

ADGT GSM/NB-IoT/Cat M1 DTU Data Logger Series



Data Logger Series for Remote Metering and Monitoring Applications



PRODUCT OVERVIEW

Battery-powered data loggers with a built-in cellular modem designed to ensure remote resources metering and monitoring. Come with counting pulse inputs, configurable GPIOs, dual SIM card slots and a replaceable 3.6V battery to provide device autonomous operation from 4 to 6 years.

Device collects consumption data from meters and sensors, stores readings in non-volatile memory and transmits data to cloud server over GPRS, NB-IoT or Cat M1 network.

Series includes the following model lines:

- **DTU1xx** – 6-channel data loggers powered by a 3.5 Ah built-in battery.
- **DTU3xx** – 6-channel data loggers powered by a 13 Ah or 19 Ah built-in battery.
- **DTU2xx** – 4-channel data loggers powered by an external 7-30VDC power supply or by a 3.5 Ah built-in battery.
- **DTU4xx** – 11-channel data loggers powered by an external 7-30 VDC power supply or by a 13 Ah/19 Ah built-in battery.

Application Areas:

- AMR/AMI Smart Metering Systems (heat, electricity, water, gas)
- Automated Control Systems (temperature, leakage, pressure, 1-Wire, current loop)
- Power and Energy Industry

DTU2xx



4-channel, IP30,
7-30VDC + 3.5Ah battery

DTU1xx



6-channel, IP65,
3.5Ah battery-operated

DTU3xx



6-channel, IP65/IP68,
13Ah/19Ah battery-operated

DTU4xx



11-channel, IP65, 7-30VDC
+ 13Ah/19Ah battery

ADGT DTU KEY FEATURES

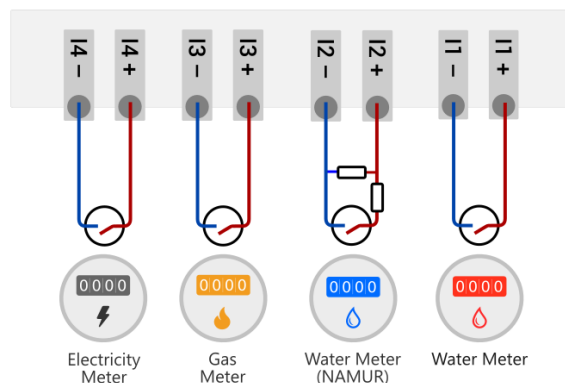
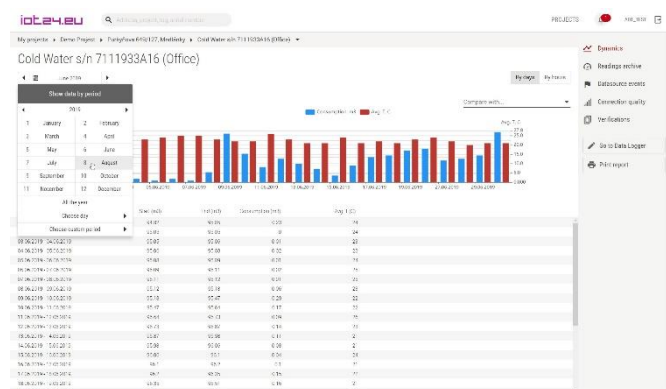
AUTOMATED DATA COLLECTION

from a wide range of devices, such as:

- Meters with pulse output, including high-frequency electricity meters and metering devices with NAMUR circuit.
- Sensors: resistive, 4-20mA, 1-wire etc.
- Devices with serial RS-232/RS-485 ports to provide data transmission in separate transparent channel over TCP & UDP protocols.

GPIO are software configurable and support polling frequency 2Hz/20Hz/100Hz* to provide accurate measurements even at high frequencies.

*100Hz – for DTU2xx, DTU4xx only



DATA TRANSMISSION TO [IOT24.EU](https://iot24.eu)

Cloud Dispatching Server according to schedule, in emergency events or by pressing the button.

Platform is a good alternative solution to other AMR systems and allows users to monitor in real time data from remote meters and sensors connected to DTU data loggers. All data is transmitted to the server in encrypted form and is available 24/7 via Web interface.

MODEM: GPRS, NB-IoT and/or LTE Cat M1

Devices supporting LTE NB-IoT and Cat M1 are designed specifically for Internet of Thing applications, have ultra-low power consumption and can be powered from one easy replaceable battery up to 6 years.

If necessary to increase data transmission speed, data logger with multi-band modem NB-IoT/LTE Cat M1 will ensure the transmission at speed up to 1,2 Mbps according to the Cat M1 standard.

