

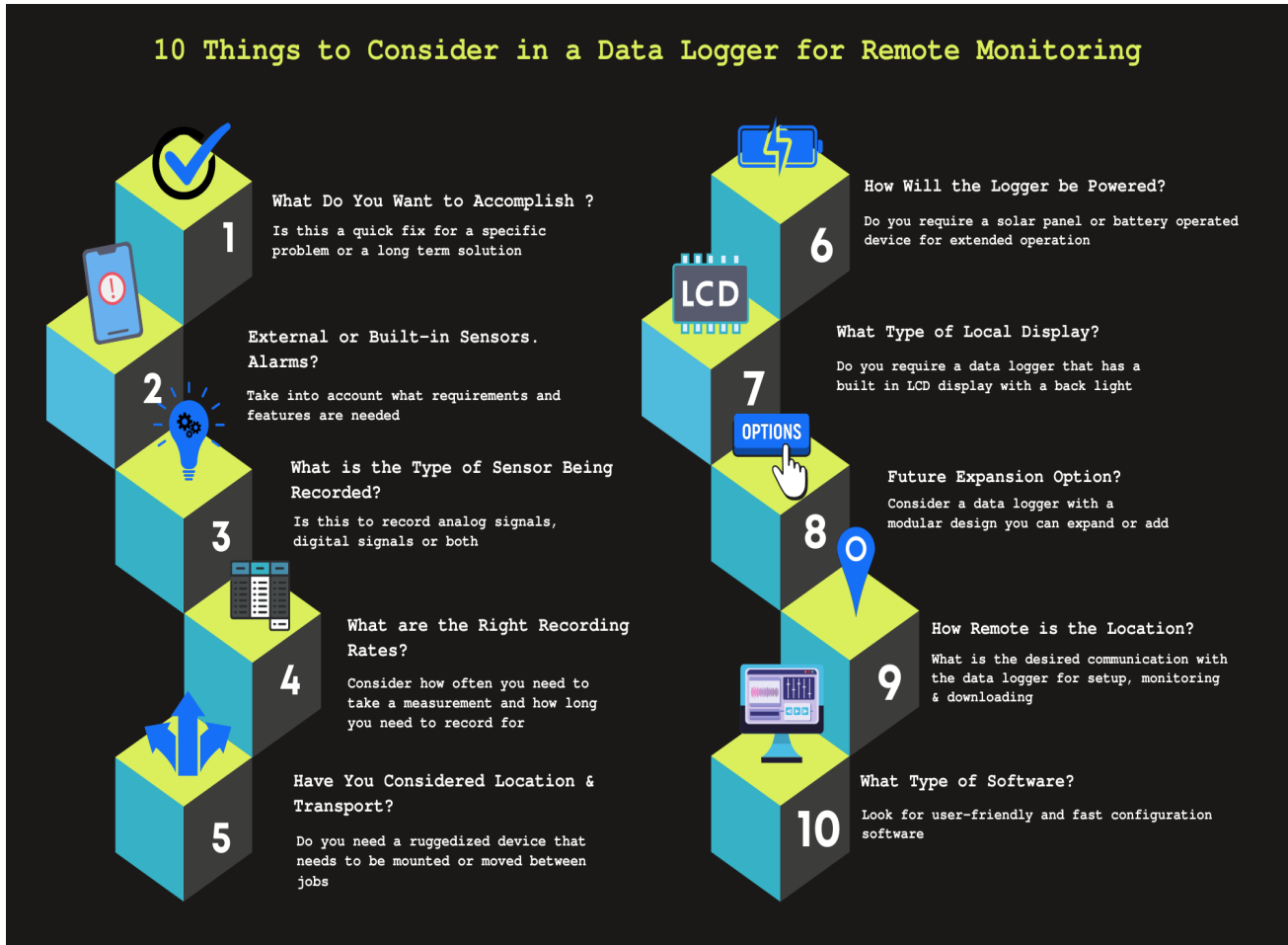
# 10 QUESTIONS TO CONSIDER WHEN PURCHASING A DATA LOGGER FOR REMOTE MONITORING

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## FAST DATA COLLECTION AND RETRIEVAL FOR REMOTE MONITORING APPLICATIONS

Remote monitoring applications in fields such as oil and natural gas extraction, environmental monitoring, and fleet management often require close attention to detail. Users need to accurately record and track multiple variables such as temperature, flow, strain, stress, vibration, and more. When purchasing a new data logging solution, it's crucial to understand the exact capabilities and specifications of the device you need. However, the sheer variety of data loggers and data logging systems can often make it difficult to choose the best model for your application. With this in mind, the applications specialists at CAS DataLoggers have built a list of 10 questions to ask when purchasing a data logger for a remote monitoring application:

1. According to Pete Martin, Sales Manager for CAS DataLoggers, "To begin searching for the right product, always keep in mind your starting point—what do you want to accomplish? Consider whether you need a quick fix for a specific problem or a long-term solution providing a general need with room for expansion. With such a wide range of options open to you, details such as knowing how many and what types of inputs are required along with how often readings need to be taken (determining the logger's sampling rate) are critical. Often users believe they need to record multiple channels of data at hundreds of Hz, not realizing that this will soon exceed the logger's available memory and require more frequent downloads."
2. You'll also want to take into account whether the data logger must be equipped with external sensors or utilize built-in sensors for temperature or humidity. Will the logger need to perform real-time calculations on the measured data or will it need to provide some type of alarm notification? Will the device need output signals to alert users or connect to other equipment? Having a clear initial idea of what requirements are needed and what features might become necessary in the future are key factors in making the most suitable choice are important.



