Siemens Traffic Controls,
Sopers Lane,
Poole,
Dorset,
BH17 7ER

SYSTEM/PROJECT/PRODUCT: RMS Traffic Outstation

TRAFFIC OUTSTATION COMPATIBILITY

THIS DOCUMENT IS ELECTRONICALLY HELD AND APPROVED

Prepared : John M.Hampshire

Function : Technical Services

Issue	Change Ref	Date
1	-	16/10/2001
2	TS000809	10/12/2001
3	TS000907	18/03/2002
4	TS001287	11/02/2003
5	TS001951	23/03/2004
6	TS002137	26/07/2004

© Siemens plc. 1996 All rights reserved.

The information contained herein is the property of Siemens plc. and is supplied without liability for errors or omissions. No part may be reproduced or used except as authorised by contract or other written permission. The copyright and the foregoing restriction on reproduction and use extend to all media in which the information may be embodied.

CONTENTS

1. Introduction 4
1.1 Purpose 4
1.2 Scope 4
1.3 Glossary 4

2. RMS – TRAFFIC OUTSTATION FIRMWARE DESCRIPTIONS 4
2.1 Summary of firmware Issue states 4
2.1.1 For PB680 issue 1 4
2.1.2 For PB680 issue 2 4
2.1.3 For PB680 issue 3 4
2.1.4 For PB680 issue 4 5
2.1.5 For PB680 issue 5 5
2.1.6 For PB680 issue 6 5
2.1.7 For PB680 issue 7 6
2.1.8 For PB681 issue 1 6
2.1.9 For PB680 issue 8 6
2.1.10 For PB681 issue 2 (MOVA only) 6
2.1.11 For PB680 issue 9 6
2.1.12 For PB681 issue 3 (MOVA only) 7
2.1.13 For PB680 and PB681 issue 10 7
2.1.14 For PB681 issue 11 (PB680 issue 11 not released) 8
2.1.15 For PB680 issue 12 (PB681 issue 12 not released) 8
2.1.16 For PB680 issue 13 (PB681 issue 13 not released) 8
2.1.17 For PB680 and PB681 issue 14 9
2.1.18 For PB680 and PB681 issue 15 10
2.1.19 For PB680 and PB681 issue 16 10
2.1.20 For PB680 issue 17 (PB681 issue 17 not released) 10
2.1.21 For PB680 issue 18 (PB681 issue 18 not released) 11
2.1.22 For PB680 and PB681 issue 19 11
2.1.23 For PB680 and PB681 issue 20 12
2.1.24 For PB680 and PB681 issue 21 12
2.1.25 Known Problems, Restrictions and Future Enhancements 13
2.2 Compatibility 15
2.2.1 PB680 Firmware 15
2.2.2 PB681 Firmware 17
2.2.3 Released PROM's 19

3. RMS – TRAFFIC OUTSTATION HARDWARE DESCRIPTIONS 21
3.1 Summary of Hardware issue states 21
3.1.1 Power Processor PCB - 667/1/26601/001 21
3.1.2 Power Processor PCB – 667/1/26601/002 21
3.1.3 I/O Board Assembly – 667/1/26570/000 22
3.1.4 Bus/Mova I/O Board - 667/1/27881/000 22
3.1.5 Lasat Modem Kit – 667/1/26598/000 22
3.1.6 Pace Modem Kit – 667/1/26598/001 23
3.1.7 Dynalink Modem Kit – 667/1/26598/004 23

3.1.8 Pole Mounted Antenna Kit – 667/1/26598/010 23
3.1.9 Cabinet Mounted Antenna Kit – 667/1/26598/011 24
3.2 Known Problems, Restrictions and Future Enhancements 24
3.3 Compatibility 24
3.3.1 PCB Compatibility 25
3.3.2 Modem Compatibility 27

1. INTRODUCTION

1.1 PURPOSE

The purpose of this document is :-

1) To define the compatibility between all issues OMU (PB680) and MOVA (PB681) software
2) To define the compatibility between all hardware issues

1.2 SCOPE

All issues of OMU and MOVA software and hardware

1.3 GLOSSARY

AMW	-	Configuration Management tool (Auto-Manager Workflow) for documents and source files
CTS	-	Clear To Send
I/O	-	Input/Output
MOVA	-	Microprocessor Optimised Vehicle Actuation
OMU	-	Outstation Monitoring Unit
PROM	-	Programmable Read Only Memory
RAM	-	Random Access Memory
RMS	-	Remote Monitor System
TRL	-	Transport Research Laboratory

2. RMS – TRAFFIC OUTSTATION FIRMWARE DESCRIPTIONS

2.1 SUMMARY OF FIRMWARE ISSUE STATES

2.1.1 For PB680 issue 1

- First issue of new OMU firmware.

2.1.2 For PB680 issue 2

- Corrected fault ST-35.

ST-35: If lamp monitor is reset during the flashing green state on a Pelican controller, a ‘Pelican Flash Fail’ report may be generated in error.

2.1.3 For PB680 issue 3

- Corrected fault OMU3U-1.

OMU3U-1: If OMU mains supply is removed but the controller remains powered, then the OMU reports controller lamps off (in addition to mains power fail).

2.1.4 For PB680 issue 4

- Corrected fault 177.

  177 (on RSA database): Microsense controller warning log entries RD1 and RD2 are not reported and cause a 'reply not recognised' fault entry in the OMU.

2.1.5 For PB680 issue 5

- Bus processing facility added for SIETag readers & TCSU beacons.
- Added real time clock with time stamped fault entries in system log
- Added support for radio clock time synchronisation
- Handset port now auto-bauding (19200, 9600 or 1200 baud)
- PSTN connection now auto-bauding up to 14400 baud
- Corrected fault RMS 283.

  RMS 283: The 'through port' facility does not use the correct baud rate & parity.

- Corrected fault RMS 347.

  RMS 347: PB680 issue 4 returns incorrect Microsense mnemonics from fault log scanning on 141 port.

