

MDVR Power & Wiring Installation Checklist

Step-by-step planning, wiring, commissioning & sign-off

backwatch.co.uk

Use this checklist for every MDVR power installation. Complete each phase in order. Record all baseline measurements before sign-off.

■ Phase 1 — Plan & List All Loads

Before touching a wire, inventory every device that will draw power.

Device inventory

- ☐ MDVR model noted; datasheet sourced for continuous W and inrush A
- ☐ Number and type of cameras listed (analogue / AHD / PoE / IR)
- ☐ Monitor (if fitted) — wattage recorded
- ☐ Storage type noted: SSD or HDD (HDDs have higher spin-up inrush)
- ☐ Any heaters, wipers, or ancillary loads included

Power calculation (complete the table)

Device	Continuous (W)	Inrush note
MDVR	_____	Check datasheet
Camera × ____	_____	Add IR peak if applicable
Monitor	_____	—
HDD / SSD	_____	HDD: +2–3 A spin-up
PoE losses (~10%)	_____	If MDVR powers PoE cams
TOTAL	_____	

Current calc: $I \text{ (A)} = \text{Total W} \div \text{System voltage (12 or 24 V)} \rightarrow \text{Continuous } I = \text{_____ A} \mid +30\% \text{ headroom} = \text{_____ A}$

Fuse rating: $\text{Continuous } I \times 1.25 = \text{_____ A} \rightarrow \text{Choose nearest standard slow-blow fuse: } \text{_____ A}$

■ Phase 2 — Choose Power Architecture

- ☐ Use-case confirmed: driving only / parking mode / 24/7
- ☐ ACC-switched feed identified on vehicle
- ☐ Constant B+ feed identified (if parking mode needed)
- ☐ Auxiliary battery required? Yes / No
- ☐ DC-DC converter required (24 V vehicle / voltage-sensitive MDVR)? Yes / No
- ☐ External PoE switch required (many PoE cameras)? Yes / No
- ☐ Low-voltage cutoff set to _____ V (recommended 12.0–12.4 V for 12 V)

■ Phase 3 — Cable Sizing & Voltage Drop

Wiring chart — minimum conductor size

Continuous (A)	Min conductor	AWG equiv.	Max length <3% drop @ 12 V	Notes
0–5 A	1.0 mm ²	AWG 18	up to 6 m	MDVR-only short runs
5–10 A	1.5 mm ²	AWG 16	up to 8 m	Small MDVR + 2 cams
10–20 A	2.5 mm ²	AWG 14	up to 10 m	MDVR + multi cams/HDD
20–35 A	4.0 mm ²	AWG 11	up to 15 m	PoE switch or multi loads
35–60 A	6.0 mm ²	AWG 9/8	up to 20 m	Heavy inrush systems

- ☐ Conductor size selected: _____ mm² (run length: _____ m)
- ☐ Voltage drop calculated and confirmed <3%
- ☐ Cable routed away from heat sources and sharp edges
- ☐ Grommets fitted at all bulkheads

■ Phase 4 — Fusing & Relays

- ☐ Primary fuse placed within 300 mm of battery positive terminal
 - ☐ Fuse type: slow-blow selected where HDD/PoE inrush is high
 - ☐ Fuse rated at continuous $I \times 1.25 =$ _____ A (standard: _____ A)
 - ☐ Relay fitted for high-inrush circuits (HDD spin-up, IR LEDs)
 - ☐ All fuses labelled with circuit name and amp rating
- Safety: always isolate the battery before working on fuses or cable terminations.

■ Phase 5 — Installation

- ☐ Quality crimp tool used; no twisted/taped joins
- ☐ All crimps protected with heat-shrink tubing
- ☐ Appropriate lug sizes used (M6/M8) and torqued to spec
- ☐ Cable secured with ties every 200–300 mm
- ☐ Ground returned to battery negative or solid chassis point near battery
- ☐ Wiring labelled and photographed for maintenance records

■ Phase 6 — Bench Test (before vehicle fit)

- ☐ Adjustable DC supply set to 12.6 V (engine-off simulation)
 - ☐ MDVR + all cameras connected; idle current measured: _____ A
 - ☐ Supply raised to 14.4 V (alternator simulation); current recorded: _____ A
 - ☐ IR cameras triggered; peak current recorded: _____ A
 - ☐ HDD spin-up captured (use peak-capable meter); peak: _____ A
 - ☐ Supply lowered to 11.0 V; confirmed no reboots or errors
- Use a peak-capable clamp meter or data logger — standard meters miss short inrush spikes.

■ Phase 7 — In-Vehicle Commissioning & Test

- ☐ Battery voltage recorded (ignition off): _____ V
- ☐ Battery voltage recorded (engine running): _____ V
- ☐ MDVR powered; current draw at idle (day mode): _____ A
- ☐ MDVR current draw (night / IR active): _____ A
- ☐ Engine cranked; MDVR stayed stable during voltage dip: Yes / No
- ☐ Fuse holders and connectors checked for heat after 30–60 min run
- ☐ Overnight test completed (parking mode): flat battery? Yes / No
- ☐ Low-voltage cutoff triggered at _____ V as expected

■ Phase 8 — Sign-Off

- ☐ Baseline currents recorded: engine-off / idle / peak (see Phase 6–7)
- ☐ Fuses installed at battery and labelled
- ☐ Cable routing secured, protected and photographed
- ☐ Low-voltage cutoff configured if parking mode used
- ☐ MDVR firmware confirmed up to date
- ☐ Customer briefed on expected behaviour and maintenance schedule

Installer sign-off

Name:	_____	Date:	_____
Company:	_____	Vehicle reg:	_____

Need help with your MDVR install? Visit backwatch.co.uk or call us for a free technical review.