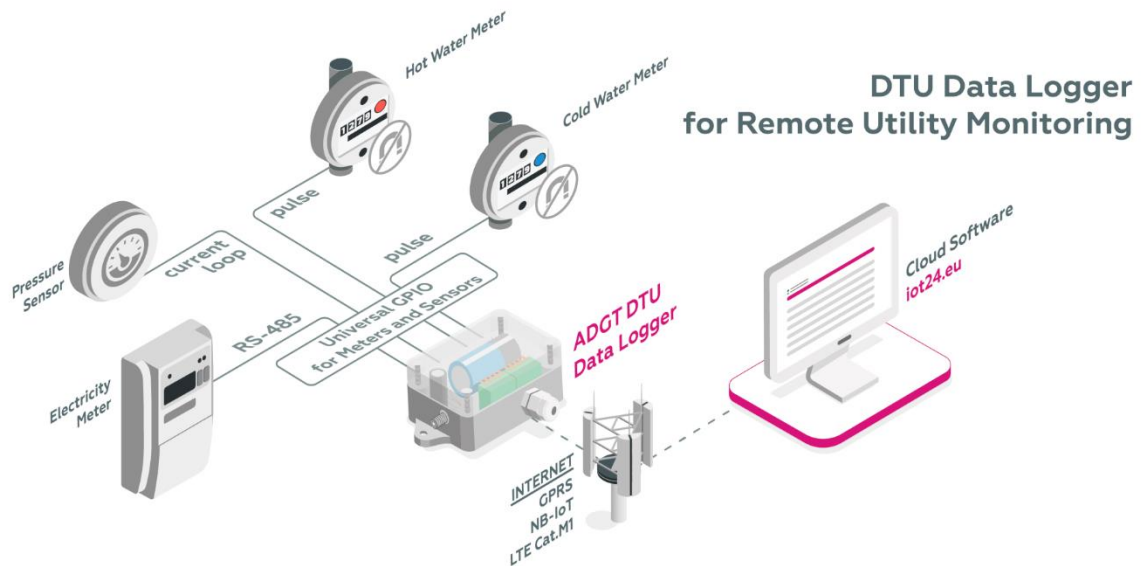


RELIABILITY OPTIONS

- Data storage in non-volatile memory (up to 137 800 entries from 4 meters).
- 2 x SIM card slots, providing cellular channel reservation and reliable data transfer.
- Different types of power supply: DC 7-30V and autonomous from internal replaceable 3500mAh, 13000 mAh or 19000mAh battery. Battery service life ranges from 4 to 6 years depending on cellular connection type: up to 4 years – via GPRS, up to 6 years – via NB-IoT and Cat M1.
- Various enclosure types suitable for different applications and environmental conditions: robust metal case for DIN rail or wall mounting or plastic IP65/IP68 class moisture-proof enclosure for premises with the increased humidity and dust level.

DTU DATA LOGGERS FOR REMOTE CONSUMPTION METERING

Up to four pulse metering devices can be connected to **DTU** universal GPIOs (see the scheme below), as well as other various sensors – water leakage, temperature, opening sensor, current loop sensors, 1-wire, etc. After switching on the power supply, device immediately starts connecting to the Cloud Software [IOT24.eu](https://iot24.eu) followed by transmitting data to the server. Further on, data logger would automatically establish connection with the server according to the configured schedule, as well as in case of emergency situations. User shall be provided with access to data 24 hours a day using web interface.



DATA LOGGER OPTIONS SELECTION TABLE

Full name of data logger contains options selected by user and consists of a sequence of digits and letters. An example of the full name and a set of possible options are presented in the diagram below:

DTU121-U.T

Optional:

- U** - UDP protocol (for NB-IoT data loggers)
- S** - 19Ah battery with supercapacitor
- C** - built-in power supply unit (except DTU1xx)
- Z** - no power battery installed
- G** - RS-485 galvanic isolation

- T** - wall mounting
- R** - DIN-rail mounting
- M** - without enclosure

Antenna/Antenna Connector Type:

- 0** - internal 2-5,2dB flexible antenna, soldered to the board (**DTU1xx, DTU3xx only**)
- 1** - external 3dB antenna (**DTU1xx, DTU3xx only**)
- 3** - internal SMA(f) connector (**DTU4xx only**)
- 7** - external SMA(f) connector

Network Type:




- 1** - GPRS
- 2** - NB-IoT
- 5** - LTE Cat M1 (**pre-order**)
- 8** - GPRS/NB-IoT/Cat M1 (**pre-order**)