- TEMP variables: Increased number of 'TEMP' conditioning variables to 64 and added TMP handset command to view/change them.

2.1.6 For PB680 issue 6

- Bus processing facility now includes inputs from open/close contacts or from conditioning and filtering by time of day.
- Corrected faults BUS 92, 95 and 96.

  BUS 92: Configuring a Beacon ID greater than F could cause OMU data corruption

  BUS 95: Bus DFM and radio clock faults do not appear in the 'FLT' fault list (only in the 'FLG' system fault log.

  BUS 96: Performing a timestamped dump of the operations log from the instation can cause the OMU watchdog to trip.

- Implemented enhancement 284.

  Enhancement RMS 284: When the 'through port' facility is configured, no processing should be performed on the characters received on the port - they should be all passed to the instation. When the port is configured for connection to a controller, only the last displayed line is passed to the instation.

2.1.7 For PB680 issue 7

PB680 issue 7 was not released.

2.1.8 For PB681 issue 1

PB681, issue 1 was the first issue of MOVA firmware used in the trial site only.

2.1.9 For PB680 issue 8

- Add serial-only monitoring of ST800 controller (with PB800 issue 5 or later) via enhanced 141 link. The ST800 performs DFM & lamp monitoring, passing fault reports, green states, inputs, mode etc. to the OMU. Thus no OMU current sensors or green mains connections are required (only monitor controller mains on/off & controller lamp supply on/off states if required). Added new EEL command to monitor the link - see 3U Traffic Outstation Handbook for details.
- Implemented enhancement 385
  RMS database ID 385: GSM sleep
  Periodically re-initialise the modem (as on power up) to prevent the GSM (M1) module from going to sleep and ignoring incoming calls. The initialisation is done every 4 hours, at 10 minutes to the hour, according to the OMU RTC time of day (i.e. 03:50, 07:50 etc)
- Added monitoring of the CST Pelican controller fault log & mode via the 141 port. This controller requires the /001 variant 141 cable to provide linking for the RS232 control signals, CTS etc.

2.1.10 For PB681 issue 2 (MOVA only)

- Corrected faults MOVA-61 and MOVA-62

  MOVA-61: The ‘phone line sharing’ facility gives control of the telephone line to the MOVA unit when the OMU is initialised (INI=1) and so all subsequent calls are answered by the MOVA unit and not the OMU.

  MOVA-62: Problems occur with the Assessment Log when the number of links is an exact multiple of four.

2.1.11 For PB680 issue 9

- Add Car Park entry and exit detectors that can be used to determine the occupancy of the car park.
- Add PAKNET interface for transmission of car park information to SIEspace instation.
- Activating the Car Park Control (SIESPACE) disables all other facilities
- Correct fault where the if OMU has been working long enough to have filled the System fault log completely and the oldest faults are now being overwritten AND

the user enters the FLG command to view the fault log and uses the +/- keys to step across the log boundary. Then the OMU clears out the System fault log (because it believes the data is corrupt) and re-starts.

2.1.12 For PB681 issue 3 (MOVA only)

- Corrected fault MOVA-67:

  MOVA-67: If the MOVA unit shutdowns with a ‘hard error’, the relays may not be released, leaving the controller stuck on a stage.

  If the MOVA unit detected a divide by zero error, it increments the MOVA error count by 5 and performs a ‘soft error’ to re-boot. The unit used to ‘hard error’ on the forth soft error even if the MOVA kernel would have handled the exception itself. The firmware was modified so that 30 MOVA soft errors are required before the unit ‘hard errors’. The soft error count is still cleared after 60 days, but is now also cleared when the MOVA error count is manually reset.

  If the unit does shutdown with a ‘hard error’, all of the relays are now released so the controller runs its fallback mode. The exception is that the ‘MF’ output to a separate 3U OMU is forced active so that it reports a fault to the RMS instation.

2.1.13 For PB680 and PB681 issue 10

- The PB680 OMU and PB681 MOVA firmwares are now built from a single set of source files and the PB681 firmware is now a combined OMU and MOVA unit.
- OMU3U–7: Corrected fault where the OMU would report ‘controller data changed’ instead of ‘handset unplugged’ on power-up if the handset was unplugged while the unit was powered off.
- OMU3U–9: Corrected problem with ESP link starting part way through a config download even though the ESP facility is not enabled (caused ‘No Port Response’ to be logged shortly after the download).
- OMU3U–10: Maximum green checking used the tolerance setting configured for minimum green time, not the tolerance setting for the maximum green time.
- MOVA–70: Improved the MOVA application so that the I/O cables no longer have to be disconnected while the unit is initialised and then new site data loaded. After new site data has been loaded, the MOVA application can be re-initialised since this no longer clears the site data.
- MOVA–71: Corrected fault where the summertime changes to the clock would generate a fault which would cause the October change to repeated put the clock back to 1am every time it reached 2am.
- MOVA–72: Unit now informs the user that if new plans with different time-of-day data are loaded, the unit should be re-initialised.
- MOVA–73: Short activations of a detector (caused by fast cars for example) did not always appear on the Look screen. All detector activations seen by MOVA are now latched so they appear on the screen.

- MOVA–74: If the controller sets G1/G2 for any reason, e.g. while in part-time mode, the MOVA error count is incremented, however it is decremented once an hour thereafter. The unit now decrements the error count when the G1/G2 condition ceases.
- MOVA–75: Corrected fault that sometimes stops the May summertime change working correctly.
- MOVA–77: Modified the user interface so that the menu can be accessed directly from the commissioning screen.
- MOVA–78: It appears that the passwords could become corrupt, so inverse copies are now kept and the passwords returned to their default settings if a discrepancy is detected.
- MOVA–79: MOVA is now forced back on control (by decrementing the warm-up count by one) whenever it puts itself off-control.
- MOVA–82: The logging of hourly flows is now switched on by default.
- Options which are not applicable to the Siemens MOVA unit have now been removed from the display of its Main Menu.

