DEVTECH Mega Saver

Case Study

- Intelligent Solution for Energy Efficient Light
DEVTECH Mega Saver/Fugen

Report on Energy Savings and Lux Levels Test at oil and gas refineries
OIL AND GAS REFINERIES – Installation Site

Oil and gas refineries’ installation was on 29/10/2013 to 05/11/2013

And the Installation Site is at **High Mast, Refinery**. Light Points was situated in all the High Mast – 21. OIL AND GAS REFINERIES HIGH MAST Setup was of 400W Magnetic Ballast – Bajaj and 400 HPSV Lamps – Bajaj.

DEVTECH M2M Proposed Solution Setup was of 320W Megaserver/Fagan with 320W MH Lamp Venture.

Energy Consumption and Lox Levels of OIL AND GAS REFINERIES setup and Devtech setup were monitored and recorded along with the electrical team of oil and gas refineries.
Details of Energy Consumption

400W Magnetic against 320W Electronic Control Gear

<table>
<thead>
<tr>
<th>S.No</th>
<th>Electrical Parameters</th>
<th>Magnetic 400W</th>
<th>Electronic 320W</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Voltage - V</td>
<td>246</td>
<td>246</td>
</tr>
<tr>
<td>2.</td>
<td>Current - A</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>3.</td>
<td>Active Power - kW</td>
<td>9.7</td>
<td>7.9</td>
</tr>
<tr>
<td>4.</td>
<td>Apparent Power - kVA</td>
<td>13.0</td>
<td>7.9</td>
</tr>
<tr>
<td>5.</td>
<td>Reactive Power - kVAR</td>
<td>8.4</td>
<td>0.1</td>
</tr>
<tr>
<td>6.</td>
<td>Power Factor – PF</td>
<td>0.74</td>
<td>1.0</td>
</tr>
</tbody>
</table>
## Details of Lux Levels

### 400W Magnetic against 320W Electronic Control Gear

<table>
<thead>
<tr>
<th>S.No</th>
<th>Lux Levels Measured at</th>
<th>Magnetic 400W</th>
<th>Electronic 320W</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bottom of the Mirror</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>Corner of the Maintenance Shop</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>3.</td>
<td>Center of the Shutter in line with Vehicle Parking area</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>4.</td>
<td>Man Hole in front of the W/H Shutter</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>5.</td>
<td>Admin Building Entrance Area</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>6.</td>
<td>DGM car Park Drain area</td>
<td>34</td>
<td>44</td>
</tr>
<tr>
<td>7.</td>
<td>Near E&amp;C Building front of Flower POT</td>
<td>07</td>
<td>05</td>
</tr>
<tr>
<td>8.</td>
<td>FCCU Step</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>9.</td>
<td>Left Support of Hydrant 154</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>25</strong></td>
<td><strong>25.7</strong></td>
</tr>
</tbody>
</table>
# ENERGY CONSUMPTION ANALYSIS

<table>
<thead>
<tr>
<th>S.No</th>
<th>Details</th>
<th>High Mast 21 Nos</th>
<th>Single choke consumption In High Mast</th>
<th>Savings in Watts and % of Savings</th>
<th>Cost Savings Per Yr./point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Energy Consumed by 400W Bajaj Magnetic Ballast</td>
<td>9.7 kW</td>
<td>462 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Energy Consumed by 320W Devtech MegaSaver in Super Lumen Mode</td>
<td>7.9 kW</td>
<td>376 W</td>
<td>462-376=86W 18 % Savings</td>
<td>Rs. 3,767</td>
</tr>
<tr>
<td>3.</td>
<td>Energy Consumed by 320W Devtech MegaSaver/FuGen at 100% Mode</td>
<td>7.0 kW</td>
<td>334 W</td>
<td>462-334=128W 28% Savings</td>
<td>Rs. 5,606</td>
</tr>
<tr>
<td>4.</td>
<td>Energy Consumed by 320W Devtech Fugen with Scheduling Mode*</td>
<td>5.25 kW</td>
<td>252 W</td>
<td>462-252=210W 45% Savings</td>
<td>Rs. 9,198</td>
</tr>
</tbody>
</table>

