




Technical Information Post – AP4-TIP_2025.03_EEPROM_-R01

	MK4, MK5 and EX2000 CRITICAL – ACTION REQUIRED: EEPROM + U9 BACKUP AND SPARES.
0.0	Plant Management Recommendations [a] Send to Maintenance for action [b] MUST HAVE EEPROM BACKUPS FILES + PHYSICAL SETS ON SITE.
a	Introduction <ol style="list-style-type: none"> The mk4, mk5, and EX2000 have EEPROMs. The mk5 and EX2000 also have the unit 9 [U9] in the core’s “Location 1” card. The U9: <ol style="list-style-type: none"> Stores the panel’s software, i/o configuration, etc. Carries the “Voter ID”: <C>, <D>, <R>, <S>, or <T>. In <C>, <D>, and EX2000 has the Stage Link ID [the ArcNet node name]. An EEPROM failure prevents reaching normal operation in the affected core/processor, which results in a “NOT READY TO START” condition. Symptoms: <ol style="list-style-type: none"> mk4: The typical alarm is “CHKSUM FAIL”, the processor does not reach “lcv” status. mk5: The core does not reach A7 [initialization usually halts at A4]. EX2000: The core does not initialize and there are no “clapping” red LEDs.
b	What is happening? <ol style="list-style-type: none"> Life Expectancy: Chip manufacturers were overoptimistic. Now, some datasheets say “10-year” which, in our experience, is too conservative. Field Experience: We usually, and more often since 2023, receive requests to solve EEPROM failures. So far, always successful. The failing chips are in their late-twenties, with higher incidence after the 30-year mark. No alarm. It is not epidemic, but frequent enough to raise a concern and... this TIP. OEM Support: Does not exist. They do not offer EEPROM replacements, and their only solution is an unnecessary migration to mk6e and EX2100e. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>This site had EEPROM backups. Without them, it would have been impossible to build the replacement-in-kind panel.</p> </div>  <ol style="list-style-type: none"> Look ahead: The “Power Generation Demand Bubble” is around the corner. Pay close attention to the unit’s availability and reliability to avoid penalties. <div style="background-color: #f0f0f0; padding: 5px;"> CONCLUSION: It is CRITICAL to have EEPROM backups to ensure the operation of your mk4, mk5, or EX2000. </div>
c	RECOMMENDATIONS <ol style="list-style-type: none"> THE EEPROM BACKUP OF YOUR MK4, MK5 AND EX2000 IS A LOW COST “LIFE INSURANCE POLICY” FOR YOUR PANELS. <u>ALSO ORDER PHYSICAL EEPROM SETS.</u> FOR THE MK5 AND EX2000... IDENTIFY THE U9’S MAKE AND MODEL AND GET SPARES. <u>EX2000: COPY THE BACKUP FILES TO THE SPARE U9 CHIPS.</u> ONCE YOU HAVE COMPLETED THE EEPROM BACKUP, AND RECEIVED THE SPARES... <ol style="list-style-type: none"> EEPROM BACKUP FILES: SAVE IN A SECURE SERVER. PHYSICAL SPARES: STORE IN A FIREPROOF SECURE LOCATION. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>MK5 EEPROM backup setup</p> </div> 
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