



# 2018 POWER PLANT SIMULATION CONFERENCE

Houston, TX January 14-17, 2018

## Electronic Visions, Inc.

RM-23A replacement project

RM-80 Loop Simulator

RMCS Simulator

Presented by Ron Cook



# Topics

- ▶ Electronic Visions Inc. (EVI) – Who we are
- ▶ RM-23A replacement project
- ▶ RM-80 Loop Simulator
- ▶ RMCS Simulator
- ▶ Conclusion
- ▶ Questions



# Electronic Visions Inc. (EVI) - Who we are

- ▶ Established in September 1987
- ▶ Rockledge, Florida - Phone: 321-632-7530
- ▶ Custom software and specialized hardware design engineering for real time computing applications
- ▶ Industrial process control systems for power industry and factory automation

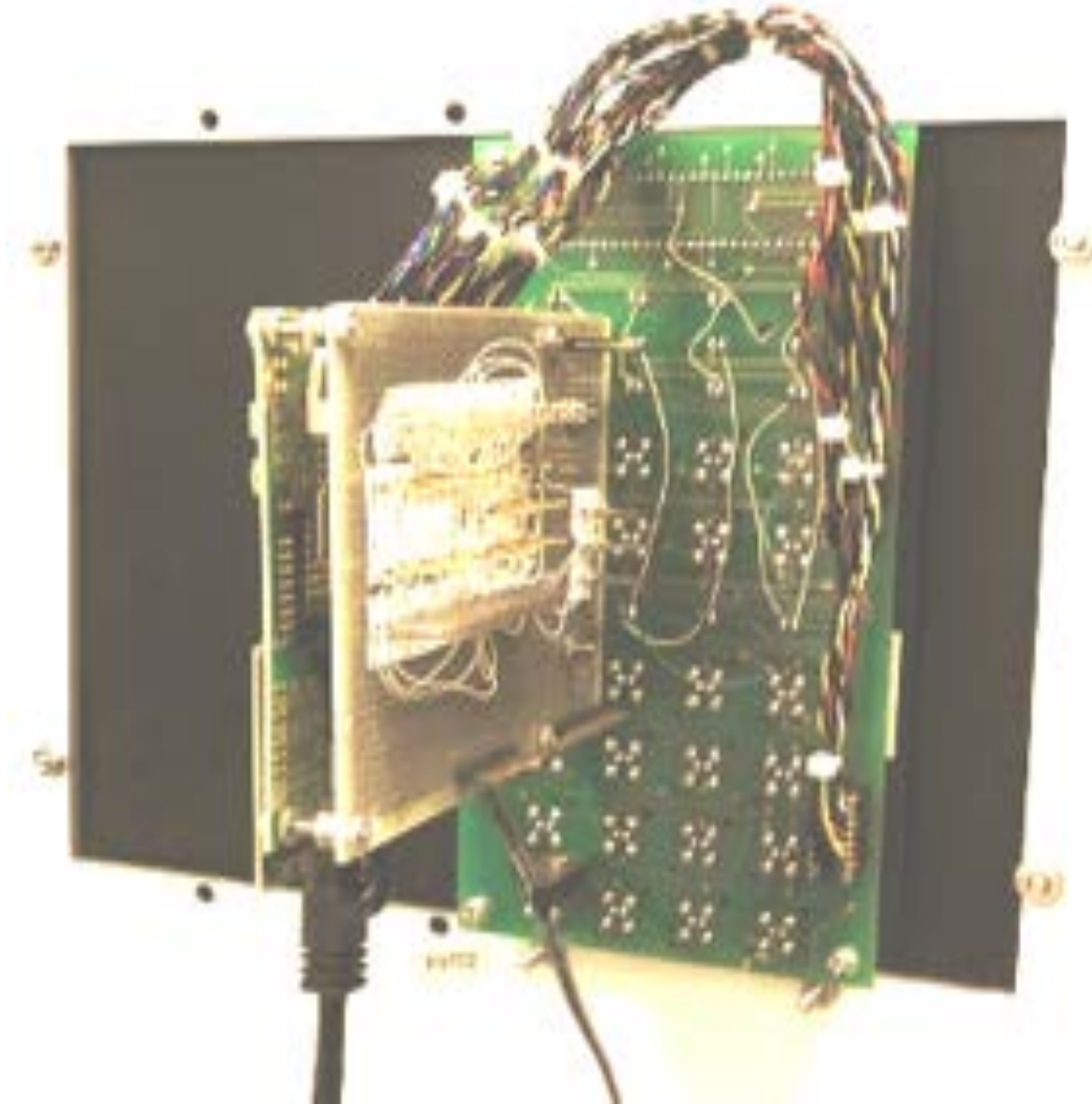


# RM-23A replacement project

- ▶ Customer wanted a cost effective replacement
- ▶ Failure rate had increased
- ▶ Repair and maintaining is time consuming
- ▶ Made up of mainly discrete components
- ▶ Parts are old and often obsolete