2.1.14 For PB681 issue 11 (PB680 issue 11 not released)

- OMU3U–12: Lengthened a couple of delays in DATTRAN since it was having difficulty forcing the Siemens M20 GSM Modem to drop the call.
- MOVA–83: ‘Error code 47’ occasionally logged when finishing a remote MOVA call.

2.1.15 For PB680 issue 12 (PB681 issue 12 not released)

- Added a facility to route SIETAG vehicle detections via the MCE141 serial port to an OTU (from there onwards to an UTC system).

2.1.16 For PB680 issue 13 (PB681 issue 13 not released)

- Added the DUSC facility so plans are introduced at specific times of day and each plan cycles through a configured sequence of groups in a repeating cycle. At each configured group time within the cycle, the OMU activates the specified outputs to influence the controller.

At this point Issue 12BE was generated and used in 4 trail sites in Nottingham as Firmware PB699 Issue 1. The following changes were then incorporated to produce Issue 13…

- Added the DUSC Enhanced Serial Link so the “141 handset cable” can feed information between the OMU and the traffic controller, instead of using separate wiring.

- OMU3U-3: The '+' key is now recognised in the MOS handset command.

- OMU3U-13: When a tag is detected that is not in the configured Customer List, the resulting output action is now the configured default action.

- OMU3U-14: Corrected a fault in the dim / bright checking on an ST800P.

- OMU3U-15: When comms with the PAKNET modem is lost, the OMU will now attempt to re-establish a connection at regular intervals.

- OMU3U-18: ST800 serial link DFM report IO line numbering is converted to RMS IO line numbering in the DFM fault report to the RSM instation.

- OMU3U-24: Lamp monitoring can now be enabled whilst the ST800 serial link is active.

- OMU3U-23: A site powerfail report is now generated in the fault log when there is a total power failure at the site.

- Enquiry RS17554: Handset configurable minimum delay applied to the responses to messages from TFL (formally TCSU) beacons and a mobile instation. Delay measured in units of 6.67ms, default is a minimum delay of 20ms.

2.1.17 For PB680 and PB681 issue 14

- Fault OMU3U-100: The LTS handset command (modem local loop-back test) now works correctly with the new Dynalink modems. It is also backward compatible with the existing LASAT and PACE modems.

- MOVA-85: MOVA may not clear the 'suspect' flag on an emergency / priority detector, even if the detector appears to be working again.

Important: Although the MOVA firmware PROM PB681 issue 14 includes the OMU application, it does not contain any of the changes that were made to the OMU firmware PB680 issues 12 and 13 since it is based on the source code of issue 11, not issue 13. For example, PB680 issue 13 includes the DUSC facility, but DUSC is not available in PB681 issue 14.

2.1.18 For PB680 and PB681 issue 15

- Fault OMU3U-101: After the OMU has been downloaded with configuration data, powering the unit off and on again no longer causes the configuration data to be flagged as invalid i.e. !EDI fault.

- Enhancement OMU3U-102: The power-up sequence checks that a firmware identification held in the PROM matches that in a copy held in RAM (NOTE : the string does not contain the PROM issue state). The same check is carried out on a compatibility number. If either item does not match, then the new PROM is assumed to be significantly different from the previous PROM and a first time power-up ensues. It is possible to retain OMU configuration and operational data when a PROM is exchanged if the PROM issue state is updated but the compatibility number remains the same.

- Fault OMU3U-103 : Correction to prevent a success status being returned to the RMS instation on an instation plan override when either the standard or CLF configuration is invalid.

- MOVA-86: TRL requested changes to implement ‘automatic double-green stage selection’.

Important: Yet again the PB681 MOVA PROM does not contain any of the changes that were made to the OMU firmware PB680 issues 12 and 13, e.g. DUSC.

2.1.19 For PB680 and PB681 issue 16

2.1.19(a) For PB680 issue 16

- Fault OMU3U-104: Correction to prevent the OMU from generating a watchdog fault (0004 on handset) when serial monitoring an ST700/800 controller.

2.1.19(b) For PB681 issue 16

- Fault MOVA-87: TRL fix for divide-by-zero problems.

Important: Yet again the PB681 MOVA PROM does not contain any of the changes that were made to the OMU firmware PB680 from issue 12 onwards, e.g. DUSC.

2.1.20 For PB680 issue 17 (PB681 issue 17 not released)

- Added the Reactive DUSC facility so flow and occupancy are monitored. Plus specific events can be set up, monitored and reported back to RMS. Switch Overrides can also be implemented from RMS, to trigger a specific condition for a configured duration.

- Added the Vehicle Classifier facility. Data cache turned on.

- Enhancement OMU3U-107: TFL correction, as reflections were sending incorrect data to Operations Log. Reactivation time used, so only single bus detection within specified timescale.

- Enhancement OMU3U-106: Correction to enable the OMU to toggle between two GSM modem configurations, depending on the type of modem used.

- Fault OMU3U-108: Correction to code to ensure OMU replies correctly to a Switch Override message from the Instation. Previously it would occasionally not work as expected.

2.1.21 For PB680 issue 18 (PB681 issue 18 not released)

- Incorporated GPRS capability through ConnectOne iConnector module

- Incorporated AES Rijndael encryption of messages transmitted over the GPRS network except for the ID message.

- Made CPO handset command writeable & increased limit to 64k.

- Remote Comms Type (RCT) handset command range increased to provide value 2 for GPRS operation.

- 'KEY' handset command added to allow input of encryption key.

2.1.22 For PB680 and PB681 issue 19

2.1.22(a) For PB680 issue 19

- Incorporated PSTN call count and duration restrictions.

- Added CDM handset command (Call Duration Maximum).

- Added CCM handset command (Call Count Maximum).

- Added CDA handset command (Call Duration Actual - Read Only).

- Added CCA handset command (Call Count Actual - Read Only).

2.1.22(b) For PB681 issue 19

- E-mail from TRL dated 10/09/03 – MOVA Maintenance MON_026 Correction: This modification allows the use of LPHASE = -1.

