


In case anyone needs it or wants to test it out. (Unfortunately, it didn't work with the "initiating RC buddy.")
Otherwise, the S32terminal offers an update on startup, now including the "AM32 KISS" ESC.

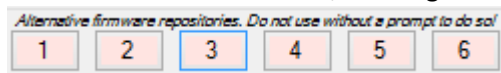
AM32 ESC with KISS, configuration:

- Set the telemetry data protocol to automatic every 30 milliseconds.
(KISS queries would require throttle via S32, using two ports.)
- Brushless motor pole count: The ESC won't need this for commutation.
It's probably only for supplying motor RPM to KISS telemetry.
Either you set the pole count here, in which case the S32terminal defaults to 2 poles, or you set it to 2 poles, but then enter the motor's pole count in the S32terminal.
- If you don't need the "beeper" (which beeps with the motor when the AM32 doesn't yet detect a throttle), then set its volume to 0. - There is a small chance that early "special commutation" could occasionally disrupt the initial KISS synchronization with the S32.

JLog S32 Firmwares

- The standard (default) firmware version is still 1.85.
There are now two new firmwares, 1.86 and 1.87. To update the S32 press

the  button in the top left corner of the S32 terminal. This opens something at the bottom of the S32 terminal, offering six firmware versions:



"M" "M2" "M3" "M4" "M5" "M6"

In "M" and "M2" is version 1.86, in "M3" and "M4" is 1.87. M (1.86) displays 5.55, M3 (1.87) 6.66, M5 (1.86 special) 255.255, and M6 (1.87 special) 255.256. This is an offer from S32 terminal to overwrite during an update if S32 is already reporting same or a higher release.

- Version 1.87 is for a special case with the AM32 SQESC 2670 in my setup. The supplied voltage value needs to be corrected. This ESC also requires a -23% reduction in the motor current value. I have no idea yet (lack of testing) whether this is a standard bug in the SQESC 2670 – or just a random bug in my unit.
The voltage correction is the only difference between versions 1.86 and 1.87.
- In "M5" (1.86) and "M6" (1.87) are special firmwares for testing under development.
Difference to those in "M" through "M4":
 - The "filter" behind KISS data packets ignores KISS data packets with immense value jumps. It doesn't use them, or rather, it doesn't partially utilize (10%) of such immense data value jumps. It only uses the "filter" for analysis, for which seven "misused" log items are logged to the SD card (partially also in telemetry).
- S32 versions 1.86 and 1.87 also use a "start sync" (delay) when initiating synchronization with KISS from the AM32. It's also a 32-bit processor, but not a multi-core. ☺ Nevertheless, it executes many tasks in parallel, controlled by timers and interface interrupts. Some telemetry systems receive their own specific text packets. HoTT (Tele, Box) is particularly xtime-consuming. This could cause problems during startup after power-up if someone immediately goes full throttle as soon as the ESC light turns green. Therefore, S32 implements a 4.8-second startup delay when AM32 and HoTT are used in its configuration. This is really only for "specialists" who floor the accelerator 2 seconds after powering on. ☺

So, if you experience any issues with logging or telemetry using firmware from M/M2 or M3/M4, try again with firmware from M5/M6, but this time with an SD card installed for logging. Please send results, logs, or any "complaints" to dl7uae@gmail.com (JLog-Heini "Tom", call sign DL7UAE)

Info Correction :

I just removed (May 2, 1:35 PM) the "filter" in versions 1.86 and 1.87 in M/M2, M3/M4 to ignore and only take a 10% value change when a value in KISS (especially RPM) suddenly "jumps" significantly. S32 can't anticipate reality. However, the AM32 ESC might occasionally produce a brief RPM measurement error during commutation changes if the time-based measurement is incorrect due to the necessary correction of the brushless motor commutation from the AM32 via the KISS data packet. (It's "only" based on induction pulses from the motor, just like commutation.) "Know-it-all" corrections can obscure reality more than simply using an "ironed view".

One thing always happens: If the CRC checksum calculated in S32 for a KISS data packet doesn't match the CRC in the packet, the data packet is ignored, and nothing from it is used for logging and telemetry.

In the best-case scenario, this might only "limit the view of reality" for 30 milliseconds, so to speak. 😊

By the way, induction: This has a significant effect when the throttle suddenly drops from high to zero, causing the motor speed to plummet, unless something on the motor is acting as a delaying energy storage device to slow the speed drop. I have a brushless motor here with no load connected. It's running at maximum speed and maximum permissible voltage. Wow, that makes a difference when the throttle is suddenly cut. 😊

The voltage measurement then provided by the AM32 naturally also shows the resulting induced voltage – at least here, because no LiPo battery is used.

Correction May 2, 5:53 PM

The "filter" was probably not the cause of the RPM sometimes jumping up at the beginning/end of throttle changes (as seen in the log). I only discovered it by chance because I was mistakenly running the motor—an older 6-pole brushless for a T-Rex 450, i.e. for 3S LiPo—at 25 volts. The motor sounded like a "turbine" 😊 - but at full throttle the motor RPM dropped from ~65,000 to ~2,000 in the log.

Aha! Apparently because of higher than 65,535 into the unsigned 16-bit variable for motor RPM.

The AM32, at least the SQESC 2670 here, doesn't seem to apply the number of poles set in its configuration (here 6-pole) to the RPM output via KISS. One wonders, then, why the number of poles is needed? Brushless commutation doesn't require it. So, there's probably another bug, at least in this AM32.

Now with 6-pole configured in the S32's config (via S32terminal) everything is normal regarding RPM. (So, the S32 divides the RPM supplied via KISS by the number of pole pairs – here 3, because it's a 6-pole motor.)

It would be interesting to know if other AM32s also don't use the number of poles for motor RPM in KISS. The "filter" in both firmwares in M to M4 remains disabled. Let's see if there are any "data jumps" that need to be ignored/modified.

Just for fun, showing you something :

[S32 setup](#) Throttle connected to "Servo Pulse 1" on port 4 of S32 to see also throttle in log/telemetry [Throttle immediately after AM32 showed green, but before S32 green flashing after sync](#) 12.9V "3S"

The throttle also dropped abruptly to zero, which seems to indicate a brief induction voltage spike.

[Revved up fairly normally after power-up, but intentionally also slightly too early](#) 12.9V for "3S"
At full throttle, everything falters a bit because this is a pwr supply with regulated 2A limit, not a LiPo.

This only works because there's no load on the motor shaft. Current is supplied with 100mA resolution.