

DODO AQUA PRESSURE

Industrial Line Pressure Transmitter

MODEL DOT-PRS-200

ORDER CODE DA-PRS

Gauge Pressure

Works with **DODO LOGGER** · **DODOTiK Platform** · **DODOLINK mobile app** · any Modbus-RTU master



0–6, 0–10 or 0–16 bar

±0.3 % F.S. (±0.018 bar on 6 bar)

RS-485 Modbus-RTU

G1/2 male process thread

SS304 body, SS316L diaphragm

DC 12–36 V, 200 % overload

Datasheet Rev 1.0

1. Overview

DODO AQUA PRESSURE (DOT-PRS-200) is a stainless-steel line pressure transmitter that screws into a **G1/2** port and reports gauge pressure over **RS-485 Modbus-RTU**.

It is the companion to the level sensor and answers the other half of the question. **DODO AQUA LEVEL** tells you how much water is in the tank; this tells you what the line is doing — whether the pump is developing head, whether a filter is blinding, whether the main has lost pressure overnight, whether an irrigation block is actually getting the pressure its emitters need.

Three ranges cover the water-system band: **0–6 bar** for distribution and irrigation, **0–10 bar** for pump discharge and booster sets, **0–16 bar** for mains and higher-head pumping.

The wetted parts are **SS316L** on the isolation diaphragm and **SS304** on the shell, so the transmitter handles water, oil, hydraulic fluid and compressed air without a separate chemical seal. Overload capacity is **200 % of range** — a 6 bar unit survives 12 bar — which matters on a pump line where closing a valve quickly can spike the pressure well past normal working.

Electrically it is the same plug-in part as the rest of the family: a **2 m cable** leaves the DIN 43650 head through its gland and terminates in the **GX12 4-pin female** connector, so it screws straight onto a DODO LOGGER sensor socket.

Headline capabilities

- **Three ranges** — 0–6 bar, 0–10 bar and 0–16 bar, set at the factory
- **Accurate** — ±0.3 % F.S.: **±0.018 bar** (6 bar), **±0.03 bar** (10 bar), **±0.048 bar** (16 bar)
- **Survives spikes** — **200 % of range** overload capacity
- **Stainless throughout** — SS304 shell, SS316L isolation diaphragm
- **One standard port** — **G1/2 male**, the common water-fitting thread

- **Stable** — $\pm 0.1\%$ F.S. per year, $\pm 0.02\%$ F.S. per $^{\circ}\text{C}$
- **Wide supply** — DC 12–36 V, reverse-polarity protected
- **Plug-in** — GX12 4-pin female connector fitted, same as every DODO AQUA sensor

2. Product identification

Item	Value
Product name	DODO AQUA PRESSURE — Industrial Line Pressure Transmitter
Model number	DOT-PRS-200
Order code	DA-PRS <i>(see section 14 for configured variants)</i>
Product family	DODO AQUA — Industrial Online Water Sensors
Brand	DODOTiK · www.dodotik.com
Interface	RS-485, Modbus-RTU
Cable termination	GX12 aviation connector, 4-pin , female (socket contacts), fitted as standard

Marking on the unit. The body is laser-marked with five lines: the model number, the measuring range, the supply and output, a unique serial number, and *dodotik.com*. On a DA-PRS-R6 that reads:

DOT-PRS-200 0-6 bar 12-36VDC RS-485 S/N PRS-2610-0001 dodotik.com

Quote the serial number. The model number names the product and the range names the variant, but the serial is the only identifier unique to your unit, and it maps to the exact configuration shipped. The order code is **not** marked — section 14 lists the codes, and the serial resolves which one you have.

3. Measured parameters

Parameter	Unit	Range	Accuracy	Resolution
Gauge pressure	bar	0–6, 0–10 or 0–16 bar	$\pm 0.3\%$ F.S. — ± 0.018 / ± 0.03 / ± 0.048 bar	1 count — see the decimal-point register

How the value arrives. DODO AQUA PRESSURE returns its reading as an integer plus a decimal-place count; for this product the count is **set by register 0x0003**, so the reading is `raw / 10set by register 0x0003`. Section 9.2 gives the register map.