2.1.23 For PB680 and PB681 issue 20

Not released

2.1.24 For PB680 and PB681 issue 21

2.1.24(a) For PB680 issue 21

- Incorporation of RAID (Remote Automatic Incident Detection) algorithm.
- Corrected the fault which causes the Outstation to reset when count facility used over a period of 10 or more hours.
- CFD handset command added which allows the 'debounce' of spurious fault reports from the controller.

2.1.24(b) For PB681 issue 21

- Corrected the fault which causes the Outstation to reset when count facility used over a period of 10 or more hours.
- CFD handset command added which allows the 'debounce' of spurious fault reports from the controller.

Important: Yet again the PB681 MOVA PROM does not contain any of the changes that were made to the OMU firmware PB680 from issue 12 onwards, e.g. DUSC.

2.1.25 Known Problems, Restrictions and Future Enhancements

SIESPACE: – once the OMU has been selected for SIESPACE use, NO other facility of the OMU maybe used. This is due to the communications being directed via the PAKNET interface, rather than using the PSTN interface.

Restrictions or possible enhancements to this issue of firmware are as follows:

RMS database ID 357: OMU DFM.
The DFM module does not appear to be correctly resetting when its configuration data is changed.
Configuration changed to disable DFM, i.e. Screen 40 reporting set to 'N' and screens 50-80 DFM set to 'N'. When this configuration was translated and downloaded OVER existing configurations DFM failure reports were generated 18 hours later.
Workaround:
Completely re-initialise OMU before downloading changed configuration.

RMS database ID 386: Modem Setup Enhancement
Add command similar to XXC to allow direct communications between local handset port and modem for specialised configuration or interrogation.

MOVA–64: Unlatched pedestrian demands do not seem to work correctly.

MOVA–65: MOVA allows OTU loops to be configured as call/cancel, but the loop still counts vehicles out of queues, etc. This means that a VA call/cancel loop normally situated near the centre of the intersection still can not be used by MOVA since it is 'clipped' by vehicles travelling in other directions.

MOVA–68: No assessment data will be logged if one of the assessment periods is configured to run through the night, e.g. 7pm to 6am. The last assessment period must finish no later than 1am.

MOVA–69: Enhancement request – Would like to be able to download MOVA site data remotely, e.g. from RMS.

MOVA–76: When MOVA M4.1 is developed and the site data is changed, can the cruise speed (and any other data that is not downloaded) be included so that it can be displayed using the 'DS' at the MOVA unit?

MOVA–80: There seems no way to abort the outputting of the error log or the assessment log.

MOVA–81: Is the 'Long intergreen' check really required, since it can cause problems with on some configurations, e.g. those with extendable pedestrian blackout periods.

2.2 COMPATIBILITY

2.2.1 PB680 Firmware

Firmware Issue	Compatibility considerations
PB680 issue 1	First issue of new OMU firmware for engineering test purposes only. Not released to production
PB680 issue 2	First OMU firmware released for production.
PB680 issue 3	An installation running issue 2 can be upgraded to issue 3 without re-initialising or config download. Not released to production.
PB680 issue 4	An installation running issue 2 or 3 can be upgraded to issue 4 without re-initialising or config download.
PB680 issue 5	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download. The config data includes new items for bus processing and radio clock.
PB680 issue 6	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download. No new config data items have been added.
PB680 issue 7	Not released to production
PB680 issue 8	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download. No new config data items have been added.
PB680 issue 9	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download. The config data includes new items for car park count and PAKNET facilities.
PB680 issue 10	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download.
PB680 issue 11	Not released to production
PB680 issue 12	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download.
PB680 issue 13	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download. The config data includes new items for the DUSC facility. RMS Instation version 33 and appropriate dongle are required to use the DUSC facility.
PB680 issue 14	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download.
PB680 issue 15	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download.
PB680 issue 16	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and config download.
PB680 issue 17	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and configuration download. The configuration data includes new items for the Reactive DUSC and Vehicle Classifier facilities. RMS Instation and appropriate dongle are required to use the DUSC facility. The configuration download must contain a valid licence code in order to activate

Firmware Issue	Compatibility considerations
	the Vehicle Classifier facility.
PB680 issue 18	Use of GPRS capability requires associated ConnectOne iConnector & Siemens MC35 hardware. RCT should be set to 2 & an encryption key that is compatible with the in-station database entered.
PB680 issue 19	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and configuration download.
PB680 issue 20	Not released to production.
PB680 issue 21	Upgrading a site to use this issue firmware requires re-initialisation (INI=1) and configuration download.

2.2.2 PB681 Firmware

(For OMU and Bus Processor compatibility considerations, refer to the same PB680 issue)

Firmware Issue	Compatibility considerations
PB681 issue 1	First issue of Siemens MOVA firmware used for trial purposes only. Not released to production.
PB681 issue 2	First MOVA firmware released to production.
PB681 issue 3	Fault fixes.
PB681 issue 10	Upgrading an existing PB681 MOVA site to use this issue firmware requires complete re-initialisation (INI=3) and the MOVA site data to be reloaded. This issue is completely compatible with the previous issue, however this issue will require a licence number (available from intersection engineering) before MOVA can be enabled. This issue can be used in existing Siemens MOVA units that have no telephone line or 'phone line share' with a separate Siemens 3U OMU. However, if the existing site only has a Siemens MOVA unit connected to a telephone line, this new issue requires the OMU application within the unit to be configured and an RMS instation to report faults to – the MOVA application will no longer phone a modem and printer itself. Upgrading existing phone line sharing OMU and MOVA sites to use just a single combined unit will require complete re-initialisation (INI=3). The OMU configuration should be modified to indicate that it now includes Integral MOVA and to read the MOVA detectors from the MOVA I/O card for example (see RMS handbook for more details).
PB681 issue 11	Since issue 10 was never released to production there are no compatibility considerations for moving from issue 10 to 11. However, all of the above considerations still apply when moving to these new issues of the MOVA firmware.
PB681 issue 12	Not released to production.
PB681 issue 13	Not released to production.
PB681 issue 14	Upgrading from PB681 issue 11 to issue 14 can be performed without initialising the unit (since the layout of data in the RAM is identical).
PB681 issue 15	Upgrading from PB681 issue 11 or 14 to issue 15 can be performed without initialising the unit (since the layout of data in the RAM is identical). NOTE – PB681 does not contain the DUSC application
PB681 issue 16	Upgrading from PB681 issue 11, 14 or 15 to issue 16 can be performed without initialising the unit (since the layout of data in the RAM is identical).
PB681 issue 17	Not released to production.
PB681 issue 18	Not released to production.
PB681 issue 19	Upgrading from PB681 issue 11, 14, 15 or 16 to issue 19 can be performed without initialising the unit (since the layout of data in the RAM is identical).

