



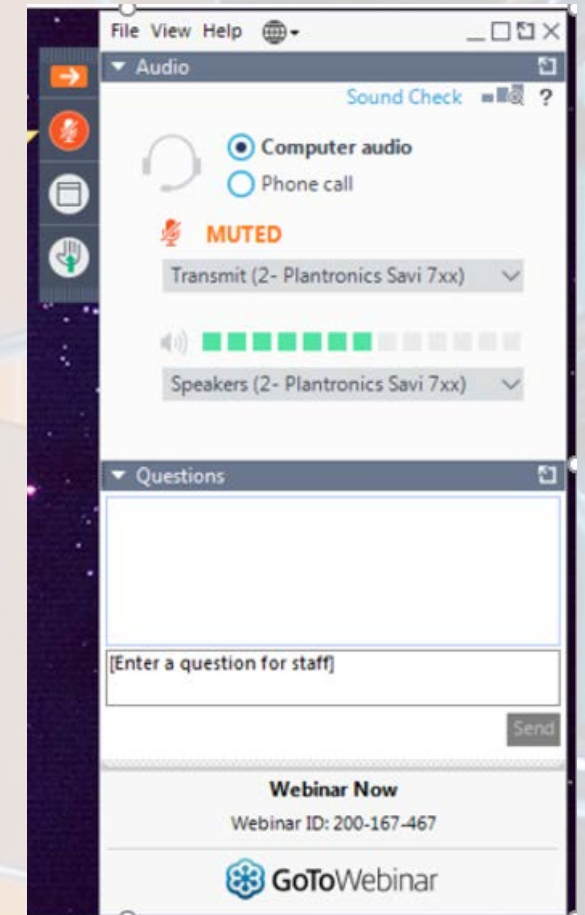
# F600S DESIGN UPDATE FOR IMPROVED UV CURING PRODUCTION

Online Session by Heraeus Noblelight



## HOUSEKEEPING

- ▶ Webinar duration: presentation: 30 min with additional time for Q&A
- ▶ This webinar will be recorded and every registrant will receive a link to the recording and handouts
- ▶ All attendees are muted by default
- ▶ Questions can be submitted ONLY via Go To Webinar Question's box at any time, we will address them at the end of the presentation
- ▶ If you are joining via "Computer audio", we recommend using a headset
- ▶ If there is an issue with your internet connection, you can always dial in via phone



## YOUR PRESENTERS TODAY



**Kevin Joesel**  
Senior Sales Executive,  
Heraeus Noblelight



**William Johnson**  
Product Manager,  
Heraeus Noblelight



## AGENDA

- ▶ Microwave Product Roadmap
- ▶ F600S Design Update
- ▶ Benefits & Next Steps
- ▶ Q&A Session



## AGENDA

- ▶ Microwave Product Roadmap
- ▶ F600S Design Update
- ▶ Benefits & Next Steps
- ▶ Q&A Session

