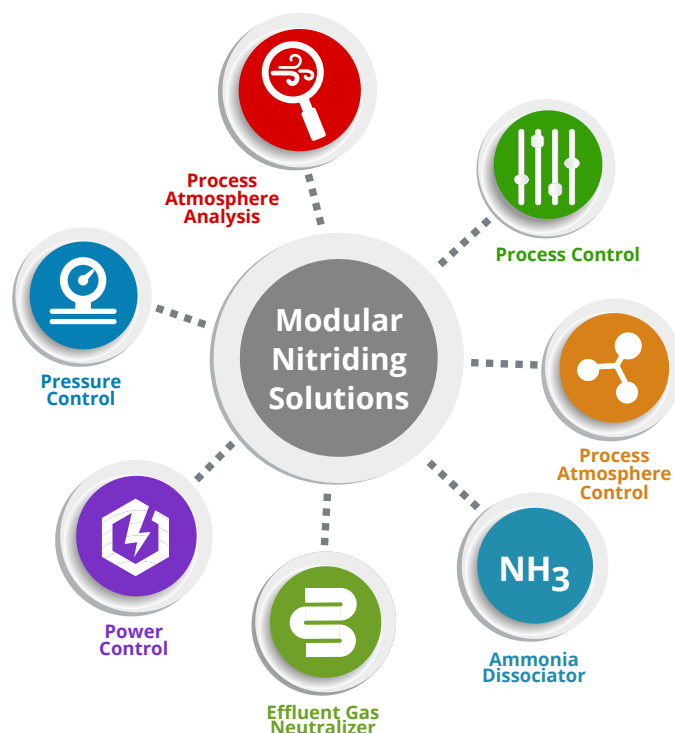


## MODULAR CONTROL SOLUTION

United Process Controls' Solutions are modular packages customized to significantly improve your nitriding and nitrocarburizing operations, meet industry standards requirements and ultimately provide you with precise and reliable process control. We offer compact, fully automatic modules for new installations or retrofits. Each solution consists of a cost-effective module or combination of modules delivered with state-of-the-art equipment and backed by our extensive technological expertise.

## FEATURES

- Full compliance with AMS 2750D, 2759/10A, 2759/12 (FNC), NFPA 86-C section 14-9, CQI-9, Nadcap
- Latest achievements in nitriding & nitrocarburizing process control
- Cost-effective module configurations for new installations or retrofits



## PROCESS ATMOSPHERE ANALYSIS

**Accurate, Continuous, Automatic Measurement**

This module is based on the *H2Smart*<sup>TM</sup> hydrogen analyzer, an integrated system that measures dissociation with high accuracy in nitriding/nitrocarburizing process atmospheres. Its measuring cell design and advanced electronics eliminate the need for a reference gas cell, thus simplifying the installation. The intelligent sensor calculates:  $p_{H_2}$ ,  $p_{NH_3}$ ,  $p_{O_2}$ ,  $p_{CO}$ ,  $p_{CO_2}$ ,  $K_N$ ,  $K_C$ ,  $K_O$  and dissociation (additional hardware or computer interface is required).

### FNC OPTION

The *H2Smart*<sup>TM</sup> used in conjunction with a dedicated UPC oxygen probe provides true nitrocarburizing control as well as pre- and post-oxidation.

## REPLACE MANUAL SAMPLING

**WITH AUTOMATIC & CONTINUOUS READING**



## FEATURES

- High accuracy and reliability
- Compact and robust design
- Interfaces with SCADA systems
- Remote configuration possible
- Sampling flow monitoring with warning and alarm

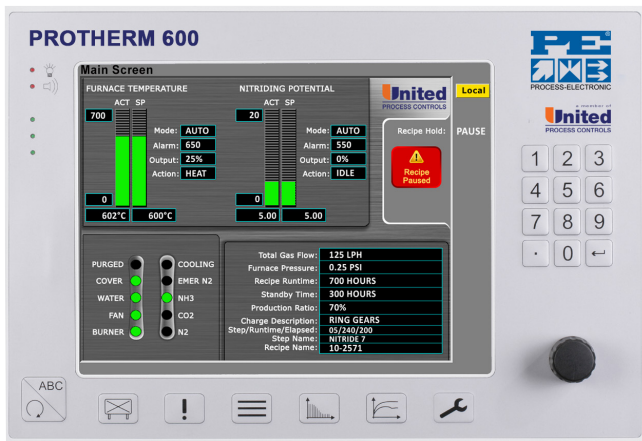


# NITRIDING & NITROCARBURIZING CONTROL SOLUTIONS

## PROCESS CONTROL

### Precise Monitoring, Controlling & Recording

The process control module based on the Protherm 500, 600 or 700 universal programmable controllers for batch, multi-batch and continuous furnaces, is designed to monitor, control and record nitriding and nitrocarburizing processes.



