



DODO COMMAND

Relay Control · Scheduling · Offline & Online · Wi-Fi | LoRaWAN | 4G LTE

AI-Powered Irrigation Controller

DODOTiK · Model: DC-100

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1. Overview

DODO COMMAND (DC-100) is a field controller for **switching irrigation valves, pumps, contactors and lighting** over a single RS-485 Modbus-RTU line. It drives **Waveshare Modbus RTU Relay** modules of **2, 4, 8, 16 or 32 channels**, so one controller covers anything from a two-valve garden line to a 32-zone farm.

The unit is controlled from **two places at once**: the **DODOTiK Platform** in any web browser, and the **DODOLINK** app on **iOS and Android**. Both give the same two things — **manual switching** of any channel, and **timing**: schedules that turn each channel on and off by themselves.

Crucially, those schedules are **stored inside the device**, not in the cloud. DODO COMMAND evaluates its own timers against its own real-time clock, so **irrigation keeps running exactly on schedule when the internet is down** — through an outage, an expired SIM, or a site that never had coverage. When the link returns, the device reports its true state and re-syncs. **Online for control and visibility; offline for reliability.**

Headline capabilities

- **Up to 32 relay channels** over one RS-485 Modbus-RTU pair
- **Control from anywhere** — DODOTiK Platform (web) and DODOLINK (iOS / Android)
- **Timing built in** — once, daily, weekly and interval schedules, per channel
- **Runs offline** — timers execute locally with no internet, no gateway, no cloud
- **Survives power loss** — channel states and schedules held in non-volatile memory
- **Local test interface** — verify wiring from a phone at the panel, no internet needed
- **Secure cloud link** — MQTT over TLS to the DODOTiK Platform
- **Remote firmware updates** — over-the-air, no site visit
- **Accurate timekeeping** — DS3231 real-time clock with automatic NTP correction

2. Connectivity variants (product family)

DODO COMMAND ships in three uplink variants. The controller, relay support, scheduling engine and local interface are **identical across all three** — only the radio that carries the cloud link differs.

Variant	Uplink	Typical use	Local access	Offline timers
DODO COMMAND Wi-Fi	2.4 GHz Wi-Fi (802.11 b/g/n)	Sites with existing Wi-Fi / LAN	Yes	Yes
DODO COMMAND LoRaWAN	LoRaWAN Class A	Long-range, low-power, no local network	Yes (setup)	Yes
DODO COMMAND 4G LTE	Cellular LTE Cat-1 (A7670G)	Remote sites, no Wi-Fi/LAN	Yes (setup)	Yes

Choosing a variant changes **how commands arrive**, never **what the device does**. A LoRaWAN unit with no coverage still runs every schedule it holds.

3. Operating modes

Mode	Internet needed	What it does
Online — DODOTiK Platform <i>(default)</i>	Yes	Live control and status via MQTT/TLS; schedules edited in the cloud and pushed to the device
Online — DODOLINK mobile	Yes	Same control and scheduling from an iOS or Android phone
Offline — Local Only	No	Stored schedules keep switching on time; radio runs as a local access point for manual control
Setup Mode	No	Temporary access point for first-time configuration (button held at boot)

3.1 Online operation

The device holds a persistent MQTT/TLS session with the DODOTiK Platform. Commands issued from the web dashboard or the DODOLINK app reach the relay **in under a second**, and the device **acknowledges every command** with the resulting channel state, so the interface shows what the hardware actually did rather than what was requested. A **status heartbeat every 5 minutes** keeps the dashboard truthful even if an acknowledgement is ever lost.

3.2 Offline operation

Loss of internet does **not** suspend irrigation. All timers live in the device's non-volatile memory and are evaluated locally against the on-board real-time clock, **including while the unit is in setup mode**. During an outage the device continues to open and close valves exactly as scheduled; on reconnection it publishes its true channel states and accepts any schedule changes made while it was away.

Power loss is handled the same way: channel states are written to non-volatile memory as they change and **restored on the next boot**, so a brief blackout does not leave a zone stranded open or shut.

3.3 Setup mode

Holding the configuration button for **3 seconds at boot** raises a Wi-Fi access point named **DODO-CommandPro-XXXX** (the last four hex digits of the device MAC). Connecting to it opens a captive configuration portal for network credentials, cloud settings, relay model, clock and channel testing — **no app install, no cable, no internet**.

4. Control & management

4.1 DODOTiK Platform — web

The full dashboard at **platform.dodotik.com**: live channel state, manual switching, the schedule editor, command history, alerts, firmware management and multi-device fleet views.

4.2 DODOLINK — mobile app

DODOLINK for **iOS and Android** provides device claiming, a live relay-control screen and a schedule screen, plus alerts and account management. It talks to the same account and the same devices as the web platform, over authenticated HTTPS and a live MQTT-over-WebSocket feed, so **a change made on the phone appears on the dashboard immediately, and the reverse**.