# MICROWAVE-POWERED PRODUCT BACKGROUND

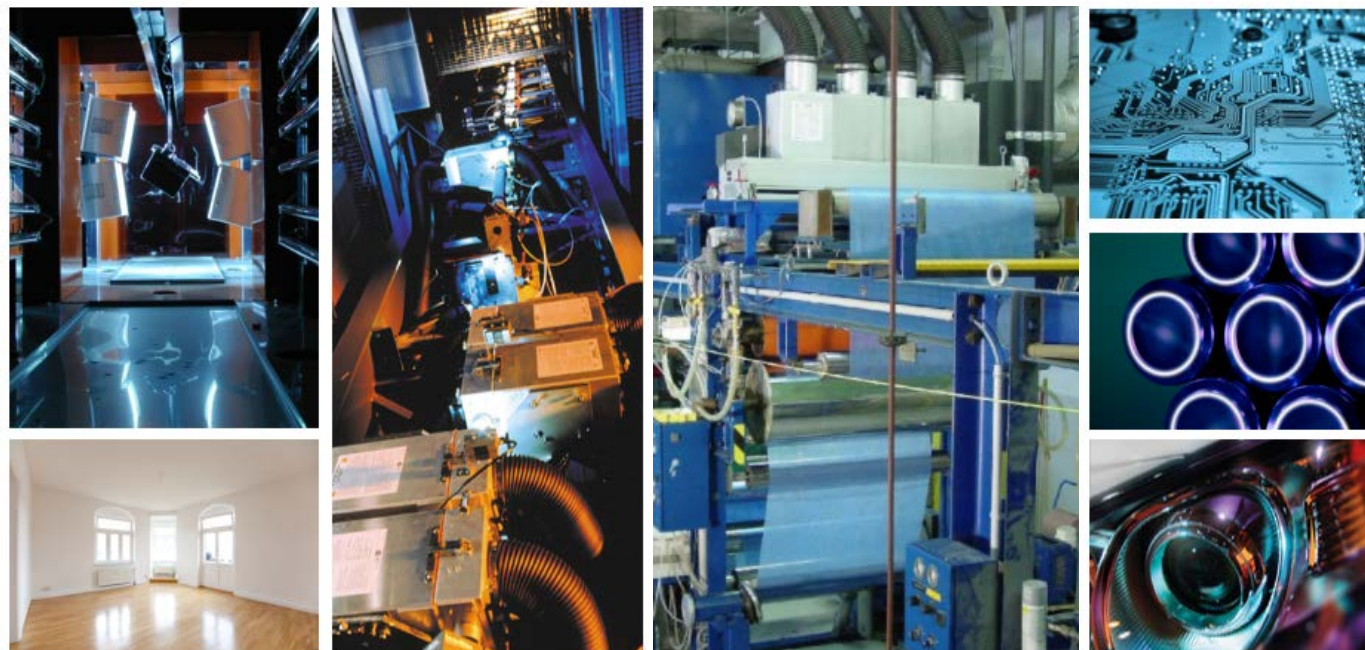
1970 – Fusion System invents microwave-powered UV curing technology.

## Advantages of microwave-powered technology

- › High peak intensity & total UV energy
- › Quick start and stop
- › Longer bulb life with more stable output

## Unique advantages enable new UV curing applications such as

- › Optical Fiber
- › Converting
- › Hard coats



# MICROWAVE-POWERED PRODUCT ROADMAP

**LightHammer® Series** - most advanced, solid-state technology, Industry 4.0 enabled

- › Next generation product after F Series
- › Direct replacement power supplies for discontinued F450 & VPS systems

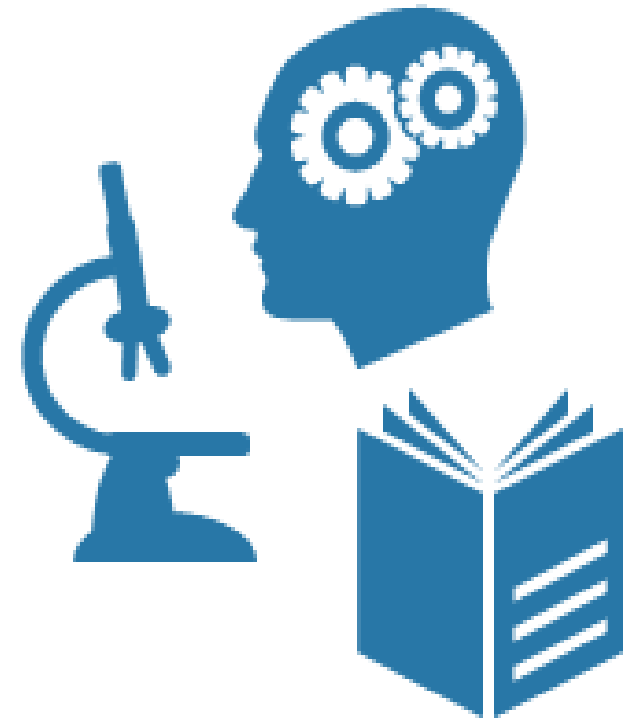
**New products moving to solid-state power supplies and enabling industry 4.0.**



# MICROWAVE-POWERED PRODUCT ROADMAP

## **F Series: Support customers by continuing R&D and design updates**

- › F300 & F600 – investing in R&D and design improvements
- › Extend the useful life for large installed base