Cost Savings = (watts savings * no. of Hrs(12) * Days/Yr(365)*Unit Rate(Rs.10)
Energy Consumption Analysis – Mega Lumen

- Energy consumption by 21 devices/hr (400W magnetic Ballast) is = 9.7 kW
- Energy Consumed by a single 400W Magnetic Ballast/hr is = 462 W
- Energy Consumption by 21 devices/hr (320W Devtech Electronic Control Gear) is = 7.9 kW
- Energy Consumed by a single 320W Electronic Ballast/hr is = 376 W
- Energy Saving per point in the High mast/hr = 462 W – 376 W = 86 W
- Energy Saved in 1 year = 86 W * 12 * 365 = 377 kW
- Savings in terms of cost = 377 * 10 = Rs. 3770

NOTE:

The above values are taken from Energy Meter used at OIL AND GAS REFINERIES, The savings are direct savings without any scheduling or dimming of lamps.
Energy Consumption Analysis – 100% Mode

• Energy Consumption by 21 devices/hr (400W magnetic Ballast) is = 9.7 kW

• Energy Consumed by a single 400W Magnetic Ballast/hr is = 462 W

• Energy Consumption by 21 devices/hr (320W Devtech Electronic Control Gear) is = 7.0 kW

• Energy Consumed by a single 320W Electronic Ballast/hr is = 334 W

• Energy Saving per point in the High mast/hr = 462 W – 334 W = 128 W

• Energy Saved in 1 year = 128 W * 12 * 365 = 561 kW

• Savings in terms of cost = 561 * 10 = Rs. 5610

* The above values are taken through Devtech iStreet.network, with an data aggregator
Energy Consumption Details from iStreet.network

– 100% Mode

From the DEVTECH Energy Monitoring Suite:

The following is the energy consumption details from

6 PM 31/10/13 to 6 AM 01/11/13
Energy Consumption Details from iStreet.network – 100% Mode

The following is the energy consumption details from
6 PM 31/10/13 to 6 AM 01/11/13
Energy Consumption Details from iStreet.network

– 100% Mode

The following is the energy consumption details from

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**Energy Consumption Details from iStreet.network – 100% Mode**
The following is the energy consumption details from 6 PM 31/10/13 to 6 AM 01/11/13

**Energy Consumption Details from iStreet.network – 100%Mode**

The following is the energy consumption details from
6 PM 31/10/13 to 6 AM 01/11/13

Energy Consumption Analysis – Scheduling Mode

- Energy Consumption by 21 devices (400W magnetic Ballast) is = 9.7 kW
- Energy Consumed by a single 400W Magnetic Ballast is = 462 W
• Energy Consumption by 21 devices (320W DEVTECH Electronic Control Gear) is
  • = 5.25 kW

• Energy Consumed by a single 320W Electronic Ballast is = 250 W

• Energy Saving per point in the High mast = 462 W – 250 W = 210 W

• Energy Saved in 1 year = 210 W * 12 * 365 = 920 kW

• Savings in terms of cost = 377 * 10 = Rs. 9200

*Note:

The above values are taken through Devtech m2m energy monitoring suite iStreet.network, with an data aggregator placed in the feeder pillar with OIL AND GAS REFINERIES suggested scheduling.

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**Energy Consumption Details from iStreet.network**

**Schedule Mode**

From the DEVTECH iStreet.network
Energy Consumption Details from iStreet.network

Scheduling Mode

The following is the energy consumption details from
6 PM 01/11/13 to 6 AM 02/11/13:

01/11/13 6:00 PM to 7:30 PM – 70%

Energy Consumption Details from iStreet.network

Scheduling Mode

The following is the energy consumption details from
Energy Consumption Details from iStreet.network

Scheduling Mode

The following is the energy consumption details from

E: info@DevtechM2M.com  W: http://www.devtechm2m.com
6 PM 01/11/13 to 6 AM 02/11/13:

01/11/13 11:30 PM to 02/11/13 3:30 PM – 70%

Energy Consumption Details from I Street network – Scheduling Mode

The following is the energy consumption details from

6 PM 01/11/13 to 6 AM 02/11/13:
02/11/13 3:30 PM to 6:00 PM – 65%