Energy Monitoring Package (GFDM with FED - CEC)

Compressed Air Energy Management System
The FED-CEC for GFDM is the logical successor to the original GFDM Energy Monitoring Package. The GFDM package has been optimized to minimize costs and size while enhancing functionality. The Energy Monitoring Package ensures great process reliability since air consumption, pressure, and flow rates are constantly being monitored. The GFDM with CEC package consists of standard Festo components: flow and pressure sensors and the FED-500 panel fitted with the FED-CEC and FED-UIM cards to act as diagnostic controller and I/O respectively. Due to the integration of the controller logic and I/O into one compact unit, the size and cost of the package is reduced.

Stand-alone System
GFDM with FED-CEC can be easily integrated or retrofitted into the current automation process. It is quickly installed and commissioned. Can be used for permanent monitoring in the supply line or used as a carry-on diagnostic tool to be switched between machines.

Compressed Air is Valuable
Compressed air is an expensive energy carrier and therefore should be used wisely. The GFDM with FED-CEC energy monitoring package is a simple, easy to install, plug and play way to measure and continuously analyze trends of compressed air demands of a machine or application. It saves money by:
- Removing inefficient leak detection programs
- Reducing time-consuming troubleshooting
- Notification if expensive waste of compressed air is detected
- Reducing productivity losses caused by machine downtime

Cost Savings
The costs involved in manufacturing facilities using compressed air are not always realized. Leakages and unwanted use of air can be reduced and could result in savings in electrical energy anywhere from 20 to 60%. Facilities can significantly reduce their electrical energy consumption by using energy efficient products such as GFDM with FED-CEC.

Visualization
Work directly at the machine or off-site in real-time using the diagnostic module via Ethernet:
- Status analysis provided for the machine operation
- Decentralized display in the office using an optional SCADA system third part or energy management solutions

Triggering
Adjustable trigger signals for measuring duration of air consumption within different processes.

Teach-in
- Intuitive Teach-in and automatic reference data acquisition from original status
- Limit monitoring and trend information for timely recognition of deviations from preset conditions

For more information: www.festo.com/us/diagnostics
Energy Monitoring Package (GFDM with FED - CEC)

Compressed Air Energy Management
GFDM with FED-CEC is the standard product package for monitoring air consumption, pressure and flow.

### Technical Data

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>flow, pressure and air consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Flow measuring ranges</td>
<td>SFE1: 10 to 200 l/min, MS6-SFE: 200 to 5,000 l/min</td>
</tr>
<tr>
<td>Pressure sensor</td>
<td>SDE1: 0 to 10 bar</td>
</tr>
<tr>
<td>Measuring rate</td>
<td>approx. 10 ms</td>
</tr>
<tr>
<td>Update rate</td>
<td>approx. 2 s</td>
</tr>
<tr>
<td>Visualization</td>
<td>FED</td>
</tr>
<tr>
<td>Monitoring statuses</td>
<td><strong>Green</strong>: Normal operation</td>
</tr>
<tr>
<td>Status display</td>
<td><strong>Yellow</strong>: Warning</td>
</tr>
<tr>
<td></td>
<td><strong>Orange</strong>: Maintenance reminder</td>
</tr>
<tr>
<td></td>
<td><strong>Red</strong>: Alarm</td>
</tr>
<tr>
<td></td>
<td><strong>Grey</strong>: No signal available</td>
</tr>
<tr>
<td>History</td>
<td>trend data for air consumption and flow data export option as an .csv file</td>
</tr>
<tr>
<td>Process coupling</td>
<td>digital interface for:</td>
</tr>
<tr>
<td></td>
<td>• operating status</td>
</tr>
<tr>
<td></td>
<td>• product number</td>
</tr>
<tr>
<td></td>
<td>• status/trigger signals</td>
</tr>
<tr>
<td></td>
<td>OPC</td>
</tr>
<tr>
<td>Systems of units available</td>
<td>SI units or U.S. customary units</td>
</tr>
</tbody>
</table>

### Energy Monitoring Package – Contents

- Diagnostic Controller + Display + I/O
- SDE1 Pressure Sensor
- SFE1 Flow Sensor
- MS6-SFE Flow Sensor

### Benefits for OEM’s

- Machines can be sold more competitively. Knowing the consumption figures helps with budgeting and resizing of compressors and air distribution systems.
- Consumption levels from machine to machine can be more accurately estimated using the Energy Monitoring Package as a portable plug-and-play diagnostic tool.
- Machines can be rated to be operated at optimum pressure and flow rates establishing reference conditions for increased efficiency.

### Benefits for End-Users

- Inefficient leak-detection programs can be discarded.
- Unwanted loss of compressed air can be consistently monitored to reduce electricity costs.
- Catastrophic failures of pneumatic components can be prevented reducing any loss of productivity.
- Scheduled maintenance of equipment is easy and transparent.

Festo Corporation

For ordering assistance, or to find your nearest Festo Distributor,
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Email: customer.service@us.festo.com
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