GP1 & DL6 Data Logger system accessories

1) **GSM Modem**

2) **Network cables**

*Flood and drain irrigation example showing use of network cables*
GSM Modem Box for GP1 & DL6 loggers
Text message
What you get

- Box,
- GSM modem,
- cable glands,
- breather,
- DIN Rail with connectors
- internal cable harness

Power Options

- Solar power + internal battery
- Internal battery + timer
- Timer
<table>
<thead>
<tr>
<th>GSM-BX1/SP</th>
<th>GSM Modem Box with solar power</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSM-BX1/IB</td>
<td>GSM Modem Box with internal battery</td>
</tr>
<tr>
<td>GSM-BX1/EB</td>
<td>GSM Modem Box (without battery)</td>
</tr>
</tbody>
</table>
Solar Panel Power Kit
Wall-mount fittings are supplied as standard. Mast mounting kit GSM-MK1 also available.
Install SIM card
External aerial

GSM-AT1
Fitting external aerial lead
Digital timer switch

- Lithium battery backup
- -10 to +55°C
- **LCD** indicates ON & OFF settings
- **Manual** override
- **LED** power indicator
- **12V** supply voltage
- **Easy** to program

*e.g.* Once/day for 20 mins, at 2 pm
Configure, test or set up text messaging in GSM modem
GSMConfig

Set up

Test

Enable text messaging

optional

AT
Text messaging needs a separate signal wire from logger relay to modem.

Extension cable (RS232 + power)

2-wire control line from logger signals modem to send text message.
Network Cable Options

GP1-EB/4-xx

up to 10 loggers, GP1 or DL6
Network Cable Options

GP1-RS232

USB-RS232

GP1-RSP-D

GSM-BX1/xx

GP1-EXT-xx

GP1-RSP-M8

GP1/DL6-M8

GP1-EB/4

PDA

PDLK-M8

Lead acid battery
Network Cable Options
The maximum cumulative cable length - of all the loggers added together - depends on the signal source as follows:

<table>
<thead>
<tr>
<th>Signal source</th>
<th>typical max cumulative cable length see note 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS232 note 2</td>
<td>20m</td>
</tr>
<tr>
<td>USB to RS232 note 3</td>
<td>220m</td>
</tr>
<tr>
<td>GSM modem</td>
<td>60m</td>
</tr>
<tr>
<td>PDA</td>
<td>30m</td>
</tr>
</tbody>
</table>
Network Cables

Protect from high currents >3A

Never connect more than one battery. Lead acid batteries must have a 3A fuse in series with the +’ve wire. Do not charge any battery, nor power the GSM modem, via the network serial cables.
# Battery Life Considerations

<table>
<thead>
<tr>
<th>modem activity/day&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Days Without Sun&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Data on demand&lt;sup&gt;2&lt;/sup&gt;</th>
<th>2/24hr access slot&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 min</td>
<td>20 min</td>
<td>10 min</td>
</tr>
<tr>
<td>Loggers&lt;sup&gt;5&lt;/sup&gt;</td>
<td>logging frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>0</td>
<td>n/a</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>1</td>
<td>1/hr</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>1/minute</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>1/hr</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>1/minute</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>
Flood and Drain Irrigation Control with GP1 loggers
Flood & Drain

Two way valve under tray inlet

Optional level switch: for fail-safe back-up
Flood & Drain Irrigation
Flood & Drain Irrigation: Zone control

- Multiple zones may be created
- Each zone controlled by a GP1
- sharing a common pump
- by use of different Offset Times in the DeltaLINK software *(requires version 2.3)*
Example:

16 Growth chambers
2 GP1 loggers per chamber each controlling 6 flood trays
Multiple zones share one pump

Figure 7: Ebb-Flood Irrigation Control using Delta-T SM200 Soil Moisture Sensor and GP1 Logger
Water Circuit Diagram

- **Sump pump on**
- **Sump pump off**
- **Tank pump off**

- **LEVEL SWITCHES (1)**
- **LEVEL SWITCHES (2)**
- **LEVEL SWITCHES (3)**
- **LEVEL SWITCHES (4)**

- **GP1 LOGGER**
- **SM200 SOIL MOISTURE SENSOR**
- **RETURN VALVE**
- **FILTER**
- **ONE-WAY VALVE**
- **LEVEL SWITCH**
- **SUMP PUMP**
- **TANK PUMP**
- **RECIRCULATION TANK**
- **FRESH WATER IN**
- **ONE-WAY VALVE**
- **SOLONOID VALVE**
- **PURIFIER**

Version b NG Webb 12/12/2006
Detail

- Mains power
- Fuses
- 24V transformer and relays
- GP1 Logger
- Solenoid valve on inlet
- Filter in return water line
- One-way valve
GP1 serial cabling network
Typical data showing good control
Flood and Drain Notes

• Irrigation only occurs when plant needs it i.e. when soil is dry.
• Irrigation can be stopped at specific times e.g. at night.
• By varying the Offset Time, several zones can share one pump.
• Best to pre-wet the soil before starting irrigation for the first time.
Thank you for looking at our slides

For further information visit: www.delta-t.co.uk

Manuals and applications notes are also available