# MICROWAVE-POWERED PRODUCT ROADMAP

## F600S System

- › Recent design innovation and improvement
- › Completely new control card
  - › Easy to replace
  - › Offers improved customer functionality
  - › Extends useful life





## AGENDA

- ▶ Microwave Product Roadmap
- ▶ F600S Design Update
- ▶ Benefits & Next Steps
- ▶ Q&A Session

## F600 DESIGN UPDATE: NEW CONTROL CARD

- › Drop in replacement to any legacy P600 power supply
- › Same fit and form with improved functionality

Legacy  
Control Card  
P600 Power  
Supply



New  
Control Card  
P600 Power  
Supply



## NOTABLE ENHANCEMENTS

- › More robust and reliable operation and control, even in harsh environments, due to effective electrical isolation



# NOTABLE ENHANCEMENTS



## NOTABLE ENHANCEMENTS

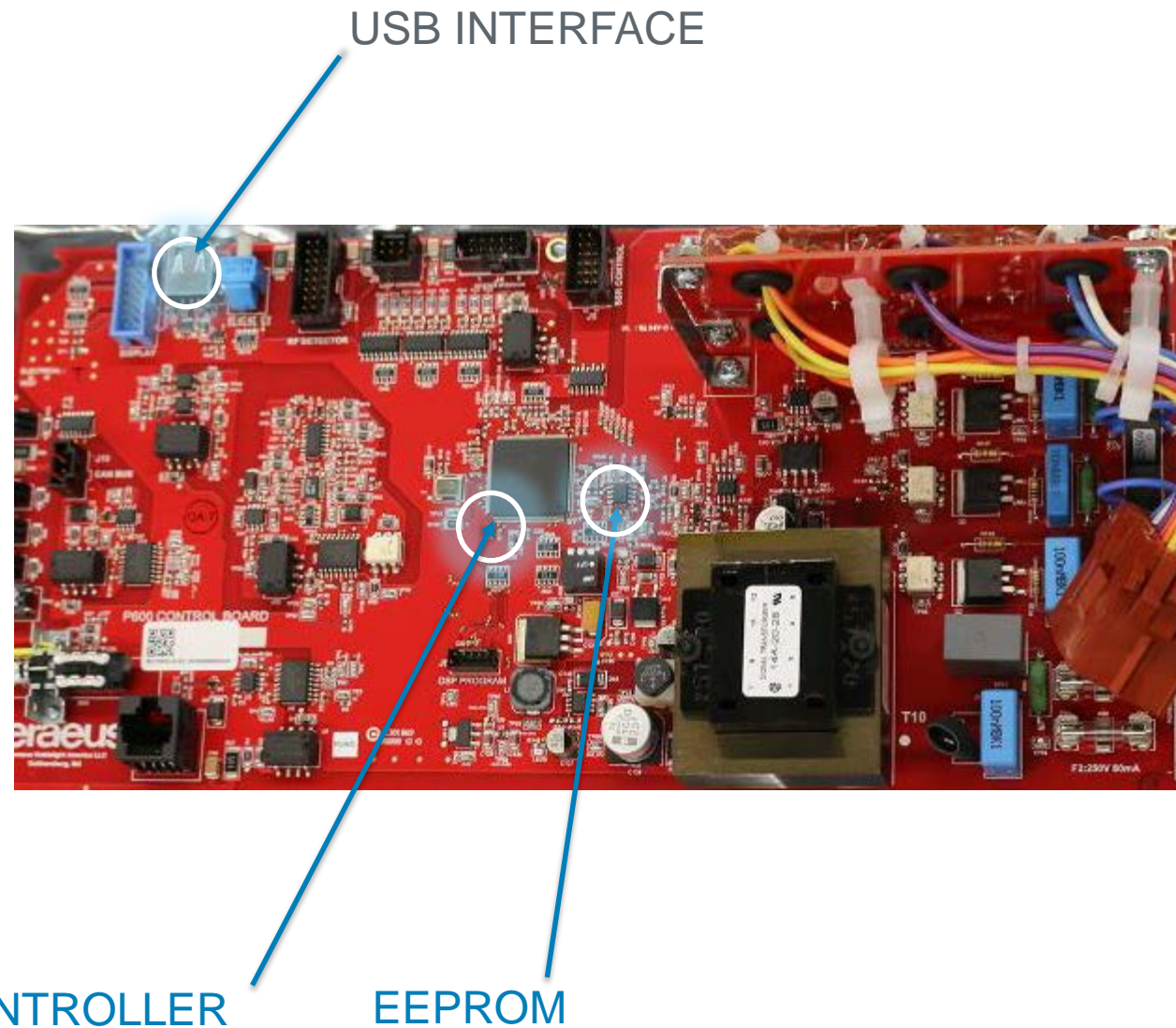
- › USB interface enables easier & faster software updates

