider Telemecanique RXM2AB1P7** (or equivalent)	**1**
—	DIN-rail socket base for KR1	Schneider RXZE2M114 or per relay manufacturer	1
—	HA actuator output channel	any standard mains-switching channel from the project's HA system (by others)	1
Q1, F1	Upstream isolator + protection MCB for PJ-D	per UAE typical: 2P 16 A iso + 6 A C-curve MCB	per project
RCD	30 mA Type AC RCD	typical UAE residential / commercial	shared
—	Wall switch (optional manual override)	installer-selected	0–1
—	PRIVASEE® RF remote (supplied with PJ-D)	included	1
E1	PRIVASEE® PDLC smart film panel	per project specification	1

CABLE SCHEDULE

TAG	FROM	TO	CORES	CSA (MM²)	NOTES
W0	Sub-board F1	PJ-D INPUT	L · N · PE	1.5	always-on mains supply to PJ-D
W2-coil	**HA actuator switched 230 V output**	**KR1 coil A1 (13) · A2 (14)**	**2-core L_SW + N**	**1.5**	**energises relay coil from HA command**
W2-contact	**KR1 NO contact 11 · 14**	**PJ-D SWITCH.1 · X3.2**	**2-core control**	**0.75**	**VOLTAGE-FREE · max 50 m typical**
W1	PJ-D OUTPUT	E1 panel busbar	2-core LV	1.5 (≤10 m)	48/60 V AC output to panel
WPE	Building PE	HA enclosure + PJ-D housing + glass frame	1-core PE	1.5	single PE backbone

RXM2AB1P7 TERMINAL MAP · WHAT CONNECTS WHERE

TERMINAL	MARKED ALSO	CONNECT TO
A1	13	HA system switched 230 V L_SW output

A2	14	HA system N (neutral)
11 (pole-1 common)	—	PJ-D SWITCH.1 (one of the SWITCH cables)
14 (pole-1 NO contact)	—	PJ-D SWITCH.2 (the other SWITCH cable)
21 / 24 (pole-2)	—	spare — can drive a panel-state status LED if desired

Confirm pinout against the RXM2AB1P7 datasheet on the supplier's current catalogue page before raising project Bill of Materials. Equivalent plug-in relays from Finder, Eltako, Hager, Phoenix Contact, Wago etc. may be substituted using the same wiring rule.

04 Specification clause & commissioning

CSI SPECIFICATION CLAUSE · READY TO PASTE INTO PROJECT BILLS

CSI MASTERFORMAT § 26 / 27 · SAMPLE WORDING

"PDLC smart-glazing privacy panels controlled via the project home-automation system shall use the PRIVASEE® PJ-D power adapter range. The home-automation system shall energise the coil of a DIN-rail-mounted plug-in interface relay (Schneider Telemecanique RXM2AB1P7, or equivalent miniature plug-in relay with 230 VAC coil and 12 A / 250 VAC NO contact rating) via its standard switched 230 V output. The relay's NO contact pair (terminals 11 / 14) shall be wired across PRIVASEE® PJ-D adapter SWITCH terminals the 2 SWITCH cables using 2-core voltage-free control cable, minimum 0.75 mm² CSA, maximum run length 50 m. The PJ-D adapter mains supply (220 V AC, 50 Hz) shall be connected directly from the consumer unit via its own 6 A C-curve MCB and shall remain energised at all times. Any wall switch and the supplied RF remote handset shall remain functional alongside the home-automation control."

COMMISSIONING SEQUENCE

1. Energise upstream MCB · verify PJ-D LED comes solid green within 5 seconds (PJ-D is now always powered)
2. Verify the supplied RF remote operates the panel as expected (PJ-D + remote standalone test)
3. From the HA programming tool, issue "ON" command to the actuator channel · 230 V should appear at KR1 coil terminals 13 / 14 · the relay should click audibly
4. Verify the relay NO contact (terminals 11 / 14) reads CLOSED (continuity check, with KR1 active) — and that the panel switches as the contact closes
5. Issue "OFF" command from HA · KR1 coil de-energises · NO contact opens · panel returns to opposite state
6. Cycle 10× · panel must switch every cycle · PJ-D LED must stay solid green throughout (no power-cycling)
7. Verify wall switch (if fitted) and RF remote still operate the panel WHILE HA is in either state — they continue to work independently
8. Sign commissioning sheet · record relay part no., HA actuator object name + group address

DANGER · X3 MUST REMAIN VOLTAGE-FREE

Never apply mains voltage or DC voltage to PJ-D SWITCH.1 / X3.2. The relay's NO contact pair must be wired with no other voltage source on the same loop. Verify dead at the X3 terminals before making the connection.

05 Contact & document close

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COMPANION DOCUMENTS

DOC NUMBER	TITLE
PVS-SGS-MAN-PJD-01	PJ-D Power Adapter — Full Technical Manual (international edition)
PVS-SGS-MAN-PJD-UAE-01	PJ-D Power Adapter — UAE Local Market Edition
PVS-SGS-DAT-PJD	PJ-D Power Adapter — Product Datasheet

REVISION HISTORY

REV	DATE	DESCRIPTION
1.0	2026-05-05	Initial annex · X3 dry-contact integration
2.0	2026-05-05	Added Path A / Path B distinction for actuator types
3.0	2026-05-05	Restructured around mains-switching pattern (later identified as incorrect — relay was switching X1, not X3)
3.1	2026-05-05	Drawing focus rule applied — PJ-D centrepiece, HA as black box (still on the wrong wiring pattern from Rev 3.0)
3.2	**2026-05-05**	**CORRECTED canonical pattern: relay COIL fed by HA, relay NO CONTACT closes across PJ-D SWITCH terminals (the 2 dry-contact cables). PJ-D mains stays connected always. Wall switch + RF remote continue to operate independently. Replaces Rev 3.0 and 3.1.**

DOCUMENT APPROVAL

ROLE	NAME	DATE
PRIVASEE® preparer	PRIVASEE® Smart Glass Engineering	2026-05-05 · DRAFT Rev 3.4
PRIVASEE® approver	[awaiting founder approval]	—
Project HA integrator	[name · qualification · date]	—

Project licensed electrician	[name · qualification · date]	—

Comments on this revision to info@privasee.uk referencing *PVS-SGS-MAN-PJD-HA-01 Rev 3.4*.