4. How it works

Diffused-silicon sensing element behind a welded steel diaphragm. Process pressure acts on an **SS316L** isolation diaphragm, which transmits it through a fill fluid to a silicon pressure chip. Nothing but stainless steel touches the medium, which is why the same transmitter reads water, oil, hydraulic fluid and compressed air without a separate seal.

Laser-trimmed temperature compensation. The bridge output is amplified and compensated inside the housing, with the compensation resistors laser trimmed at the factory. That is what holds **$\pm 0.02\%$ F.S. per $^{\circ}\text{C}$** across the **–10 to +70 $^{\circ}\text{C}$** compensated band, and **$\pm 0.1\%$ F.S. per year** of long-term stability.

Gauge, not absolute. The reading is referenced to atmosphere, so it is the pressure *above* ambient — the number a pump curve, a filter differential or a pipework rating is written in. Weather does not move it.

200 % overload. Full-scale pressure can be doubled without damage. On a pump line that margin is not theoretical: closing a valve against a running pump produces a surge far above the working pressure, and a transmitter sized exactly to the duty point is the one that fails.

The reported unit is configurable. Register 0x0002 decides what the measured value means — **3 = bar** is the shipping default, with MPa, kPa, Pa, mbar, kg/cm², psi and water-column units also selectable. Read it at commissioning together with the decimal-point register; the integer in 0x0004 means nothing without both.

5. Technical specifications

5.1 Measurement

Parameter	Value
Measured parameter	Gauge pressure
Measuring principle	Diffused-silicon chip behind an SS316L isolation diaphragm, laser-trimmed temperature compensation
Measuring ranges	0–6 bar, 0–10 bar, 0–16 bar — factory-set, specify at order
Accuracy	±0.3 % F.S. — ±0.018 bar (6 bar), ±0.03 bar (10 bar), ±0.048 bar (16 bar)
Overload capacity	200 % of range
Long-term stability	±0.1 % F.S. per year
Temperature drift	±0.02 % F.S. per °C
Compensated range	–10 ... +70 °C
Response frequency	< 100 Hz standard · 1200 Hz or 2400 Hz to order
Reported unit	bar by default — MPa, kPa, Pa, mbar, kg/cm², psi and water-column units selectable over the bus
Calibration	Zero offset user-settable over the bus; span is factory-set

5.2 Electrical

Parameter	Value
Supply voltage	DC 12–36 V (<i>24 V typical</i>)
Output	RS-485, Modbus-RTU
Baud rate	9600 (<i>default</i>) — 1200 to 115200 selectable over the bus
Frame format	8 data bits, 1 stop bit, no parity (8N1)
Default slave address	1
Addressing	Field-changeable over the bus, range 1–255
Protection	Reverse polarity and current limiting on the supply
Cable	2 m standard, GX12 4-pin female fitted; other lengths on request

5.3 Mechanical and environmental

Parameter	Value
Process connection	G1/2 male thread
Shell material	SS304 stainless steel
Isolation diaphragm	SS316L stainless steel

Parameter	Value
Measuring medium	Water, oil, hydraulic fluid and compressed air — any medium compatible with stainless steel
Medium temperature	−10 ... +70 °C
Ambient temperature	−20 ... +85 °C
Ambient humidity	0–95 % RH, non-condensing
Electrical head	DIN 43650 connector housing with a cable gland — the 2 m cable leaves here and terminates in the GX12 4-pin female
Ingress protection	IP65

6. Dimensions

Overall body length and the across-flats of the wrench hex are not published by the manufacturer; a dimensioned drawing is available on request. The figures below are the mechanical facts that affect installation.

Dimension	Value
Process thread	G1/2 male
Wrench flat	Hexagon above the thread — tighten here, never on the housing
Shell material	SS304 stainless steel
Diaphragm	SS316L stainless steel , welded isolation diaphragm
Electrical head	DIN 43650 connector housing , cable gland outlet
Cable length	2 m standard; other lengths on request

7. Installation and wiring

7.1 Connector and pinout

The 2 m cable is terminated in a **GX12 4-pin female aviation connector**, fitted as standard. It screws directly onto the **DODO LOGGER** Modbus RS-485 sensor socket — no stripping, no terminal block, no tools.