USB INTERFACE



## NOTABLE ENHANCEMENTS

- › USB interface
- › DSP Micro Controller & EEPROM enable easier troubleshooting which reduces downtime
  - EEPROM stores the last 10 faults



# FAULT DATA

P600 FAULT DISPLAY								
Frist Line	Second Line	Description	Fault Code	Fault Type	Writing in EEPROM	Logical	Default Threshold limit (Count)	Remarks
ERROR	A0:AC LINE LO	PWB AC Monitor below 198V	0xA0	Unit	Yes	Less than	198	Limits shall vary based on the factory configuration
ERROR	A1:AC LINE HI	PWB AC Monitor above 264V	0xA1	Unit	Yes	Greater than	265	Limits shall vary based on the factory configuration
ERROR	A2:PC SHORT	Photocell below minimum without reading HV applied	0xA2	Unit	Yes	Less than	2000	Limits shall vary based on the factory configuration
ERROR	A3:NO IGNITION	Lamp failed to light on startup.	0xA3	Unit	Yes	Greater than	2440	Limits shall vary based on the factory configuration
ERROR	A4:LAMP OUT	Photocell fails to meet requirements of power level readings.	0xA4	Unit	Yes	in range	1830 to 2440	Limits shall vary based on the factory configuration
ERROR	A5:LAMP AIR PRES	Irradiator air pressure switch below minimum setting.	0xA5	Unit	Yes	Greater than	1400	Limits shall vary based on the factory configuration
ERROR	A6:CABLE DISCONN	Indicates irrad cable P/J103, P/J104, P/J10, P/J11 disconnected or damaged OR P/J2 on PWB disconnected or damaged.	0xA6	Unit	Yes	Greater than	1000	Limits shall vary based on the factory configuration

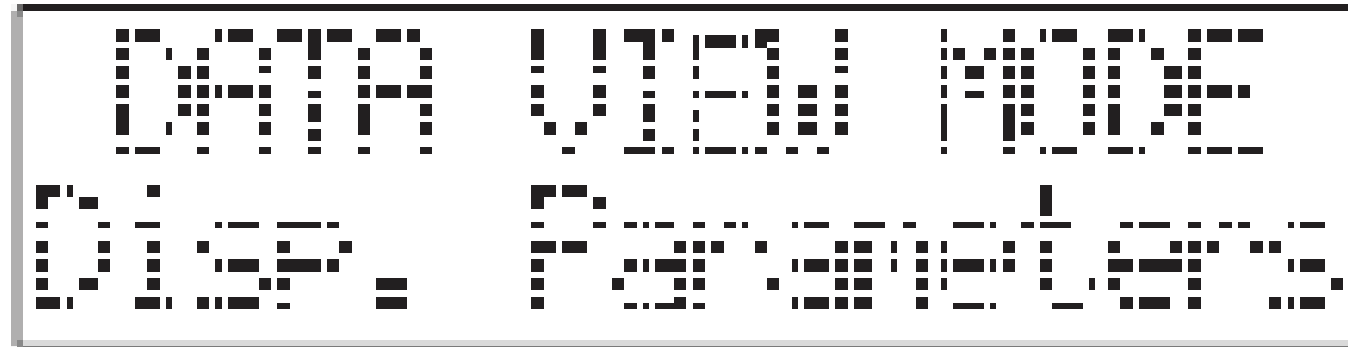
- › The last 10 faults are stored on the EEPROM
- › Extract fault data through the USB port to a flash drive/PC
- › Easily import the data into a spreadsheet - shown above
- › Collect data for analysis to send to Heraeus Technical Services group.

