

**Scottronic Sales and Service Ltd.**  
*Innovators in Electronics.*

3 Augusta Place, P.O. Box 495, Kerikeri.  
Bay of Islands. New Zealand 0470.  
Web site: [www.scottronic.com](http://www.scottronic.com)

Phone: (64) 9 407-5581  
Fax: (64) 9 407-5582  
Email: [keith@scottronic.com](mailto:keith@scottronic.com)



### SMS Text Network

This is basically a low-priority messaging service which operates on mobile digital telephone networks. Messages are restricted to 256 characters, and tend to be used to 'fill-in' unused capacity on the network. All networks support SMS, as such it is likely to be low cost. Messages can take several seconds to be delivered, but in the general application this is not considered to be a problem.

### Text Messaging.

The Novax 2020 meter has a graphics display, which means it can display text as well as numbers, in the same way as a Mobile Data Terminal. Simply by sending a text message to a cab, the office can display dispatch details of a job on the selected meter, and await the driver's response, thus we have the basis for a simple taxi dispatch system.

Upon receipt of a text message, the meter will switch to its "MDT" mode and display the message received. In the MDT mode operation of the meter's buttons will generate a response to the network. Operation of the '\*' button will send a "Mode-Change" response, and return the meter to its normal mode.

### Description of SMS Network Operation

With the meter configured for the SMS network and a compatible modem attached, the meter engages its "network mode". It will send an unsolicited "Meter Status" message for each mode change. This can be used by the base to track the status of each vehicle in the fleet, *Vacant*, *Hired* or *Logged Off*. In addition to the meter status, the location of the cab can be included in the message, if the vehicle is equipped with a GPS receiver.

The "meter OFF" event (return to Vacant) will also contain the fare and transaction details, if a payment card was used, thus real-time data transfer to the office is achievable.

The meter will remain in the "network mode" and unsolicited messages will continue until the meter is switched "Off".

The office will always know the meter status! (and potentially its location), the essential ingredients for dispatch. Cabs can also be polled by the office system in order to update their location and status.

With the new regulations regarding driver working hours and rest times, the system can also help the office to comply with the requirements. When taking a rest the driver will switch his meter to "Off" and the rest period will be recorded by the office. Drivers' working-hours will be monitored by the office computer and warnings issued when the limits are exceeded.

If required, an "End Shift:" command can be sent from the office, this will switch the driver's meter "Off" and end the current SHIFT. If the meter is so configured, the meter is effectively locked, until the office sends a "Start Shift" command. This can be used as a "log-on"/"log-off" facility, thus enforcing the regulation rests. A "Shift Report" is sent to the office on the "Shift End" event.

### Costs of the SMS Network

Commercial rates of \$0.01c or less, per SMS text message are now quite common.. One network provider is offering an unlimited number of texts for \$6 per month as an add-on to their prepaid system. That's a total of around \$10 per month, for a full two-way unlimited bi-directional network. No doubt other phone companies offer similar rates.

**The lowest cost dispatch system** is a "One-Way" system. Here, only the office will use the SMS service, by sending the cab the dispatch message. The driver can then respond using his RT. Pre-pay SIM-cards can be used in the vehicle modems and will still operate after the credit has expired, the network cost for each vehicle is thus zero, the only cost is to office. Even retrieval of fare transactions can be achieved. The office can periodically dial up each cab in the fleet, and request a "record-dump", thus acquiring all stored records. Full details of each job (last 96 non-cash records or last 50 metered records) can be transferred by one phone call, the cost to the office; \$0.15c or less, the cost to the driver is zero.

### Other Considerations with the SMS Network

If vehicle tracking is required, the meter can be periodically polled by the office computer system, the GPS record forms part of the meter's response. Third party mapping software can access this data and plot the location of each cab on the map display.

Depending on the size of the fleet and frequency of polling, the SMS network may reach the point where GPRS network becomes cost-effective. No additional hardware costs are involved.

As requirements change, additional networks will be supported. Traffic on the SMS network is generally treated as low priority, and it can take several seconds for a sent message to be received by the recipient. This may or may not be of concern. Certainly this can restrict the practicalities of using the MDT to query rank loadings and so forth. Once these sort of requirements emerge, GPRS network would be necessary.

### Meter Indicators

A number of symbols will display on the meter screen to indicate operation of the network.

'Envelope':- indicates SMS network configuration and modem-detected.

'Network':- indicates data is actively being sent and acknowledged.

'Cross-hairs':- indicates GPS fix is "good"

'Telephone':- indicates that the meter will answer incoming calls, and modem-detected.

### Summary

The basic tools are included in the Novax 2020 meter to provide the cost-effective level of sophistication your company requires. Basic dispatching tools and data collection utilities are available at very modest cost. These can be extended or altered to your requirements. We have no problem sharing technical aspects of the interface with third-party developers, thus allowing your own software developers build your own system.