1: VCC
DC 12–24 V in

2: GND
Ground

3: A (D+)
RS-485 A

4: B (D−)
RS-485 B

GX12 aviation connector

4-pin female, fitted to the sensor cable
Threaded coupling nut, screw-locking
Mates the DODO LOGGER Modbus RS-485 socket

4-core cable

coupling nut

Keyed: one mating orientation only

Numbering as marked on the insert. The solder side of the connector is the mirror of this view.

Socket face view · looking into the connector

Pin	Signal	Function
1	VCC	Power + (DC 12–36 V)
2	GND	Ground
3	A (D+)	RS-485 A
4	B (D–)	RS-485 B



The GX12 4-pin female connector fitted to the sensor cable, seen on the socket face. The four socket contacts and the keyway notch are visible; the drawing above gives the signal that lands on each.

Connector	Value
Type	GX12 aviation connector, 4-pin
Gender on sensor cable	Female (socket contacts)
Coupling	Threaded nut, screw-locking
Keying	Moulded keyway — one mating orientation only
Mates with	DODO LOGGER Modbus RS-485 sensor socket (GX12, 4-pin)

The logger passes its own input voltage straight through to VCC, so a 12 V or 24 V logger supply sits inside this sensor's DC 12–36 V window with no separate PSU.

Pin numbering is read from the **socket face** — looking into the connector, as drawn. The solder side is the mirror of that view.

The connector is not the wet part. The **IP68** rating covers the sensor body and its moulded cable gland. The GX12 mating pair is a screw-locking dry-side connector: keep it above water, inside the logger enclosure or in a sealed junction box. A connector standing in water eventually tracks between contacts, and the symptom is an intermittent Modbus timeout rather than an obvious failure.

Third-party controllers. The sensor is a plain Modbus-RTU device, so a PLC, DCS, recorder or any other RS-485 master reads it directly. Mate the GX12 to a matching panel socket or a GX12-to-flying-lead patch lead; the pin numbering above is all the information needed. Never cut the cable at the sensor's own gland — that gland is part of the IP68 seal.

Ordering without the connector. Order code **DA-PRS-BL** ships bare-ended instead. Those four cores are red VCC, black GND, blue 485A, white 485B, and that is the only variant where the colours matter — on every other order the cable is moulded and terminated, and no conductor is ever exposed.

7.2 Installation

Tighten on the hex, never on the housing. The hexagon sits directly above the G1/2 thread and is the only place a spanner belongs. Torque applied to the stainless shell or the connector head goes straight through the sensing element.

Seal on the thread, not with sealant on the diaphragm. Use PTFE tape or a bonded seal on the G1/2 male thread. Keep tape, compound and swarf away from the pressure port — anything that lodges against the diaphragm changes the reading.

Mount where the surge cannot reach it directly. 200 % overload is generous, but on a line that water-hammers, fit the transmitter on a short branch rather than in the direct path of a closing valve. A snubber or a needle valve on the tapping is cheap insurance.

Point the port down on liquids, up on gas. Downward on a liquid line lets trapped air escape away from the diaphragm; upward on a gas line keeps condensate out of the port.

Keep the electrical head dry. The body is stainless and the thread is sealed, but the connector end is not designed to sit in standing water — see section 7.

7.3 Handling and maintenance

- There is nothing to service inside. The diaphragm is welded and the electronics are potted; a transmitter that has drifted is re-zeroed, not opened.
- Keep the pressure port clear. On dirty water or a line that scales, isolate and flush the tapping rather than probing the port.
- Never clean the diaphragm with a tool. It is a thin welded membrane, and a wire or a screwdriver ends the transmitter.
- Check the zero against a dead line at commissioning and then annually — see section 8. A slow zero shift is normal ageing; a sudden one means the diaphragm has been overloaded or blocked.
- Do not exceed 200 % of range, even briefly. Overload damage is excluded from warranty and is usually invisible until the readings go non-linear.

8. Calibration

Zero offset is the only user calibration. The span is set at the factory and the calibration registers are locked: a controller that tries to write them gets an exception code back, not a silent change.