4.3 Local web interface

Connecting directly to the device's access point opens a built-in web interface with panels for **Wi-Fi, Cloud settings, Waveshare relay configuration, Date & time, wireless module setup** and **System**. The relay panel switches channels **directly from the browser with no internet involved** — the fastest way to verify wiring and valve polarity during installation, before the site is ever brought online.

5. Relay control

5.1 Supported relay modules

DODO COMMAND is a **controller**, not a relay board. It commands standard **Waveshare Modbus RTU Relay** modules over RS-485, which keeps the switching hardware — and its mains wiring — in its own enclosure sized to the job.

Parameter	Value
Supported modules	Waveshare Modbus RTU Relay , 2 / 4 / 8 / 16 / 32 channel
Maximum channels	32
Contact rating	16 A @ 250 VAC (<i>property of the relay module</i>)
Contact type	NO / NC (normally-open / normally-closed)
Bus	RS-485, Modbus-RTU
Default bus settings	4800 baud , slave address 2 (<i>configurable</i>)
Cable	Two-core twisted pair (A / B), screened recommended

Relay modules are **ordered separately** and matched to the channel count and enclosure the installation needs. Contact ratings above are those of the supported Waveshare modules; confirm against the module actually fitted.

5.2 Control actions

Action	Effect
<code>set</code>	Drive one channel ON or OFF
<code>toggle</code>	Invert one channel
<code>flash</code>	Timed pulse on one channel — ON (or OFF) for a set duration, then revert
<code>all_on</code>	Drive every channel ON
<code>all_off</code>	Drive every channel OFF — the panic stop for an over-running zone
<code>all_toggle</code>	Invert every channel
<code>status</code>	Report the current state of every channel

Pulse durations for `flash` are set in **100 ms steps**, up to roughly **55 minutes** per pulse — enough to run a short irrigation cycle as a single self-terminating command that cannot leave a valve open if the link drops mid-cycle.

5.3 State reporting

Every command is answered with an **acknowledgement carrying the resulting channel state and a timestamp**. In addition, the device publishes a **full relay state heartbeat every 5 minutes**, and a complete status message on every reconnection. The platform therefore never has to infer state from the commands it sent.

6. Scheduling & timing

Schedules are the reason the product exists: irrigation that runs itself. Each timer targets a channel and an action, and carries its own time zone, so a fleet spread across regions behaves correctly without per-site arithmetic.

Parameter	Value
Timers per device	Up to 32
Schedule types	Once · Daily · Weekly · Interval
Time zone	Per timer, full IANA zone names
Storage	Non-volatile — survives power loss and firmware updates
Evaluation	On-device , against the on-board real-time clock
Offline behaviour	Timers continue to fire with no internet connection
Editing	DODOTiK Platform or DODOLINK app
Synchronisation	Cloud-authoritative, delivered as a retained MQTT message and acknowledged by the device

Schedule type	Fires
Once	At a single date and time, then retires
Daily	Every day at a set time
Weekly	On chosen weekdays at a set time
Interval	Every N minutes

Because the cloud copy is authoritative and the device copy is the one that *executes*, a schedule edited while a device is offline is applied in full the moment that device reconnects — and until then the device keeps running the last schedule it was given.

7. Cloud integration

Connection to the DODOTiK Platform is an **MQTT session encrypted with TLS**, opened outbound by the device — **no inbound port forwarding and no public IP** are required at the site.

Parameter	Value
Broker	<code>mqtt.platform.dodotik.com</code>
Port	8883 (MQTT over TLS)
Authentication	Per-device credentials, provisioned at claim time
Keep-alive	60 s
Last will	Device is flagged offline by the broker within seconds of an unclean disconnect
Reconnection	Automatic, with backoff; a broker outage never disturbs a healthy network link

Topic	Direction	Purpose
<code>v1/device/<id>/status</code>	Device → cloud	Online / offline status and capability report
<code>v1/device/<id>/cmd</code>	Cloud → device	Relay commands
<code>v1/device/<id>/ack</code>	Device → cloud	Per-command acknowledgement with resulting state
<code>v1/device/<id>/timers/sync</code>	Cloud → device	Authoritative schedule set (retained)
<code>v1/device/<id>/timers/state</code>	Device → cloud	Schedules currently held by the device
<code>v1/device/<id>/timers/ack</code>	Device → cloud	Schedule-sync acknowledgement

8. Time & clock

Parameter	Value
Real-time clock	DS3231 — temperature-compensated, battery-backed
Primary source	NTP when a network link is available
Fallback	RTC, which continues across reboots and outages
Drift	Typical DS3231 accuracy, suitable for unattended seasonal operation
Manual set	Available from the local web interface

A controller whose schedules run offline is only as trustworthy as its clock, which is why timekeeping is a dedicated battery-backed part rather than a software timer.

