

Run Time Monitoring Using a dataTaker Data Logger

For Machine Monitoring, Productivity Assessment, & Troubleshooting

At CAS DataLoggers, many of our callers want to see how often one or more of their machines are working and when. This pinpoints machine downtime such as poor work productivity, or shows if another cause is at work (power outages etc.) In our latest Technical Article, we outline how to configure a Series 3 dataTaker DT8x Data logger to monitor runtime.

Configuring the dataTaker

While most basic data loggers typically don't get into this level of functionality, there are many models of intelligent devices which can monitor run time and more complex applications. To monitor runtime, these data loggers and data acquisition systems feature one or more digital channels.

To configure the dataTaker, users define CVs (Channel Variables) in the dataTaker's built-in dEX software. Defining CVs enables users to automate data collection and control features.

Using a dataTaker DT80 intelligent data logger, our dEX program reads machine run data from the logger's two digital inputs. Our program shows how to setup a few simple calculations of machine runtime and On/Off events. Our data logging schedule runs every second, taking a sample from the DT80's Digital Sensor Channels 1 and 2.

Defining the Schedule

Schedule 1 shows example data and code to add this functionality. It consists of:

Counter1_1State: Code =
1MODBUS("Machine1Power",AD11,R4:9,=1CV)
(This line returns a 1 or 0 value for Channel 1 to indicate if the machine is currently running, i.e. its On or Off status).

Counter 1_2State: Code =
1MODBUS("Machine1Move",AD11,R4:10,=1CV)
(This line returns a 1 or 0 value for Channel 2 showing if the machine is currently on or off).

Counter1_1OnTime: Code =
IF(1CV>0.5){2CV=2CV+1}
(This line gives the duration of time that the machine has been on, measured from the last recorded sample)

Counter1_2OnTime: Code =
IF(11CV>0.5){12CV=12CV+1}

Totalizing Run Time

Our dataTaker has also been programmed to calculate and display Total Machine Run Time. Every night at midnight, the data logger generates runtime off/on totals and runtime totals for that day. This data is given as 'PreviousDay1_1On' and also as 'PreviousDay1_1Off', and for runtime it's 'PreviousDay1_2On' and 'PreviousDay1_2Off'. This allows users to compare runtime across many different days to spot trends. Users have tabs for Scaling, Statistics, Event etc.

Meanwhile the calculations are named Machine OnTime, OffTime, MoveTime and

NoMoveTime. All are expressed in seconds.

When it generates these daily totals, the dataTaker also resets all counters, having been programmed to do this so that it can count the new day's total anew. The code to reset all these values is:

2CV(W)=0

3CV(W)=0

12CV(W)=0

13CV(W)=0

For further information on monitoring run time using dataTaker data acquisition systems, contact a CAS DataLoggers Technical Specialist at (800) 956-4437 or visit our website at www.DataLoggerInc.com.