Enclosure Type:

- 1** - Plastic IP65 sealed case (76 x 65 x 35 mm)
- 2** - Metal IP30 case (97 x 82 x 36 mm)
- 3** - Plastic IP65 sealed case (145 x 90 x 78 mm)
- 4** - Plastic IP65 sealed case (145 x 115 x 55 mm)



SPECIFICATIONS

	DTU1xx	DTU2xx	DTU3xx	DTU4xx
ENCLOSURE TYPE	Type 1 (plastic, IP65)	Type 2 (metal, IP30)	Type 3 (plastic, IP65/IP68)	Type 4 (plastic, IP65)
				
Dimensions (L x W x H)	76 x 65 x 35 mm	97 x 82 x 36 mm	145 x 90 x 78 mm	145 x 115 x 55 mm
NETWORK PARAMETERS				
GSM	GSM/GPRS 850/900/1800/1900. GPRS class 8/10/auto (up to 12) configurable. Rate (DL/UL): 85,6 kbps			
LTE NB-IoT	NB-IoT LTE B1/B3/B5/B8/B20/B28 (multiband). NB-IoT Cat NB1. Rate (DL/UL): 26,15 kbps/62,5 kbps			
LTE Cat M1	LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 Rate (DL/UL): 375 kbps/1,2 Mbps			
GPRS/NB-IoT/Cat M1	Cat M1: LTE B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 Cat NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 GSM/EDGE 850/900/1800/1900. Rate (DL/UL): Cat M1: 375 kbps/1,2 Mbps. Cat NB2: 136 kbps/150 kbps			
IO PARAMETERS				
GPIOs (IO1-IO4)	DTU1xx, DTU3xx: x4, IO type: pulse counter, voltage, resistance measurement, engine hours counter DTU2xx, DTU4xx: x4, IO type: pulse counter, high-frequency pulse counter, voltage measurement, resistance measurement, 1-Wire, 4-20 mA current loop, load control, engine hours counter, opening sensor			
Counting Inputs (I1-I6)	DTU1xx, DTU2xx, DTU3xx: – DTU4xx: x6, pulse counter, high-frequency pulse counter, voltage, resistance measurement, engine hours counter			
Input Polling Frequency	DTU1xx, DTU3xx: 2Hz: min. pulse duration – 500ms; max. pulse frequency at the input – 1Hz; 20Hz: min. pulse duration – 50ms; max. pulse frequency at the input – 10Hz DTU2xx, DTU4xx: 2Hz:min. pulse duration – 500ms, max. pulse frequency at the input – 1Hz; 20Hz: min. pulse duration – 50ms, max. pulse frequency at the input – 10Hz; 100Hz: min. pulse duration – 10ms, max. pulse frequency at the input – 50Hz			
Input Conditions	connected, disconnected, short circuit, break			
Input Resistance Range	0 – 100 kOhm			
Additional Input (IO5)	leakage sensor	–	leakage sensor	pulse counter, leakage sensor
Additional Input (IO6)	opening sensor	–	opening sensor	opening sensor
OTHER PORTS				
Power Output	3,6V	3,6V (x2), 5V, 7,5V, 12V	3,6V	3,6V (x2), 5V, 7,5V, 12V
USB	–	mini-USB B	–	mini-USB B
Serial Ports	RS-232 (for DTU configuring)	RS-232, RS-485	RS-232 (for DTU configuring)	RS-232, RS-485
SIM	2 x mini-SIM			
POWER SUPPLY				
Main power supply source	ER18505 (Type A) 3,5Ah battery	DC 7 ~ 30 V	ER34615H/SLC1025 (Type D) 19Ah battery or ER34615M (Type D) 13Ah	DC 7~30 V
Backup power supply	–	ER18505 (Type A) 3,5 Ah battery	–	ER34615H/SLC1025 (Type D) 19Ah battery or ER34615M (Type D) 13Ah
Current consumption	In sleep mode: 10 µA (at 2 Hz polling rate), 40 µA (at 20 Hz polling rate), 150 µA (at 100 Hz polling rate) In data transfer mode: 150 mA (GSM), 36 mA (NB-IoT)			
Average battery life	up to 4 years (GSM), up to 6 years (NB-IoT, Cat.M1)			
MECHANICAL & ENVIRONMENTAL				
Weight	130 gr	220 gr	400 gr	525 gr
Mounting	wall	DIN rail, wall, table rubber feet	wall	wall
Operating temperature	-20...+50° C (when operating at temperature below 0° C, the battery life may be shortened)			
Warranty	2 years			