To re-zero. Isolate and vent the tapping so the transmitter sees atmosphere, let it settle, and read the measured value at register **0x0004**. At atmospheric pressure a gauge transmitter should read zero; whatever it reads instead is the offset to cancel. Write the negative of that to register **0x000C** with function code 0x06, then **save** with a write to **0x000F**. Writing 0 to 0x000C clears the offset and restores the factory zero.

The device applies it as $output = calibrated\ measurement + zero\ offset$, so the sign matters: a transmitter reading +8 counts on a vented line needs **-8** written to 0x000C.

Vent it properly before you zero. A tapping that is isolated but still holds trapped pressure will zero the transmitter against that trapped value, and every reading afterwards is wrong by it. Crack the vent and watch the value settle before writing anything.

9. Modbus-RTU interface

9.1 Link settings

Setting	Value
Protocol	Modbus-RTU
Slave address	1 (default), range 1–255
Baud rate	9600
Data bits	8
Stop bits	1
Parity	None

DODO AQUA PRESSURE ships on slave address 1. Every unit of a given product leaves the factory on the same address, so two of them on one RS-485 bus collide on first power-up — and the symptom is garbled or missing replies rather than a clean error. Address each sensor individually, one on the bus at a time, before wiring the bus up. Section 9.5 has the command.

9.2 Register map

The reading is held in **holding registers starting at 0x0000**, read with function code **0x03**. DODO AQUA PRESSURE returns **1 registers** in one transaction.

Register	Name	Access	Notes
0x0000	Slave address	Read / Write	1 by default, range 1–255
0x0001	Baud rate	Read / Write	A code, not a value: 0 =1200 · 1 =2400 · 2 =4800 · 3 =9600 · 4 =19200 · 5 =38400 · 6 =57600 · 7 =115200
0x0002	Reported unit	Read	0 =MPa · 1 =kPa · 2 =Pa · 3 =bar · 4 =mbar · 5 =kg/cm ² · 6 =psi · 7 =m H ₂ O · 8 =mm H ₂ O
0x0003	Decimal-point position	Read	0–3 — divide the value by 10 ⁿ
0x0004	Measured value	Read	Signed 16-bit, –32768 ... 32767
0x0005	Range zero point	Read	Factory-set
0x0006	Range full scale	Read	Factory-set
0x000C	Zero offset	Read / Write	Factory default 0
0x000F	Save to user area	Write	Commits address, baud and zero offset
0x0010	Restore factory parameters	Write	Write 1

The decimal point travels with the value. The reading is $\text{value} / 10^{\text{decimals}}$. The exponent is fixed for a given product and range, so an integrator can treat it as a constant – but it must be read once at commissioning and checked, because it is the device that decides it, not the datasheet.

9.3 Reading the measured value

Request — read 1 registers from 0x0000 on slave 6:

01 03 00 04 00 01 C5 CB

Response:

```
01 03 02 01 A9 79 AA
```

Bytes	Raw	Decodes to
01 A9	0x01A9 = 425	measured value, raw
reg 0x0003	2	decimal places → 4.25
reg 0x0002	3	unit is bar → 4.25 bar

9.4 Calibration commands

Written with function code **0x06**. The sensor echoes the frame back on success.

Calibration	Request frame	Response
Write a -8 count zero offset	01 06 00 0C FF F8 09 BB	01 06 00 0C FF F8 09 BB
Read back the stored zero offset	01 03 00 0C 00 01 44 09	value returned
Read the reported unit	01 03 00 02 00 01 25 CA	value returned
Save settings to the user area	01 06 00 0F 00 00 B9 C9	01 06 00 0F 00 00 B9 C9
Restore factory parameters	01 06 00 10 00 01 49 CF	01 06 00 10 00 01 49 CF

9.5 Changing the slave address

Write the new address to register **0x0000** with function code **0x06**. Changing a sensor from address 1 to address 2:

```
01 06 00 00 00 02 08 0B
```

Bytes	Meaning
01	Current slave address
06	Function code 0x06 — write single register
00 00	Register 0x0000
00 02	New address = 2
08 0B	CRC16, low byte first

The reply carries the **new** address, not the old one. Valid addresses are 1–255.

