

TSLM-M601 Updates

This document will not only describe how to update your TSLM firmware, but also what new features and functionality you'll be getting when you update to the latest version firmware.

How to update your firmware:

1. Make sure your TSLM's serial number starts with #5 or higher. If not you need to use the TSLM Link software for the older TSLM units.
2. Download System Link software from TSLM webpage
3. Install it onto your Laptop / PC
4. If using a USB-to-serial adapter for the first time in a new USB slot on your computer, you need to wait while Windows installs the correct driver for it before continuing.
5. Connect TSLM serial port to PC (through the USB-to-serial adapter if you use one)
6. Run System Link software
7. Select correct COM port from "system – select serial port" menu
8. Ensure Master is OFF (no power on TSLM system)
9. Select from menu "system – change application"
10. Select "Walter M601 Start and Limiting Control". Click Update.
11. Switch Master ON. System Link should now update the TSLM and any VR Display or other VR Avionics component in your system.

Description of changes made to firmware versions

The following sections provide a summary to the changes made to each version of the TSLM's firmware. Please consult the TSLM manual should you require more detail. Note that a particular firmware version will also contain the changes of prior versions.

Version 2.1

1. The VR Display will now also show the EIU information should an EIU be connected on the CAN bus. EIU Parameters (ITT, N1, etc.) that overlap with the TSLM parameters are used in a backup role. Should the TSLM not provide them the EIU's data will be displayed instead for redundancy.
2. The EIU will also act as a fuel flow totalizer / computer just like the FAM. "Fuel Remaining" can be set at startup or at a later stage through the VR display.
3. The units of measurement (eg. "DEG C" for ITT) is now initially displayed on the VR-3PD for a moment after power-up, or after a new page have been selected via the toggle switch.

Version 2.0

1. We added ISOL checking either through the FAM or EIU. Should you now issue a start when ISOL is active (emergency fuel circuit) then the VR display will ask you to confirm that you want to proceed with an ISOL start. Some engines in the past were started with the ISOL unknowingly in the ON position. This is way we hope to prevent

such events. No other system has this feature.

2. We now also display a message on the VR display to better explain an error code. For example, a start was issued, but the ITT was over 200 celcius so the TSLM declined it. Previously only the TSLM light indicated the error with a flash code. Now the VR display will show a message saying "Start denied because ITT is above 200 degrees C". You may acknowledge this either through the VR display toggle switch or in the normal manner.
3. We also made some more cosmetic changes to the operation of the VR-3PD display in order to make it more user-friendly.

Version 1.9

1. We added the ability to select the type of Walter M601 engine (either M601D, M601E-11A, or M601E-11). The different types have different parameter exceed trigger levels – the M601E-11 for example has a higher operational torque level (145 psi) than the M601D or M601E-11A engine.
2. A second TSLM page have been added to the VR display in order to display the oil-temperature parameter measured in some installations. This page can be enabled/disabled by setting the "Show TSLM 2nd Page (with OIL-TEMP)" configuration property.
3. We added the ability to detect at power-up (master on) whether the EHT (fuel-limiting valve) is powered externally from the TSLM due to a possible wiring fault. The system will now annunciate such an EHT error through both the TSLM light and the VR-3PD screen.
4. We also made some cosmetic changes to the display pages on the VR-3PD. We now use solid lines in stead of dotted lines to box the various parameters.

Version 1.8

1. We added the FAM (fuel computer) functionality to the TSLM system. The VR-3PD display is now capable of providing a fuel page showing fuel flow, fuel used, fuel remaining, and fuel endurance in hours and minutes. This is a panel space-saver since it combines the functions of two instruments in one. This new fuel page can be enabled/disabled by setting the "Show FAM Fuel Page" configuration property.
2. In order to improve starting with the emergency circuit (ISOL ON), we decided to make the ignition and fuel (interrupter) sequence to the torch igniters run the full start process. Previously they were discontinued as soon as light-off occurred to make the relevant components last longer, but we found that it made starting in ISOL more difficult even though this is rarely done.
3. We added an option (selected in the TSLM configuration) that enables the forcing of a start when the pilot "double-clicks" the start button/switch. By forcing a start the voltage and ITT pre-start checks will be bypassed (not done). The only pre-start check that will be performed is the EHT check (the TSLM must see the EHT valve electrically), before the start process commences.

Version 1.7

1. We added the ability to perform certain diagnostic tests from a VR display, previously only possible by hooking up a laptop PC to your TSLM. Diagnostic tests added will check the circuits for the ignition, interrupter valve, EHT-valve, and exceed indicator output.
2. The VR display now also indicates the mode of the TSLM on-screen as well as the annunciation lights such as BETA, etc.
3. We added the "Start ITT Control Setting" to the TSLM configuration. This setting will allow the user to selected the level of start limiting he/she prefers. It's default is 640, but can be adjusted from 580 to 640. Lowering this value will lower your start ITT's, but may increase the start duration.

Version 1.6

1. The ability to measure oil-temperature through the TSLM was enabled in this version.

Version 1.5

1. We added the anti-flameout operation (AFO). Once the engine is running the pilot can activate this mode to lower the chances of flameout during certain stages of flight. The TSLM realize this by activating the ignition and fuel to the torch igniters continuously.

Version 1.4

1. We made changes to the algorithm the TSLM uses to limit the engine through the EHT (limiting valve).

Version 1.3

1. We added the ability to measure the EHT (limiting valve) electrical resistance when a start sequence is initiated.