PB681 issue 20	Not released to production.
PB681 issue 21	Upgrading from PB681 issue 11, 14, 15, 16 or 19 to issue 21 can be performed without initialising the unit (since the layout of data in the RAM is identical).

2.2.3 Released PROM's

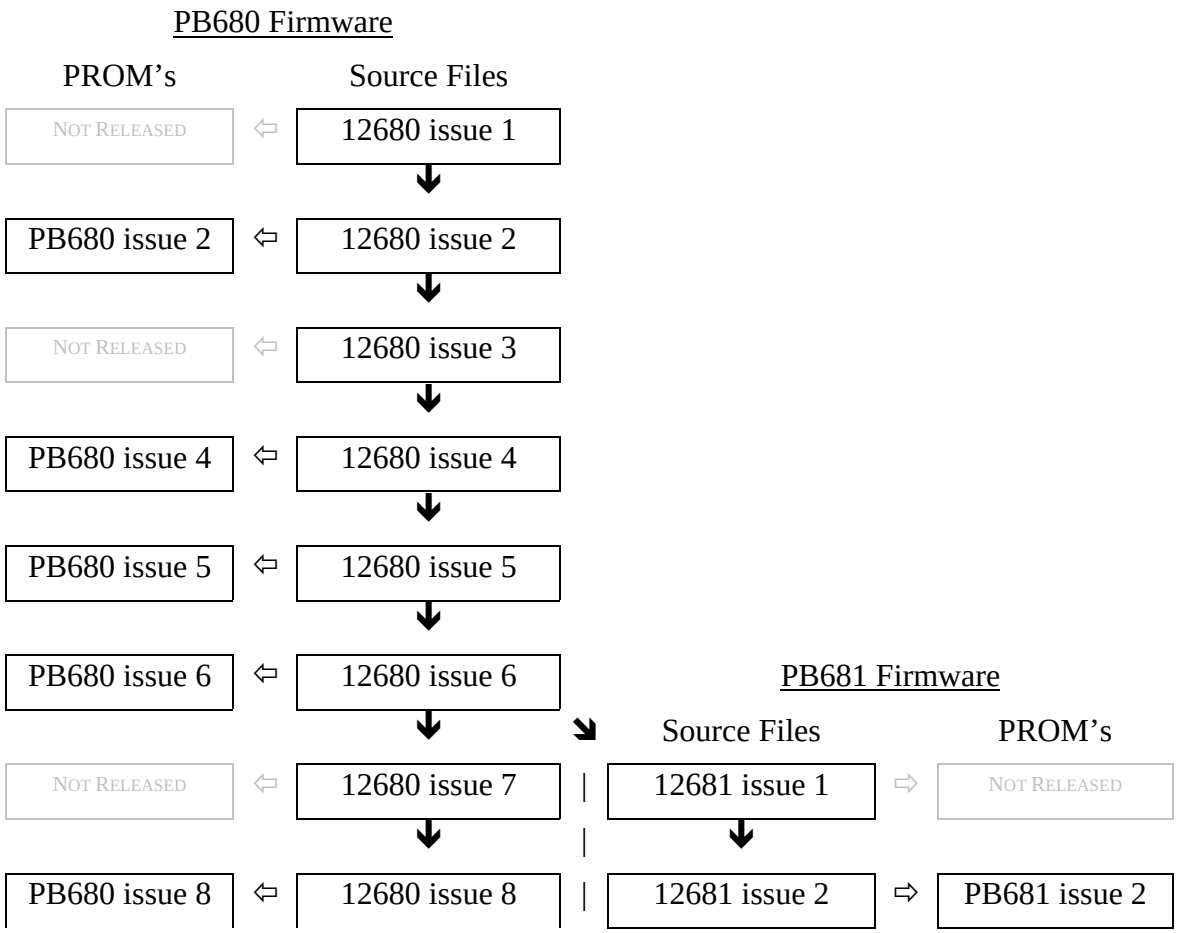
This table below lists the firmware PROM's which were actually released and the relationship between their sets of source files.