9. Firmware, updates & security

Parameter	Value
Firmware	v2.4.0
Updates	Over-the-air from the DODOTiK Platform
Update check	Automatic, every 24 hours
Transport security	TLS for both the cloud link and firmware download
Rollback safety	Dual application partitions — a failed update leaves the running firmware intact
Credential storage	Non-volatile memory on the device; not exposed by the local interface
Device identity	Factory MAC-derived, stable across reboots and reconfiguration

10. Indicators, controls & connectors

10.1 LED indicators (×2)

LED	Indication
Status LED	Solid ON — network link established · Slow blink (≈1 s on / 1 s off) — normal operation (online or offline scheduling) · Medium blink (≈0.5 s on / 0.5 s off) — Setup Mode active · Rapid double-flash — connecting to network
Signal LED	Cellular / network signal and link status (4G LTE and LoRaWAN variants); driven by the radio module

10.2 Controls

Control	Function
Configuration button (internal)	Hold 3 s at boot → Setup Mode; long-press → reconfigure
Magnetic actuation point (top of enclosure)	Trigger Setup Mode with a magnet — no need to open the case

10.3 Connectors

Connector	Type	Carries
Gland 1 — power	Cable gland, M12	12–24 VDC supply
Gland 2 — relay bus	Cable gland, M12	RS-485 A (D+) / B (D–) to the Waveshare relay module
Antenna	External (SMA)	Connectivity radio — <i>antenna included</i>

Both field cables enter through **sealed glands** rather than connectors, so the enclosure keeps its ingress rating with the cable route chosen on site.

11. Technical specifications

11.1 Power

Parameter	Value
Supply voltage	12–24 VDC
Power entry	Cable gland , screw terminals inside
Power consumption	Low; dominated by the radio in use
Reverse-polarity protection	Yes
Relay module supply	Powered separately at the relay module

11.2 Processing & memory

Parameter	Value
Controller	ESP32, dual-core
Program memory	16 MB onboard flash
Configuration storage	Non-volatile memory — retains network, cloud, relay and clock settings across power loss
Schedule storage	Non-volatile memory — up to 32 timers
Channel-state storage	Non-volatile memory — states restored on boot

11.3 Relay bus

Parameter	Value
Interface	RS-485, half-duplex
Protocol	Modbus-RTU
Default baud	4800 (<i>configurable</i>)
Default slave address	2 (<i>configurable</i>)
Devices per bus	One relay module, 2–32 channels

11.4 Wireless — Wi-Fi variant

Parameter	Value
Wi-Fi	802.11 b/g/n, 2.4 GHz
Access-point mode	WPA2 (offline / setup), unique SSID per device
Local discovery	mDNS (<code>.local</code>)

11.5 Wireless — LoRaWAN variant

Parameter	Value
Module	RAK3172
Frequency band	EU868
Class	Class A
Activation	OTAA / ABP (configurable)
Range	Up to 10 km (line of sight)

11.6 Wireless — 4G LTE variant

Parameter	Value
Modem	A7670G (LTE Cat-1)
Bands	Global multi-band LTE
Fallback	2G (GSM)
SIM	Full-size (standard) SIM card

11.7 Mechanical & environmental

Parameter	Value
Enclosure	Wall-mount, flanged tabs (as pictured)
Material	ABS
Ingress protection	IP68
Dimensions (L × W × H)	150 × 45 × 95 mm (15 × 4.5 × 9.5 cm)
Weight	150 g
Operating temperature	−20 ... +70 °C
Humidity	0–95 % RH (non-condensing)
Cable entry	2 × sealed gland
Mounting	Wall-mount

12. Compliance, quality & warranty

- **CE** marked
- **RoHS** compliant
- **REACH** compliant
- **Made in Türkiye**
- **Warranty: 1 year**

13. Ordering information

Order code	Description
DC-100-V2-WIFI	DODO COMMAND, relay controller, Wi-Fi uplink
DC-100-V2-LORA	DODO COMMAND, relay controller, LoRaWAN uplink (RAK3172, EU868)
DC-100-V2-4G	DODO COMMAND, relay controller, 4G LTE uplink (A7670G)

Model marking on the enclosure: **DC-100, V2, PRO.**

What's in the box:

- DODO COMMAND unit
- External antenna (*included*)
- Quick-start guide

Not included: Waveshare Modbus RTU Relay module, power supply, RS-485 cable.

Sizing the relay module. Order the Waveshare channel count to match the number of zones, with headroom: 2, 4, 8, 16 or 32 channels. One DODO COMMAND drives one module, up to 32 channels total.

14. Applications

- Smart irrigation — valve and zone control for fields, orchards and greenhouses
- Pump and booster control with scheduled and remote start/stop
- Water reservoir and tank fill management
- Lighting and climate equipment in agricultural buildings
- Remote switching at sites with intermittent or absent internet
- Any installation where a schedule must keep running when the network does not

15. Support & contact

DODOTiK

- **Address:** Aykosan Sanayi Sitesi, Çarşı Blok No: 416, Başakşehir, İstanbul, Turkey
- **Phone:** +90 538 282 6257
- **WhatsApp:** +90 538 282 6257
- **Email:** info@dodotik.com
- **Website:** www.dodotik.com
- **Platform:** <https://platform.dodotik.com>
- **Mobile app:** DODOLINK — iOS and Android