

Utilizing cellular technology with SCADA applications

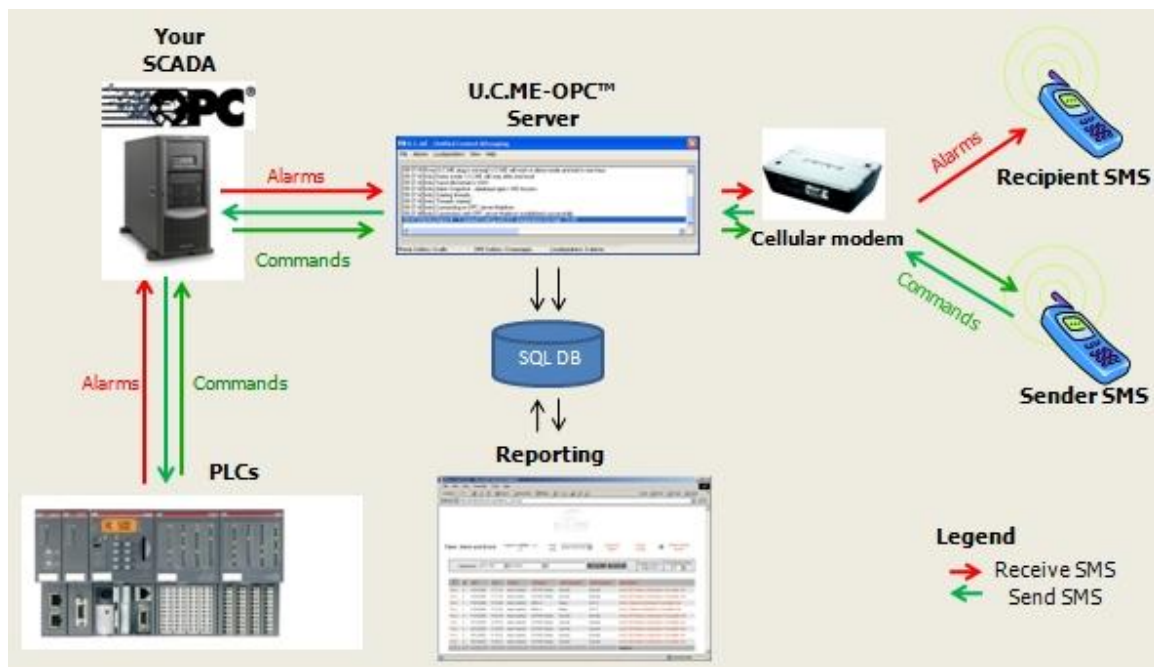
Cellular is everywhere. Cellular phones make our life much easier than it was before. We can be reached everywhere and we can get information and plan our time much more efficiently than before.

The cellular technology can be also used with SCADA applications to improve productivity, increase plants' uptime and prevent damages. The device that makes the difference is the cellular modem. The cellular modem is very similar to a cell phone. The difference is that it has no keypad or screen. There are two types of cellular modems: GSM and CDMA. Cellular modems can be used for data communication and text messaging (SMS). Cellular modems can send and receive text messages. Cellular modems have a number similar to a cell phone number. The cost of a cellular modem is between \$100 to \$200.

The cellular modem can be connected to a computer using RS232 or USB cable. Then, with suitable software it may send and receive text messages (SMS) to/from any phone in any language using AT commands. There are two modes for text messaging: **Text Mode** (for English) and **PDU mode** (for all languages).

Today, cellular modems are becoming an integral part in many SCADA applications where alarm notification and remote control are a must.

Imagine you could send a text message such as "**Water level tank 1**" to your SCADA system... and within a few seconds you could get a reply - "**Water level tank 1 - 12 feet**"...



Imagine you could send a text message such as "**Turn main chiller ON**" to your SCADA system and within a few seconds your main chiller will be turned on? No need to travel to the site. No need to call anyone. No need for a remote computer or Internet connection! You may be at home or on vacation, but only one text message away from your critical plant floor information!

Security is an important factor. There are two layers of security. The first layer should ensure that if a text message is received from an unknown phone number, this message should be ignored. The second layer should check that if the phone number is known and defined in the system, the person who has sent the text message is authorized to execute a specific command. If not, the message should be ignored.

Today, there are customers who are still utilizing analog modems and the TAP servers for alarm notification. Switching from analog modems to cellular modems may improve plant performance and availability significantly.

Here are the main differences between cellular modems and analog modems.

	Cellular modem/GSM-CDMA protocol	Analog modem/TAP protocol
Message delivery time	2-5 seconds (no dialing is required; communication is fast)	30-60 seconds (Dialing is a slow process; communication is slow)
Phone line	Not required	Required
Remote Control via SMS commands (Query or Change tag values, alarm acknowledge and more...)	Yes	No
Server availability	Always	Often the phone call cannot be connected due BUSY line
Message Cost	Cost of an SMS	Cost of a phone call

By utilizing cellular modems (GSM or CDMA), it is also possible to receive alarm messages directly to cell phones. No need for a phone line or Internet connection. Alarms are sent within 3-5 seconds. Using a cell phone it is also possible to acknowledge alarms. Alarm acknowledgement may be used to create escalation procedures. If the alarm is not acknowledged within few minutes, the alarm message will be sent to the next recipient on the list.

Cellular modems can help plant managers and maintenance engineers to:

- Minimize costs
- Shorten response times
- Improve service levels
- Prevent damages and loss.

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