

DATA LOGGING AND TELEMETRY SPECIFICATIONS 2019

under the

WATER MANAGEMENT (GENERAL) REGULATION 2018

I, Elizabeth Livingstone, Deputy Secretary Lands and Water Division, by delegation from the Minister administering the *Water Management Act 2000*, in pursuance of clause 10 of Schedule 8 to the *Water Management (General) Regulation 2018 (the Regulation)* approve the following data logging and telemetry specifications for metering equipment.

Dated this 26th day of March 2019.

ELIZABETH ANNE LIVINGSTONE

Deputy Secretary Lands and Water Division
Department of Industry

By delegation

Explanatory note

This instrument is made under clause 10 (1) of Schedule 8 to the Regulation. The object of this instrument is to approve data logging and telemetry specifications for metering equipment that holders of water supply work approvals, water access licences and *Water Act 1912* licences and entitlements that are subject to the mandatory metering equipment condition must comply with.

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WATER MANAGEMENT (GENERAL) REGULATION 2018

1 Name of this instrument

This instrument is the Data Logging and Telemetry Specifications 2019.

2 Commencement

This instrument commences 1 April 2019 or the date it is published in the NSW Government Gazette, whichever is later.

3 Interpretation

In this instrument:

Act means the *Water Management Act 2000*.

AS 4747 has the same meaning as it has in clause 228 (1) of the *Water Management (General) Regulation 2018*.

Authority has the same meaning as it has in clause 228 (1) of the *Water Management (General) Regulation 2018*.

Authority holder means a person who holds an authority.

DAS means the data acquisition service for the purposes of acquiring data from metering equipment.

DAS provider means the provider of the DAS who is engaged by the Department.

Data logger means a data logger, either integrated to a water meter or linked to the meter that complies with AS 4747, which complies with clause 5 (2) of these specifications and that is tested and approved by the Department of Industry.

See www.industry.nsw.gov.au/telemetry for data loggers approved by the Department of Industry.

Duly qualified person—see the Dictionary to the Act and clause 236 of the *Water Management (General) Regulation 2018*.

Event data means the code, and detail, of events which includes data logger restart, commencement, and conclusion, of the extraction of water by the metering equipment, and interference.

Site status data means data relating to the operation of the meter, data logger and connected equipment, which includes, but is not limited to, supply voltage and received signal strength indicator.

Tamper data means event data relating to interference with data readings or other electronic functions of the metering equipment, which includes, but is not limited to, cable disconnection and enclosure open.

Water take data has the same meaning as in clause 4 (6) of Schedule 8 to the *Water Management (General) Regulation 2018*.

4. Transmission of data to the DAS

The data from the data logger is to be transmitted to the Department of Industry via the DAS. Refer to www.industry.nsw.gov.au/telemetry.

The DAS timebase is Eastern Standard Time, being GMT+10 hours. Daylight savings time is not used.

5 Mandatory data logging requirements

- (1) Metering equipment must have a data logger.
- (2) The data logger must comply with the following:
 - (a) be suitable for use in the installed environment (which includes the humidity, temperature, vibration, chemicals, ultraviolet light damage, pest damage at the installation site),
 - (b) be reliable in operation,
 - (c) have signal interface(s) to connect to pattern approved flow meters,
 - (d) have configurable or programmable data logging capability,
 - (e) securely connect to the cloud and transfer data log files to the DAS,
 - (f) deter, detect and log tamper attempts,
 - (g) not require use of vendor specific communications protocols,
 - (h) not require use of vendor specific software or protocol drivers on the DAS.
- (3) In addition, the data logger must comply with the requirements specified in Column 1 of Schedule 1.
- (4) A duly qualified person is required to set the data logger to meet the requirements specified in Column 1 of Schedule 1 that are adjacent to a tick (✓) in Column 2 of the Schedule.

