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™ 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: pH2, pNH3, pO2, pCO, pCO2, Kα, Kβ, Kγ, and dissociation (additional hardware or computer interface is required).

FNC OPTION

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

FEATURES

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

www.group-upc.com
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

**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

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

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).

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.

**AMMONIA DISSOCIATOR**

Cost-Effective Process Dissociator

**EFFLUENT GAS NEUTRALIZER**

Pollution-Free Environment

**BENEFITS**

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

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

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

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**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, pre-wired & tested

**PASSIVE OPTION**

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

**OTHER CONTROL SOLUTIONS**

- **Annealing**
- **Carburizing**
- **Induction**
- **Vacuum**

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