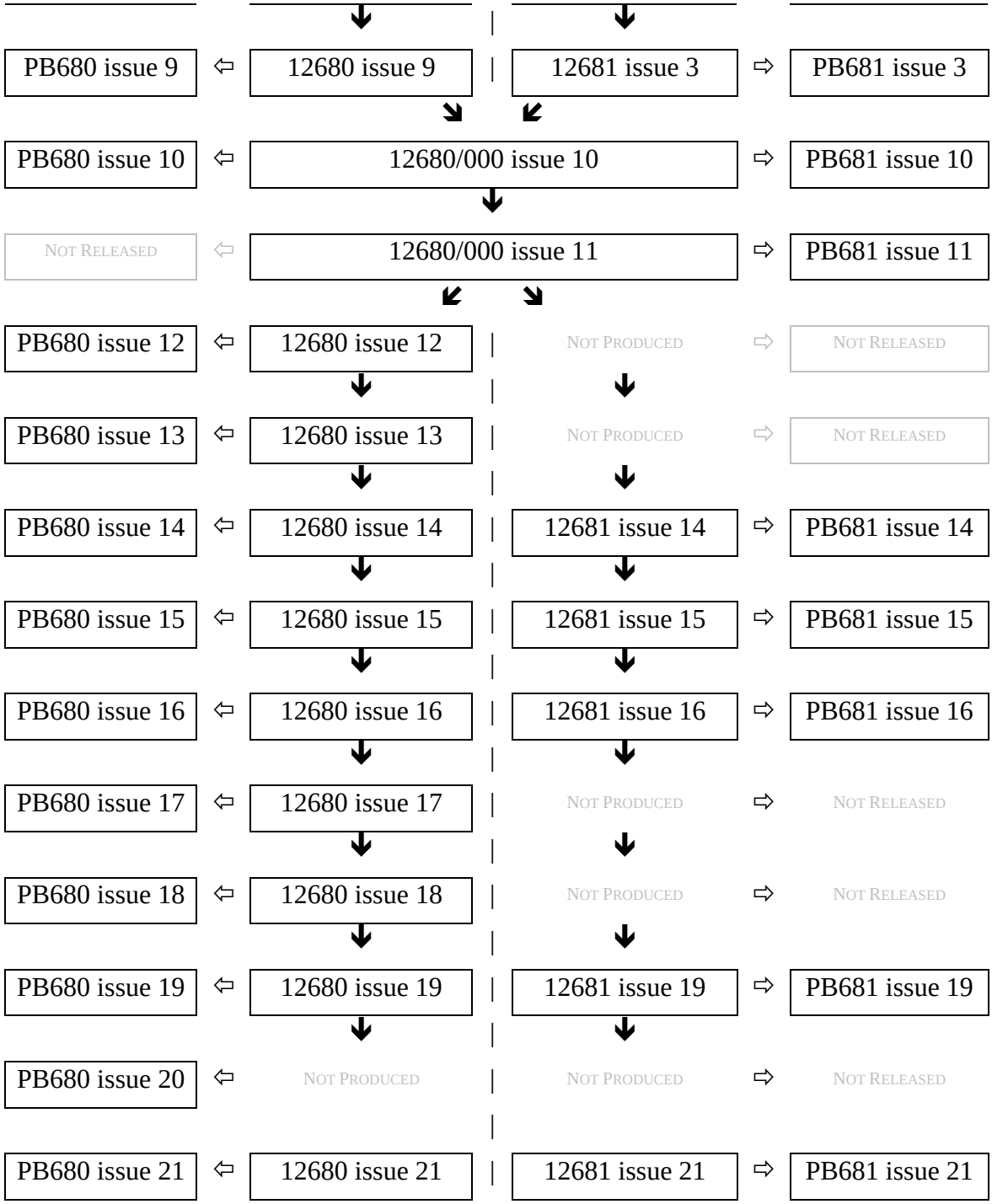
The source files for PB680 issue 6 were taken by TRL and modified to produce the Siemens TRL MOVA unit PB681 issue 1. The first three issues of this PB681 firmware did not include the RMS OMU application.

For issue 10, the source files for PB680 issue 9 and the source files for PB681 issue 3 were effectively merged together. So from issue 10 onwards, the PB680 and PB681 firmwares are built from the same set of source files. Therefore, a change to and up-issue of one firmware will force the issue number in the other firmware to be incremented, even if a PROM of the other firmware is not be released.

The source files 12680/000 issue 13 onwards cannot be used to build a PB681 MOVA PROM since it runs out of PROM and RAM space. However, a quick fix was required for PB681 issue 14 so the issue 11 source files (the last source files used to create a MOVA PROM) were modified and archived as 12681/000 issue 14.

Source files 12680/000 issue 15 onwards include the modified MOVA source files from 12681/000 issue 14, in anticipation of the day when both PB680 and PB681 builds derive from the same source files.




PB680 issue 9
12680 issue 9
12681 issue 3
PB681 issue 3
PB680 issue 10
12680/000 issue 10
PB681 issue 10
NOT RELEASED
12680/000 issue 11
PB681 issue 11
PB680 issue 12
12680 issue 12
NOT PRODUCED
NOT RELEASED
PB680 issue 13
12680 issue 13
NOT PRODUCED
NOT RELEASED
PB680 issue 14
12680 issue 14
12681 issue 14
PB681 issue 14
PB680 issue 15
12680 issue 15
12681 issue 15
PB681 issue 15
PB680 issue 16
12680 issue 16
12681 issue 16
PB681 issue 16
PB680 issue 17
12680 issue 17
NOT PRODUCED
NOT RELEASED
PB680 issue 18
12680 issue 18
NOT PRODUCED
NOT RELEASED
PB680 issue 19
12680 issue 19
12681 issue 19
PB681 issue 19
PB680 issue 20
NOT PRODUCED
NOT PRODUCED
NOT RELEASED
PB680 issue 21
12680 issue 21
12681 issue 21
PB681 issue 21

3. RMS – TRAFFIC OUTSTATION HARDWARE DESCRIPTIONS

3.1 SUMMARY OF HARDWARE ISSUE STATES

3.1.1 Power Processor PCB - 667/1/26601/001

3.1.1(a) Issue 1

DRF 0204 – First Issue

3.1.1(b) Issue 2

83/18660 – Development Update

3.1.1(c) Issue 3

83/18698 - Development Update

3.1.1(d) Issue 4

ANL01045 – In-circuit test harness change

3.1.1(e) Issue 5

ANL01278 – build state changes

3.1.1(f) Issue 6

ANL02155 – Make /001 obsolete, use /002
Use /001 only for OMU's, not MOVA or BUS Processors