6. Mandatory telemetry requirements

- (1) The data logger must have a telemetry device that complies with the requirements specified in Column 1 of Schedule 2.
- (2) A duly qualified person is required to configure, commission and maintain the telemetry device to meet the requirements specified in Column 1 of Schedule 2 that are adjacent to a tick (✓) in Column 2 of Schedule 2.

**Schedule 1
Mandatory data logging requirements**

Column 1	Column 2
Data logger Requirements	Duly qualified person

Column 1	Column 2
Data logger Requirements	Duly qualified person
1. The data logger must retain the Water Take Data for a period of not less than 5 years.	✓
2. The data logger must have tamper evident seals, locks, controls or other devices sufficient to limit access to, and prevent tampering with the data logger and cabling.	✓
3. The data logger must have an internal battery backed real time clock that is synchronised to a suitable Network Time Protocol server accessed over the DAS network.	✓
4. The data logger must collect, record and store electronically in a single CSV file (per meter) ^{note 1} the following data (Logged Data):	
4.1. Water Take Data at the following times: (a) if capable, 15 minute intervals past the hour during periods of water extraction, (b) if paragraph (a) does not apply, at the shortest possible intervals past the hour during the periods of water extractions, (b) no less than once per 24 hours.	✓
4.2. Tamper Data on event.	✓
4.3. Site Status Data at the following times: (a) if capable, 15 min intervals past the hour during periods of water extraction, (b) if paragraph (a) does not apply, at the shortest possible intervals past the hour during the periods of water extractions, (c) no less than once per 24 hours.	✓
4.4. Event Data on event.	✓
5. The data logger must have capacity to transmit data not yet transmitted following an offline period.	✓
6. The data logger must: (a) include a power supply system to ensure it operates with 99.99 % uptime measured monthly, and (b) include suitable brownout protection, allowing the data logger to gracefully shutdown and restart without corruption of data, configurations or timekeeping, and (c) be protected by appropriate device and cable shielding, surge protection and earthing.	✓
7. The data logger must link to a suitable data telemetry modem and antenna to provide secure cloud access for the purposes of connecting to the DAS and to suitable NTP time server(s).	✓

Note 1. If more than one meter is connected to a Data logger, the Data logger will record Logged Data from separate meters as separate comma separated variable (CSV) text files.

Schedule 2
Mandatory telemetry requirements

Column 1	Column 2
Telemetry Requirements	Duly qualified person
1. The telemetry must have the capacity to transmit the Logged Data to the DAS endpoints using the installer application (Installer App) of the DAS provider (not made available by polling). Refer to www.industry.nsw.gov.au/telemetry .	✓
2. Transmission direction – the telemetry must push the Logged Data from the data logger to the DAS	✓
3. Transport methods – the telemetry must transmit the Logged Data to the DAS using one of the following methods: (a) HTTPS, (b) SFTP, (c) FTPS, (d) SSL encoded MQTT	✓
4. Transmit Frequency – the telemetry must transmit the Logged Data at the following times: (a) if capable, 15 min intervals past the hour during periods of water extraction, (b) if paragraph (a) does not apply, at the shortest possible intervals during the periods of water extractions, (c) no less than once per 24 hours. In the event of transmit failure of any file the data logger must retry to transmit three times (5, 10 then 15 minutes after the hour)	✓
5. Data file format – the format of Logged Data and naming convention of the file transmitted by the telemetry must conform to DAS Logged Data Format Guidelines (refer to www.industry.nsw.gov.au/telemetry).	✓
6. The data logger must transmit Logged Data through the private network of the telemetry provider to the DAS, which is approved by the Department, see industry.nsw.gov.au/telemetry	✓
7. Secure Outgoing Connections 7.1. All outgoing connections from the data logger must be made through a telemetry network provider approved by the Department. 7.2. The data logger must be registered with the DAS provider before gaining access to the DAS telemetry network provider. Refer to industry.nsw.gov.au/telemetry	✓

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