Baud rate. Baud rate lives in register 0x0001 as a **code, not a number**: 3 means 9600. Writing the wrong code makes the transmitter unreachable until the bus is swept for it.

9.6 Error responses

If the sensor cannot execute a command it replies with the function code plus 0x80 and an error code:

Field	Value
Address	The sensor's own address
Function code	Requested function code + 0x80
Error code	0x01 — function-code error · 0x03 — data error
CRC	CRC16, low byte first

10. DODO LOGGER, DODOTiK Platform and the DODOLINK app

DODO AQUA PRESSURE is a complete monitoring point on its own: plug it into a **DODO LOGGER** and the readings are recorded locally, sent to the cloud, and visible on a phone — with no firmware work and no integration project.



DODO LOGGER — the companion data logger. The sensor's fitted GX12 connector screws straight onto its Modbus RS-485 socket; up to four sensors per logger, uplink over Wi-Fi, LoRaWAN or 4G LTE.

10.1 Reading the sensor with DODO LOGGER

DODO AQUA PRESSURE is read through the logger's **no-code sensor library**. An installer defines the sensor once in the logger's web interface, assigns it to one of the four universal slots, and the readings begin logging to SD and publishing to the cloud — no firmware reflash and no backend change, because the logger self-describes its schema to the platform.

Item	Behaviour
Slot type	Modbus RS-485 (GX12 4-pin socket)
Connection	Plug-in — the fitted GX12 connector mates directly; no wiring
Function code	0x03 (read holding registers)
Start register	0x0000
Register count	1
Baud rate	9600 , 8N1
Power	Supplied by the logger; pass-through of its 12–24 V input
Sensors per logger	Up to 4 slots; each sensor on the bus needs a unique address
Logging	Every reading to microSD, always on, offline included
Cloud	MQTT/TLS to the DODOTiK Platform, or POST to your own HTTPS endpoint

Suggested field definitions

Field	Data type	Scale	Unit
pressure	int16	from register 0x0003	bar

The device also returns its decimal-place registers. The logger's sensor library carries a fixed scale factor per field, so the exponent registers are normally left undefined and the scale above is used instead. Read them once at commissioning to confirm the exponent is what this datasheet states; it is the device that decides it.

10.2 DODOTiK Platform and the DODOLINK mobile app

Readings published by the logger arrive at the **DODOTiK Platform** (platform.dodotik.com) over MQTT/TLS, and at the **DODOLINK** mobile app for iOS and Android. Because the logger publishes its own schema, a new sensor appears in both with no backend deployment and no app update.

Where	What you get
DODO LOGGER — on the device	Browser dashboard served by the logger itself, on the local network or its own access point. Live readings, slot configuration, and CSV download straight off the microSD card. No app, no internet.
DODOTiK Platform — web	Live dashboards, full history, alert thresholds and device management across every logger on the account.
DODOLINK — iOS and Android	The same live readings and alerts on a phone, for operators who are not at a desk.
Your own system — instead of, or alongside	The logger can POST self-describing JSON to your HTTPS endpoint, or the sensor can be read directly by any Modbus-RTU master — PLC, DCS, SCADA or a paperless recorder.

Nothing here is a lock-in. DODO AQUA PRESSURE is a standard Modbus-RTU device on a standard RS-485 bus. The DODO LOGGER, the platform and the app are the fastest route from probe to dashboard, not the only one — the register map in section 9 is everything a third-party integrator needs.

11. The DODO AQUA family

DODO AQUA is the DODOTiK water-sensor line. Every member outputs RS-485 Modbus-RTU and carries the same GX12 4-pin female connector, so any mix of them runs on a single DODO LOGGER bus — up to four slots, each on its own address.