# RM-23A – customer's current unit



# RM-23A replacement plan

- ▶ Microprocessor based solution
- ▶ Create a new schematic
- ▶ Use today's parts
- ▶ Write RM-23A simulation code
- ▶ Plug compatible with existing configurations
- ▶ New board manufactured
- ▶ Test, verify and validate new board



# RM-23A replacement - results

- ▶ EVI's Model 3284
- ▶ Built around an off-the-shelf embedded ARM microprocessor
- ▶ Microprocessor has as a 10-15 year life cycle
- ▶ Mounted on a single PCB that houses all switches, LEDs and LED modules
- ▶ Plug compatible for customer's simulator configuration
- ▶ Delivered December 2017



# RM-23A – front with filler panels





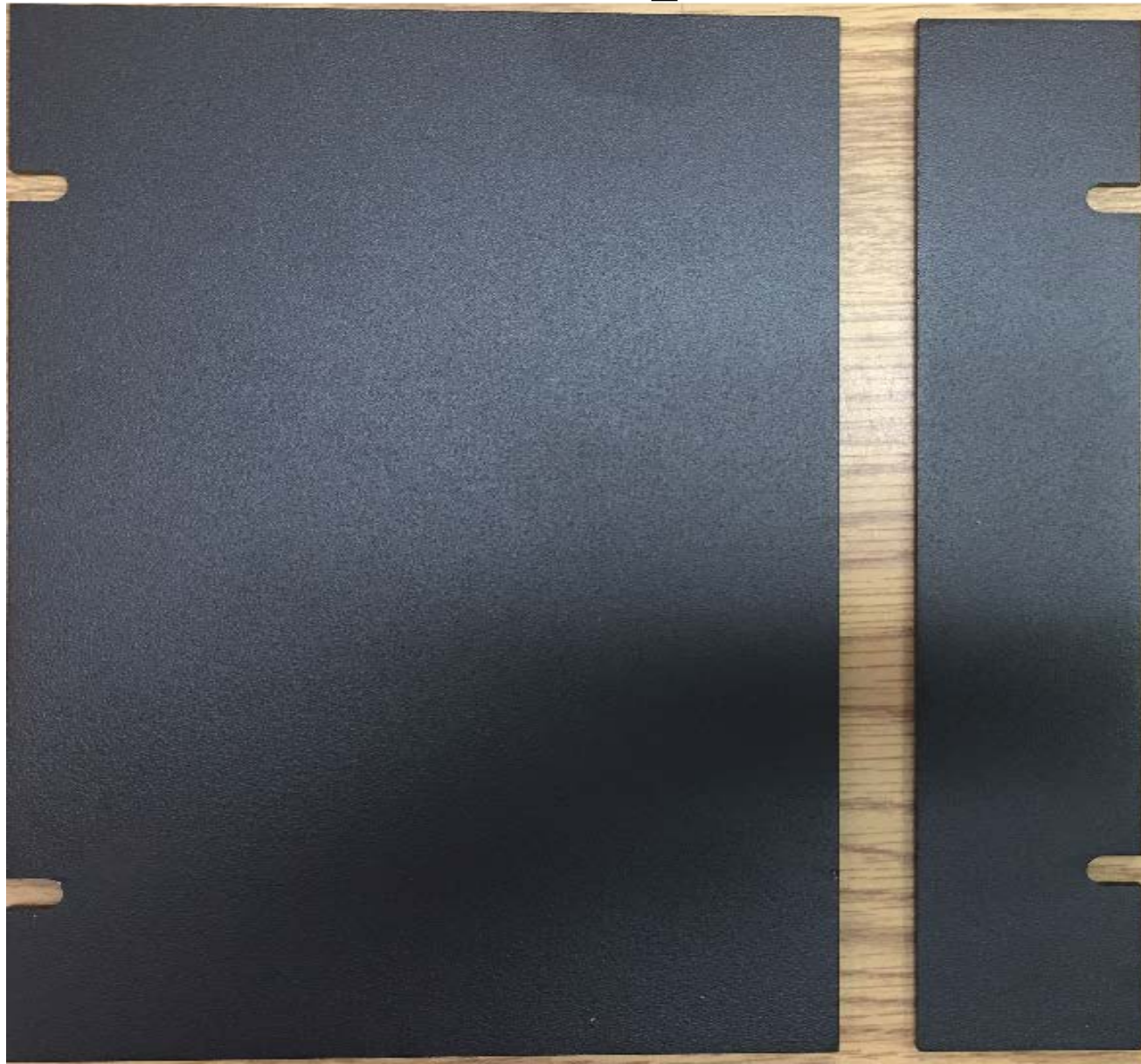
# RM-23A – EVI's Model 3284



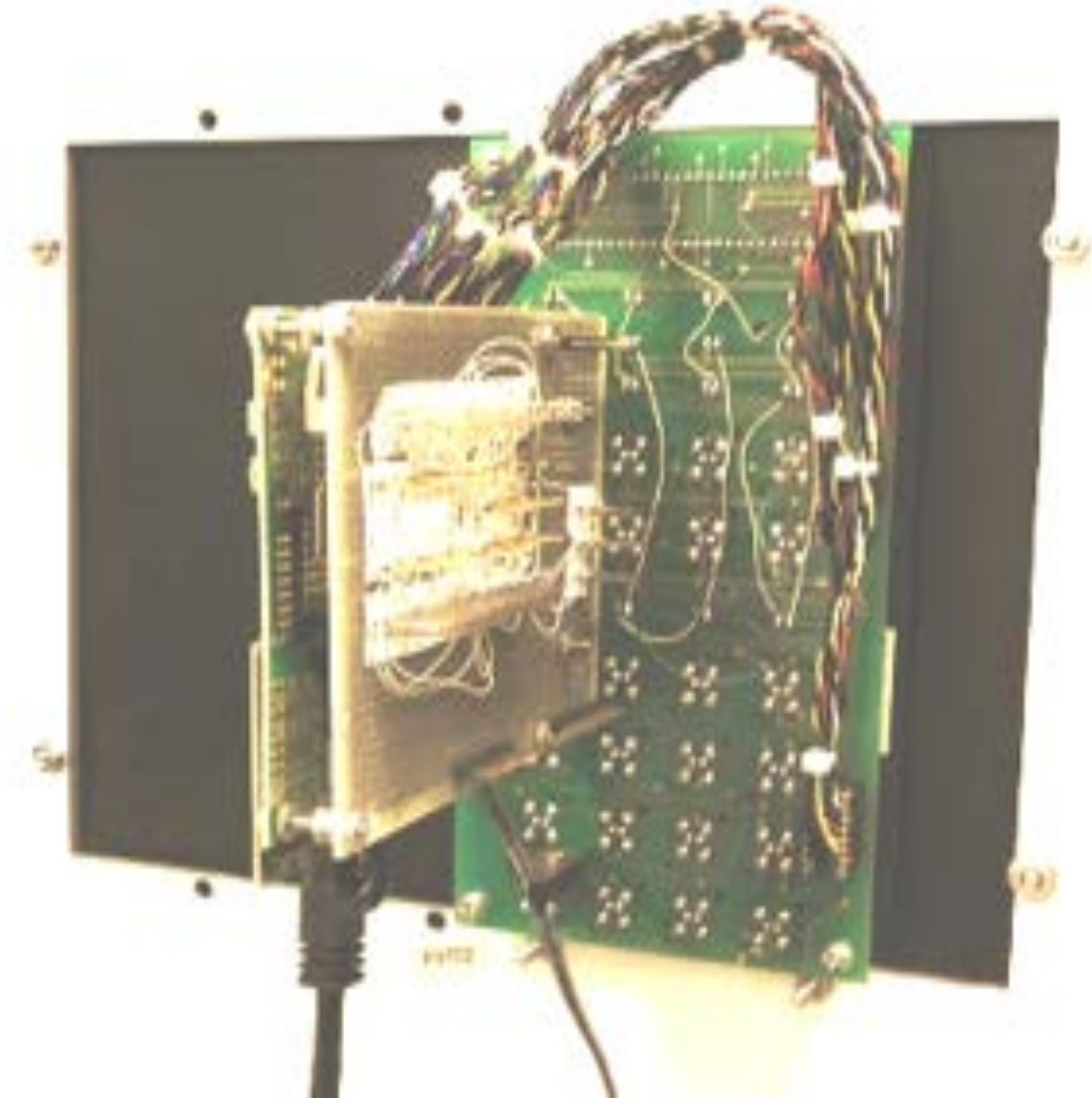
# RM-23A – single piece front panel



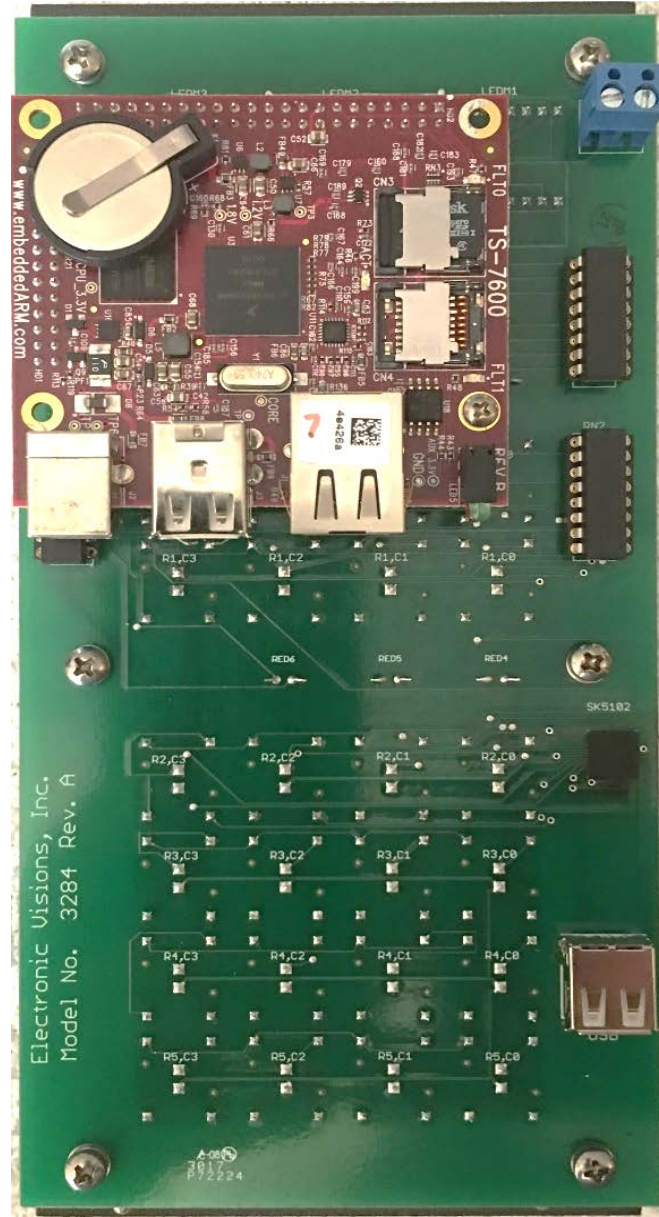
# RM-23A – filler panels



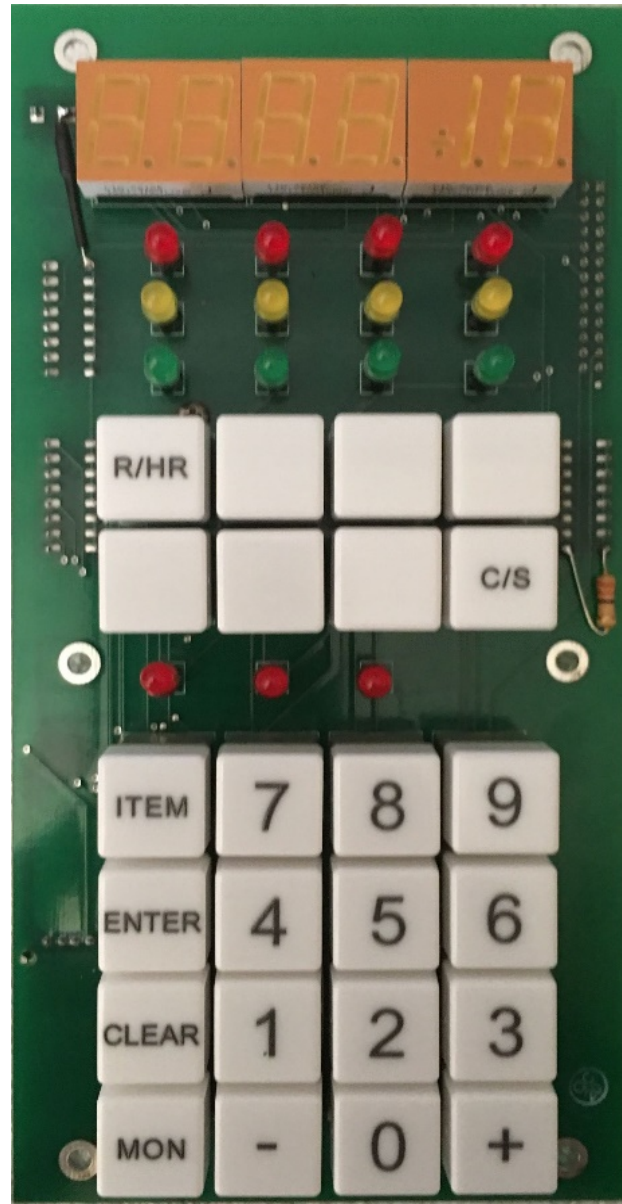
# RM-23A – current behind the panel



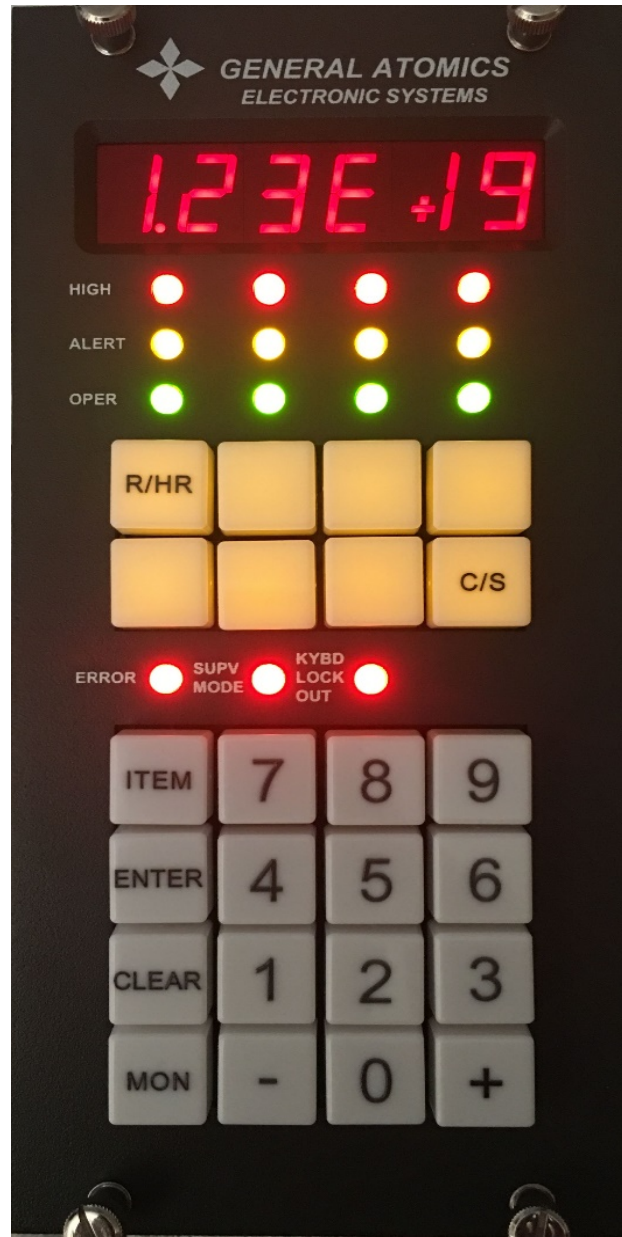
# RM-23A – EVI's behind the panel



# RM-23A – EVI's faceplate removed



# EVI's Model 3284 – RM23A replacement



# RM-80 Loop Simulator

- ▶ EVI has written a low cost, simple to use RM-80 Loop Simulator
- ▶ Developed in 2013 to perform factory acceptance testing at FPL's St. Lucie facility
- ▶ Updated in 2015 for factory acceptance testing at Wolf Creek facility
- ▶ Allows for EVIs' RMCS software to be tested and demonstrated
- ▶ Simulates the RM-80 loop configuration for up to 5 loops and up to 31 RM-80s per loop
- ▶ Performs all RMCS related RM-80 functions
- ▶ Allows manipulation of Channel and Monitor items to generate alarm conditions
- ▶ Performs on/off capability for Purge, Pump, Filter and Check Source





# RMCS Simulator

- ▶ EVI has also written and offers an RMCS Simulator
- ▶ Can be used from desktop, laptop or tablet
- ▶ Provides tools and information to test, verify and validate updates/changes before implementing into plant system
- ▶ Excellent tool for I&C training on the RMCS system



# Conclusion

- ▶ Electronic Visions Inc. provides complete system integration through custom software and hardware design engineering



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