## EQUIPMENT

- Protherm 500, 600 or 700 controller with standard configuration
- External I/O's (Protherm 500, 600, 700)
- High-limit temperature controller
- Steel plate (mountable) or cabinet (enclosure)
- Pre-wired with terminal blocks & isolation relays
- Electrical drawings / user manual
- Factory assembled and tested

## INTEGRATION & CONNECTION

- Integrated web server (Protherm 500, 600, 700)
- CANopen interface
- RS485/422 4 wire Modbus
- Ethernet LAN interface
- Modbus / TCP interface
- Optional Profibus slave or master
- Seamless integration with SCADA

## DIFFERENT SYSTEM CONFIGURATIONS



Wall Mount Enclosure



Steel Plate Mount

## ADVANTAGES

- Precise atmosphere control (Kn, Kc, Ko or dissociation)
- Alarm notification and processing
- Password protected interface
- Real time and historical paperless chart recorder displaying process variables
- Recipes and recipe templates can be created and modified
- Precise temperature control (cascade mode available)
- Internal data storage
- PDF reports
- Data export in CSV format

# NITRIDING & NITROCARBURIZING CONTROL SOLUTIONS

## PROCESS ATMOSPHERE CONTROL

### Efficiency with Automated Control

#### MAIN COMPONENTS

- N<sub>2</sub> emergency flow line
- Purge flow monitoring device
- NH<sub>3</sub> process line
- Optional: N<sub>2</sub>, dNH<sub>3</sub>, CO<sub>2</sub>, Endo process lines
- Complete set of drawings
- Factory assembled, pre-wired and tested

Process gas lines are equipped with solenoid valves, check valves, manual valves, and Waukee Valve-Tronic Plus™ electronic flow meters.



## EFFLUENT GAS NEUTRALIZER

### Pollution-Free Environment

Complete your nitriding or nitrocarburizing system or plant with an effluent gas neutralizer to eliminate pollution, promote environmental friendliness and comply with environmental regulations. The neutralizers are designed to eliminate residual ammonia while achieving low NOx emissions.



INS Series for flows between 11-106 cfh (5-50 l/min)

## AMMONIA DISSOCIATOR

### Cost-Effective Process Dissociator



The UPC Dissociator produces gases for processes requiring hydrogen by dissociating anhydrous ammonia. When dissociated ammonia is used as an additive gas for nitriding processes or as a principal component for protective and bright atmospheres, the dissociator provides high quality atmospheres at a low cost. Sizes available for a process gas flow output of up to 170 cfh (80 l/min).



IN Series recommended for higher flows up to 2120 cfh (1000 l/min)

## BENEFITS

- High efficiency
- Fully automated operations
- Low operating costs
- Low NOx
- Compliance with environmental regulations
- Connectivity to furnace controls
- Data recording capability (optional)

## POWER CONTROL

Better Temperature Uniformity

### MAIN FEATURES

- Designed to customer requirements and standards
- Free standing new cabinets or retrofits
- Zero crossing burst-fired SCR's for heating power control to assure highest level of EMC (Electro-magnetic compatibility)
- High SCCR (short circuit current rating)

### MAIN COMPONENTS

- Main disconnect switch
- Power distribution system
- Heating power controllers
- Motor controllers
- Protection
- Factory assembled, pre-wired and tested
- Complete set of drawings

## PRESSURE CONTROL

Safety First

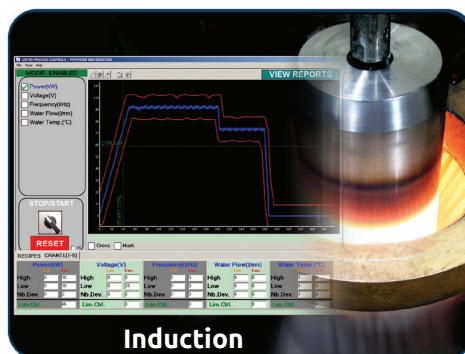
### ACTIVE OPTION

- Differential pressure transducer
- Motorized analog valve
- On/Off solenoid back-up valve
- Mechanical safety valve
- Optional pressure switch
- Complete set of drawings
- Assembled, prewired & tested

### PASSIVE OPTION

- Differential pressure transducer
- Mechanical pressure regulating valve
- Optional pressure switch
- Complete set of drawings

## OTHER CONTROL SOLUTIONS



USA  
+1 414 462 8200  
sales.na@group-upc.com

CANADA  
+1 514 335 7191  
sales.na@group-upc.com

CHINA  
+86 21 3463 0376  
sales@mmichina.cn

FRANCE  
+33 3 81 48 37 37  
sales.fr@group-upc.com

GERMANY  
+49 7161 94888 0  
sales.de@group-upc.com

POLAND  
+48 32 296 66 00  
sales.pl@group-upc.com