Product	Measures	Range	Order code
DODO AQUA pH	Industrial Online pH Sensor	0–14 pH	DA-PH
DODO AQUA ORP	Online ORP / Redox Potential Sensor	–1500 ... +1500 mV	DA-ORP
DODO AQUA EC	Online Conductivity & TDS Sensor	Six ranges - see section 14	DA-EC
DODO AQUA SAL	Inductive Salinity Sensor	0–70 PSU	DA-SAL
DODO AQUA CL	Amperometric Free Chlorine Sensor	0–2.000 mg/L	DA-CL
DODO AQUA LEVEL	Submersible Hydrostatic Water-Level Sensor	0–5 m or 0–10 m	DA-LVL
DODO AQUA PRESSURE ←	Industrial Line Pressure Transmitter	0–6, 0–10 or 0–16 bar	DA-PRS

What they share is the bus: RS-485, Modbus-RTU at 9600 8N1, with the GX12 4-pin female connector fitted as standard. Where they differ is mounting, supply and cable. The five water-quality sensors are 3/4" NPT bodies on DC 12–24 V ±10 % with a 5 m cable, rated IP68 — except **DODO AQUA CL**, which is supplied with a flow cell and is not immersed at all. **DODO AQUA LEVEL** hangs on its own cable and **DODO AQUA PRESSURE** screws into a G1/2 port; both run on DC 12–36 V.

Default slave addresses are not the same across the line: DODO AQUA LEVEL and DODO AQUA PRESSURE on **address 1**; the five water-quality sensors on **address 6**. Address every sensor individually before putting them on one bus.

12. Quality and warranty

- SS304 shell and welded SS316L isolation diaphragm
- 200 % overload capacity

- **Warranty: 1 year** from date of sale
- Excluded: pressure overload beyond 200 % of range, incorrect wiring, and a damaged or blocked diaphragm

13. Applications

- **Pump monitoring** — discharge pressure, developed head, dry-run and dead-head detection
- **Booster sets** — pressure-maintained systems and variable-speed control
- **Irrigation** — block pressure, so emitters are verified to be running in their design band
- **Filtration** — differential across a filter from two transmitters, to call a backwash on condition rather than on a timer
- **Water distribution** — mains pressure logging and overnight leakage analysis
- **Compressed air and hydraulics** — any stainless-compatible medium inside the range

14. Ordering information

Order code	Description
DA-PRS-R6	0–6 bar · ±0.018 bar · G1/2 male · 2 m cable · RS-485 Modbus-RTU, GX12 4-pin female fitted
DA-PRS-R10	0–10 bar · ±0.03 bar · G1/2 male · 2 m cable · RS-485 Modbus-RTU, GX12 4-pin female fitted
DA-PRS-R16	0–16 bar · ±0.048 bar · G1/2 male · 2 m cable · RS-485 Modbus-RTU, GX12 4-pin female fitted
...-L5 / -L10	Any of the above with a 5 m or 10 m cable
...-BL	Any of the above with bare leads instead of the GX12 connector

Before you order: Measuring range is factory-set and cannot be changed afterwards - order the range that brackets the working pressure, not the one that just covers it.

Before you order: This transmitter answers on address 1, like DODO AQUA LEVEL and unlike the five water-quality sensors, which answer on 6.

What's in the box:

- DODO AQUA PRESSURE transmitter with 2 m cable, GX12 4-pin female connector fitted
- Test certificate

Not included: power supply, RS-485 interface or logger.

15. Support & contact

Company	DODOTiK — industrial IoT hardware and instrumentation
Address	Aykosan Sanayi Sitesi, Çarşı Blok No: 416, Başakşehir, İstanbul, Türkiye
Phone	+90 538 282 6257
WhatsApp	+90 538 282 6257
Email	info@dodotik.com
Website	www.dodotik.com
Cloud platform	https://platform.dodotik.com
Technical support	info@dodotik.com — quote the model number from the unit label
Sales & distribution	info@dodotik.com — export pricing, volume tiers and partner terms on request

Quote the **serial number** laser-marked on the sensor body when you contact support or reorder. It is the only unique identifier on the unit; the model number **DOT-PRS-200** and the order code are not marked, and the serial is what resolves which configuration you have.

The other six DODO AQUA sensors — **DODO AQUA pH**, **DODO AQUA ORP**, **DODO AQUA EC**, **DODO AQUA SAL**, **DODO AQUA CL**, **DODO AQUA LEVEL** — each have their own datasheet. The **DODO LOGGER** data logger and the **DODO SOIL** 8-in-1 soil probe are documented separately.

16. Revision history

Rev	Change
1.0	First release.