3.1.1(g) Issue 7

ANL02527 – Obsolete – use /002 – required for DUSC Systems

3.1.2 Power Processor PCB – 667/1/26601/002

3.1.2(a) Issue 1

ANL01045 – In-circuit test harness Change

3.1.2(b) Issue 2

ANL01249 - Development Update

3.1.2(c) Issue 3

ANL01278 – Build to latest issue state of 667/2/26602/000

3.1.2(d) Issue 4

ANL02141 – Fit C66

3.1.2(e) Issue 5

ANL02303 – Inter-board connector changed to short pin type

3.1.2(f) Issue 6

ANL02446 – Tywrap size change

3.1.2(g) Issue 7

ANL02527 – Required for all OMU's connected in a DUSC System. Accuracy of the PCB clock improved for DUSC systems

3.1.3 I/O Board Assembly – 667/1/26570/000

3.1.3(a) Issue 1

DRF 0204 – First Issue

3.1.3(b) Issue 2

83/18636 - Development Update

3.1.3(c) Issue 3

ANL00383 – correct issue status generated by 83/18636

3.1.3(d) Issue 4

ANL01603 – If communications on Link 1 or 2 stop when additional Bus I/O Boards are added, remove R90 on both OMU I/O Boards and remark them as Issue 4.
The Bus Processor function will not work correctly if R90 is fitted.

3.1.3(e) Issue 5

ANL02957 – Add new Part Number to BOM

3.1.3(f) Issue 6

ANL03239 – Component Update

3.1.3(g) Issue 7

ANL03539 – ADC Reference circuit updated

3.1.4 Bus/Mova I/O Board - 667/1/27881/000

3.1.4(a) Issue 1

ANL01009 - First Issue

3.1.4(b) Issue 2

ANL01132 - First Production build – item 346 to be changed

3.1.4(c) Issue 3

ANL01345 - First Numeric issue – item 344 to be changed

3.1.5 Lasat Modem Kit – 667/1/26598/000

Note 1 – use modem DC Power cable – 667/1/26584/000
Note 2 – To ensure correct connection to the telephone line, always use the Modem to Line cable supplied with the modem.

3.1.5(a) Issue 1

ANL01082 – Able to call up a Pace modem but must be used on MOVA and BUS Processor applications. Lasat modems can still be used on standard OMU's

3.1.5(b) Issue 2

ANL01439 - Utilise existing stock of original modem mounting foam.

3.1.5(c) Issue 3

ANL01521 - Retain 25 way modem cable connector to the 25/9 way adapter.

3.1.5(d) Issue 4

ANL02545 – Modem cable 667/1/26587/000 to be used instead of 667/1/28197/000. PSU Output 2 to be adjusted to 12volts.

3.1.6 Pace Modem Kit – 667/1/26598/001

Note 1 – use modem DC Power cable – 667/1/26584/001
Note 2 – To ensure correct connection to the telephone line, always use the Modem to Line cable supplied with the modem.

3.1.6(a) Issue 1

ANL01082 – Pace modem to be used on MOVA and BUS Processor applications. Lasat modems can still be used on standard OMU's whilst stocks last

3.1.6(b) Issue 2

ANL01439 - Utilise existing stock of original modem mounting foam.

3.1.6(c) Issue 3

ANL01521 - Retain 25 way modem cable connector to the 25/9 way adapter.

3.1.7 Dynalink Modem Kit – 667/1/26598/004

Note 1 – use modem DC Power cable – 667/1/26584/001
Note 2 – To ensure correct connection to the telephone line, always use the Modem to Line cable supplied with the modem.

3.1.7(a) Issue 1

ANL02749 Initial issue – used as a replacement for Lasat and Pace modems which are now obsolete. Requires PB680 issue 14 or PB681 issue 14 software (or later).
This modem requires a 5 Volt power input. (Ensure orange link on PL1 connector on first I/O board is linked from pin 28 to pin 33)

3.1.8 Pole Mounted Antenna Kit – 667/1/26598/010

3.1.8(a) Issue 1

ANL01564 – First Issue

3.1.8(b) Issue 2

ANL01671 – Update of M20 Modem Power Cable

3.1.8(c) Issue 3

ANL02020 – Added Antenna Mounting Kit

3.1.8(d) Issue 4

ANL03207 – Update to use TC35 modem

3.1.8(e) Issue 5

ANL04264 – Updated to add Modem Signal Cableform

3.1.9 Cabinet Mounted Antenna Kit – 667/1/26598/011

3.1.9(a) Issue 1

ANL04047 – First Issue

3.1.9(b) Issue 2

ANL04264 – Updated to identify correct drawings on items list.
Corrected 1:1 Case Drilling Template Drawing.

3.2 KNOWN PROBLEMS, RESTRICTIONS AND FUTURE ENHANCEMENTS

Power Processor PCB 667/1/26601/001 is now obsolete. Power Processor PCB 667/1/26601/002 can be used as a direct replacement in all circumstances.

I/O Board 667/1/26570/000, if link 1 or 2 communications stop when fitting an extra I/O Board, remove resistor R90 on both boards. The Bus Processor function will not work correctly with R90 fitted. An OMU can operate with or without R90 fitted.

3.3 COMPATIBILITY

The Family Tree structure for the TRAFFIC O/S UNIT has changed. The TRAFFIC O/S UNIT 667/1/26578/000 calling the OMU BASIC UNIT and O/S options is no longer available.
The current structure is to call the BASIC OMU UNIT 667/1/28850/000 and then call a listed option.
The old structure is defined in 667/DZ/26578/000.
The new structure is defined in 667/DZ/28850/000.

LMU I/O boards (667/1/26570/000) can be combined with Bus/Mova I/O boards (667/1/27881/000), but only a maximum of 3 I/O boards can be used

With the 667/1/28850/000 issue of OMU the I/O boards must be fitted as follows :-

Board 1 must be fitted at the bottom of the stack and where both LMU I/O boards and Bus / MOVA I/O boards are required, the LMU I/O boards must be fitted first.

With the 667/1/26580/000 issue of OMU the I/O boards are fitted as follows :-

I/O board 1 was fitted at the top – no change is required to these units.