**Easier troubleshooting reduces downtime**



## DIAGNOSTIC MODE, SOFTWARE IMPROVEMENTS, VIEWING PARAMETERS

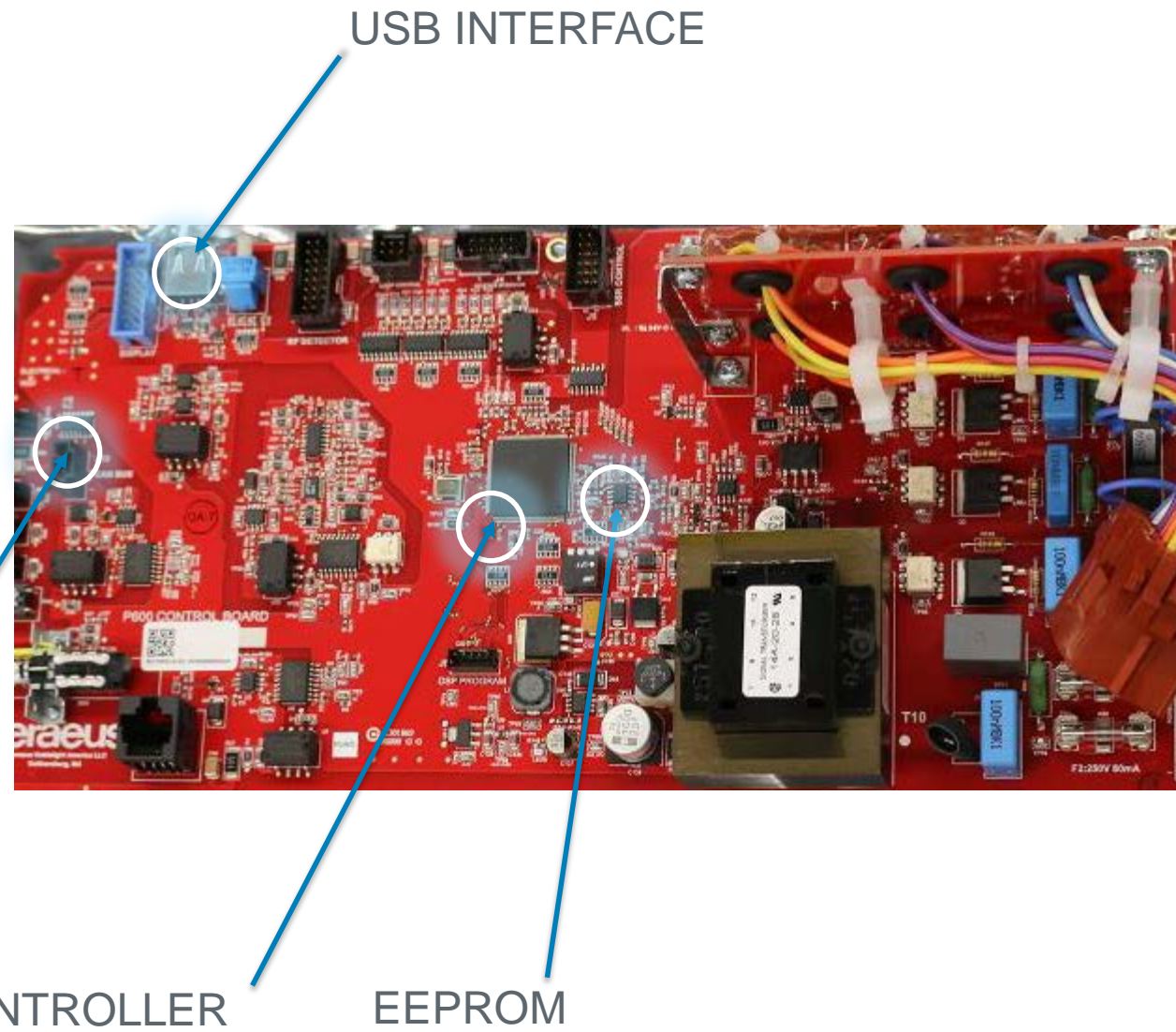
- › T100 Xfmr Volt
- › AC Line volt
- › Fil-A Current
- › Fil-B Current
- › HV T101 Current
- › HV T102 Current
- › HV T103 Current
- › HV T104 Current
- › HV T105 Current
- › HV T106 Current
- › Air Pressure
- › Housekeeping voltages (3.3V, 5V, 12V)
- › On/Standby hours
- › PS MFG info