3. The type of sensors being recorded is also critical in the decision process. Ideally, the data logger will have the versatility to accommodate the wide range of sensors you may need to connect it to. For instance, if you're planning to use thermocouples, the logger must support TC inputs. Likewise, if the application must accommodate several different inputs (including 4-20 mA current loops, voltage, digital pulses, etc.) then you'll require a more flexible data logger with universal inputs. CAS DataLoggers offers a diverse selection of data loggers compatible with most types of signal inputs including DC Voltage, Process Current, Strain Gauge/Bridge, Event (or State), Frequency, RTD, Acceleration, Serial Data, Modbus, SDI-12, and more. Determining the number and type of inputs to adequately monitor your conditions is critical.

4. Most data loggers can record at a rate up to about 1Hz (once per second), although many faster recording frequencies are available. When speaking with a representative, it's important to determine the right recording rates for your application. When recording from a K-Type thermocouple, for example, the sensor/sample may take several seconds to change temperature, making a high-sample device give you redundant data. Depending on the application, it may only be necessary to capture a few minutes worth of data or you may need to store entire months of readings. This can be easily determined the amount of data storage required by multiplying the number of channels by the sample rate and recording duration, given in this quick formula:

**Total Number of Points = Number of Channels x Sample Rate x Recording Duration**

Since model specifications vary, there may be a limit based on the total amount of internal memory, or the data logger may offer the option of using external memory such as a USB memory stick to expand the available memory. Options like these can significantly cut down your costs.

5. Where are you planning to use the logger? If the logger is going to be used in the field, you'll definitely want to consider a [ruggedized](#) device that can survive hazardous working conditions including dust, and dirt which also offers a wide range of operating temperatures.

The best-selling dataTaker line of products has long been known for its sturdy construction and depending on your application, you may need to safely enclose the logger in a sturdy industrial or portable enclosure. Also, decide how often you need to transport the data logger. Will it be mounted in an enclosure on a pole or does it need to be moved between jobs, which could jostle an unprotected unit and reduce its longevity? Will it be installed in a vehicle? These questions will help you determine the best way to protect your investment. Will it be installed in a vehicle? These questions will help you determine the best way to protect your investment.

6. If this is for remote monitoring, how the logger will be powered? Is there AC power at the site or will you need a solar panel or battery-operated device for extended operation? Systems such as the Infinite ADU provide very low power operation allowing extended operation – up to 5 years – from a single Li battery.
7. Does the system need some sort of local display? Some data loggers have a built-in LCD display with a backlight that shows status and measurement data whether in dim lighting, underground, or outdoors. This will especially helpful when commissioning the system, instructing personnel in its use, or looking at live data in the field.
8. Is this going to be a permanent installation with static requirements or do you anticipate the need to expand to add more inputs or sensors in the future? If you anticipate future expansion or possibly re-using the logger after the project is complete, search for data loggers with a modular design so you can expand or add other capabilities when needed.
9. How remote is the location where you're collecting the data? Is the logger in an area where it's not practical to use a computer to connect and download data? If you just need to download data, a data logger with support for a USB memory stick serves as the fastest way to get your data. Communication with the data logger for setup, monitoring, and downloading data can be done in many different ways. While a USB connection will require you to be within 10-15 feet of the logger, Ethernet or WiFi can provide access from across the plant. If the location is remote and lacks network infrastructure, a model with a cellular modem can provide access almost anywhere. An example of this solution is dataTaker's M-series of cellular modem-equipped dataloggers, which help you avoid the time and cost of traveling to gather real-time data from remote sensors, instruments, and control systems.
10. When it comes to software, look for a user-friendly interface that enables an easy setup. Many loggers come with free software for configuration, monitoring, and data retrieval, such as the [dEX program](#) that comes with every [dataTaker](#) logger. This intuitive Windows Explorer-style software enables quick logger setup and configuration plus it allows the user to create custom dashboards to display live data, charts to show historical trends, and download

and export data for other applications like MS Excel.

Pete Martin adds, "Above all, go with the capabilities which prove the most practical for your application and analysis. If you're looking for data trends, we recommend that you use the statistical capabilities offered by certain data loggers to summarize the data over an interval. If you're looking for anomalies, use the triggering features in many data loggers to simply capture a window around the event. All of these features and more are available to ensure that your logger handles every aspect of your application."

Well, there you have it, 10 important questions to consider when you are looking for a data logger for a remote monitoring application. Our experience is that, in addition to the typical requirements for a regular in-house data logging project, the issues around power and data retrieval are really critical when the logger is going to be located miles away in the middle of a field.