Unit Support Battery – this supports the entire unit including the modem for a minimum of four minutes under all condition in order that the OMU may inform the Instation of a mains power fail. MOVA only units do not require and are NOT shipped with a Unit Support Battery.

Modem power is gained from the I/O board #1 (i.e. the first I/O board – can be either LMU or Bus/MOVA type). If LMU type is used PL1 connector supplies the modem power, if Bus/MOVA type PL4 connector is used. Output voltages that are selectable at these connectors are 5v, 8v and 12v. The Lasat modem kit 667/1/26598/000 Issue 4 uses 12v, Pace modem kit 667/1/26598/001 uses 8v.

The Dynalink modem requires issue 14 (or later) of PB680 and PB681 software to be fitted. Issue 14 (or later) software will still usable with Lasat and Pace modems.
(Note – Dynalink modem requires a 5 volt power input. Ensure orange link on PL1 connector on first I/O board is linked from pin 28 to pin 33, selecting 5 volt supply to modem).

The TC35 GSM modem requires PB680 issue 17 or later.
The use of the Cabinet Mounted Antenna Kit (667/1/26598/011) with the TC35 GSM modem depends upon sufficient signal strength. If signal strength is insufficient, the Pole Mounted Antenna Kit must be used.

3.3.1 PCB Compatibility

Table of Board Type/Issue to Application

		DUSC	MOVA	BUS	OMU
PCB TYPE	**ISSUE**				
Power Processor 667/1/26601/001					
	001				**Y**
	002				**Y**
	003				**Y**
	004				**Y**
	005				**Y**
	006				**Y**
Obsolete	**007**				
Power Processor 667/1/26601/002					
	001		**Y**	**Y**	**Y**
	002		**Y**	**Y**	**Y**
	003		**Y**	**Y**	**Y**
	004		**Y**	**Y**	**Y**
	005		**Y**	**Y**	**Y**
	006		**Y**	**Y**	**Y**
	007	**Y**	**Y**	**Y**	**Y**
I/O Board 667/1/26570/000	**Use S1.1/3 to select address – 1 to 3** **Use S1.4 for switching lamp monitor between 50/60 Hz**				
	001	**Y**	**Y**	**Y**	**Y**
	002	**Y**	**Y**	**Y**	**Y**
	003	**Y**	**Y**	**Y**	**Y**
	004	**Y**	**Y**	**Y**	**Y**
	005	**Y**	**Y**	**Y**	**Y**
	006	**Y**	**Y**	**Y**	**Y**

	007	**Y**	**Y**	**Y**	**Y**
Bus/MOVA I/O 667/1/27881/000	**Use switches S5.12 and S6.1/2 to select address - 1 to 3**				
	001	**Y**	**Y**	**Y**	**Y**
	002	**Y**	**Y**	**Y**	**Y**
	003	**Y**	**Y**	**Y**	**Y**
Lasat Modem Kit 667/1/26598/000					
	001	**Y**	**Y**	**Y**	**Y**
	002	**Y**	**Y**	**Y**	**Y**
	003	**Y**	**Y**	**Y**	**Y**
	004	**Y**	**Y**	**Y**	**Y**
Pace Modem Kit 667/1/26598/001					
	001	**Y**	**Y**	**Y**	**Y**
	002	**Y**	**Y**	**Y**	**Y**
	003	**Y**	**Y**	**Y**	**Y**
Dynalink Modem Kit 667/1/26598/004	**Requires PB680 issue 14 (or later) or PB681 issue 14 (or later)**				
	001	**Y**	**Y**	**Y**	**Y**
GSM Modem Kit 667/1/26598/010	**Issue 004 Requires PB680 issue 17 (or later)**				
(M20 Modem)	**001**	**Y**	**Y**	**Y**	**Y**
(M20 Modem)	**002**	**Y**	**Y**	**Y**	**Y**
(M20 Modem)	**003**	**Y**	**Y**	**Y**	**Y**
(TC35 Modem)	**004**	**Y**	**Y**	**Y**	**Y**
(TC35 Modem)	**005**	**Y**	**Y**	**Y**	**Y**
GSM Modem Kit 667/1/26598/011	**Requires PB680 issue 17 (or later)**				
(TC35 Modem)	**001**	**Y**	**Y**	**Y**	**Y**
(TC35 Modem)	**002**	**Y**	**Y**	**Y**	**Y**

Y – denotes can be used for this application

3.3.2 Modem Compatibility

OMCU Type and Firmware	OMCU Modem	RMS Instation Pace PMC33.6 or Lasat 288 or Dynalink PKS-5600 forced V21 (300baud)	RMS Instation Pace PMC33.6 or Lasat 288 or Dynalink PKS-5600 auto baud	Maximum Data Rate with auto baud Instation Modem
OMCU (5U) PB201 All Firmware Issues	N/A	OK	OK	300 baud
OMCU (3U) PB680 All Firmware Issues	Lasat 144	OK	I/S to OMCU only	300 baud
OMCU (3U) PB680 Issues 2 to 4	Lasat 288	OK	OK	2400 baud
OMCU (3U) PB680 Issues 5 onwards	Lasat 288	OK	OK	19200 baud
OMCU (3U) PB680 Issues 2 to 4	Pace PMC33.6	OK	OK	300 baud
OMCU (3U) PB680 Issues 5 onwards	Pace PMC33.6	OK	OK	19200 baud
OMCU (3U) PB680 Issues 14 onwards	Dynalink PKS-5600-A-P/M	OK	OK	19200 baud
OMCU (3U) PB680 Issues 2 to 4	M20 GSM	Not Compatible	OK	2400 baud
OMCU (3U) PB680 Issues 5 onwards	M20 GSM	Not Compatible	OK	9600 baud
OMCU (3U) PB680 Issues 17 onwards	TC35 GSM	Not Compatible	OK	9600 baud

NOTE – When using a Dynalink PKS-5600-A-P/M as an instation modem a PSU RS Part No. - RS 293-2448 along with a 9-25 way cable RS Part No. - RS 202-644 is required.