**View parameters only, values cannot be changed**

# NOTABLE ENHANCEMENTS

- › USB interface
- › DSP Micro Controller & EEPROM enable easier troubleshooting which reduces downtime
  - EEPROM stores the last 10 faults
- › \$100,000K investment for an automated tester to ensure performance and quality



AUTOMATIC TESTER  
INTERFACE

DSP MICROCONTROLLER

EEPROM



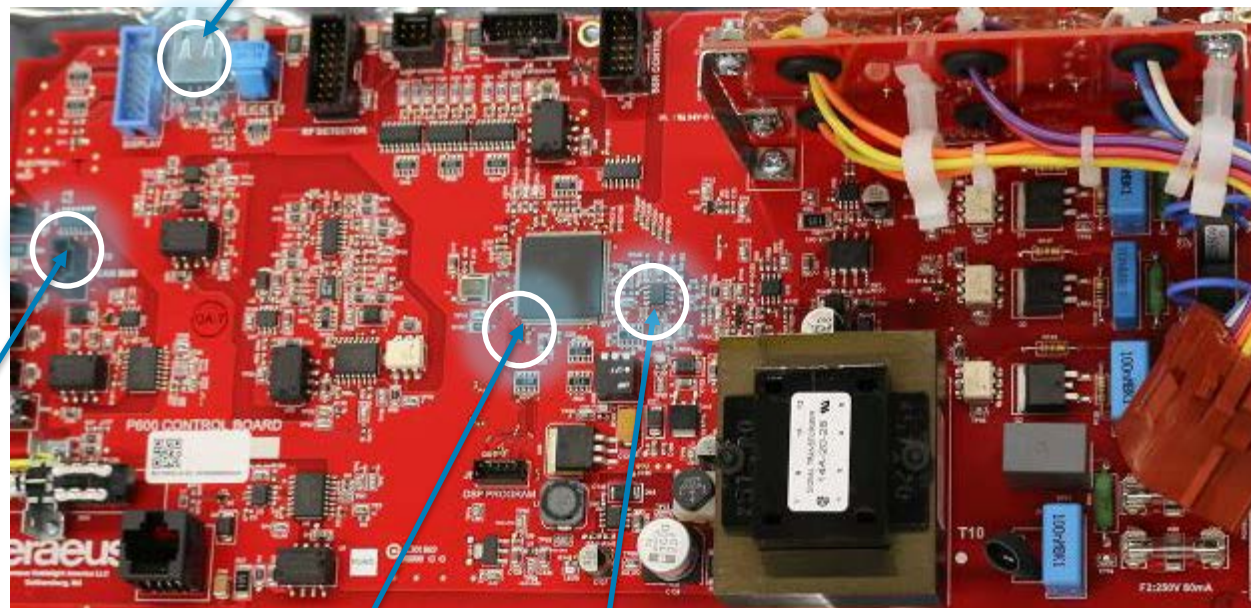
## AGENDA

- ▶ Microwave Product Roadmap
- ▶ F600S Design Update
- ▶ **Benefits & Next Steps**
- ▶ Q&A Session

# BENEFITS SUMMARY

- › Easier & faster software updates
- › Reduced downtime with easier troubleshooting
- › RoHS design for CE TUV compliance (pending)

USB INTERFACE



AUTOMATIC TESTER  
INTERFACE

DSP MICROCONTROLLER

EEPROM

## NEXT STEPS

Order a new control card  
for each system now



## NEXT STEPS

Order a new control card  
for each system now



OR

Order a new control card  
when doing routine  
maintenance



## NEXT STEPS

Order a new control card  
for each system now



OR

Order a new control card  
when doing routine  
maintenance



OR

Purchase new P600M power  
supplies



**Discuss your options with your sales or technical service representative**

# Q&A SESSION



Kevin Joesel



William Johnson



**Many thanks for your participation.**



[heraeus-noblelight.com/academy](https://heraeus-noblelight.com/academy)  
[hng-uv@heraeus.com](mailto:hng-uv@heraeus.com)