CHP Control for Gas Engines

XIOS*CHP*

SYSTEM INFORMATION
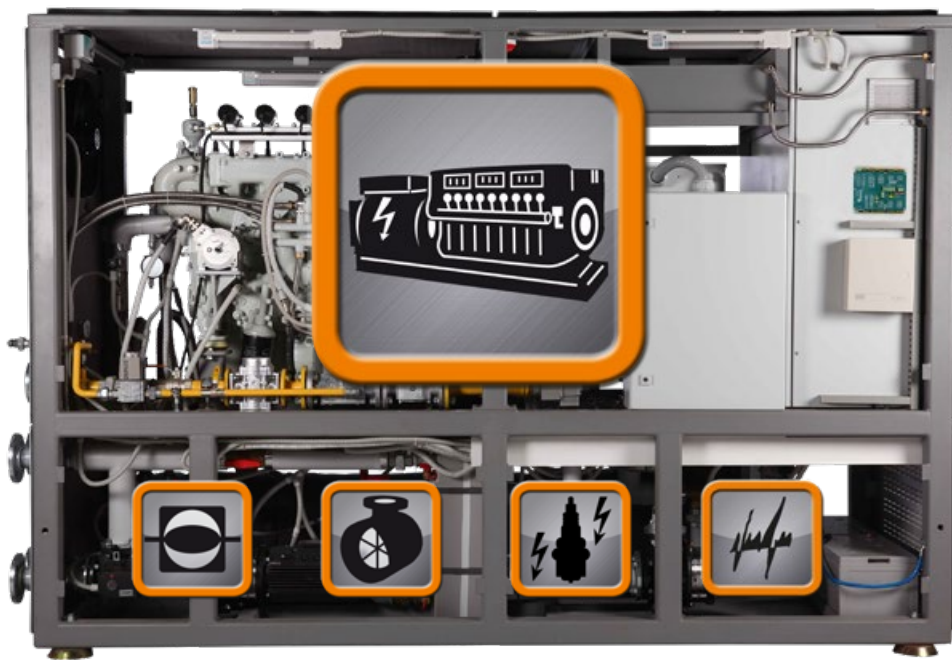
Benefits

Proven and reliable control system from the engine management experts

Complete engine, generator and CHP control solution from one source

Service access via touch-screen or dongle-free service tool "HEINZMANN Configuration Suite"

System Overview

	BASIC	MEDIUM	EXTENDED
Heat Management	●	●	●
Generator Control	●	●	●
Speed Control	●	●	●
AFR Control	○	●	●
Ignition Control	○	●	●
Knock Control	○	○	●

XIOS^{CHP} BASIC

1x XIOS^{CHP} Controller
7"-15" Touch-screen

Including

✔ CHP Control
✔ Generator Control
✔ Speed Control

Optional

✔ AFR Control
✔ Ignition Control
✔ Knock Control

Fulfils essential demands on CHP controls

XIOS^{CHP} MEDIUM

1x XIOS^{CHP} Controller
1x XIOS^{I/O} Unit
7"-15" Touch-screen

Including

✔ CHP Control
✔ Generator Control
✔ Speed Control
✔ AFR Control
✔ Ignition control
✔ 1 additional XIOS^{I/O} unit

Optional

✔ Knock Control
✔ SCR Control

Meets all conceivable requirements on a modern CHP plant

CHP System Control

- Gas train control
- Engine start/stop sequence control
- Oil level control
- Remote access via VPN

Speed Control

- Integrated speed control
- Fast reaction on speed and load changes
- Combination with all HEINZMANN actuators possible

Generator Management

- Applications: Island/grid/peak shaving/base load
- Automatic synchronisation and load control
- Voltage/cosPhi control via bias signal to AVR
- Dynamic load adjustment at frequency fluctuations
- Power management

CHP Monitoring

- Engine & CHP temperatures & pressures
- Battery voltage monitoring
- Event data logger with real time clock
- Various sample rates possible;
  high-resolution data logging for pre and post event monitoring;
  low-resolution data logging for general overview

Heat Management

- 2x cooling and circuit control with independent configurable PID control circuits
- CHP selectively heat or load driven

Touch-Screen Control Panel

- Easy handling
- Icon based intuitive interface
- 7" to 15" display, either capacitive or resistive
- Permanent navigation bar including date, time and major icons
- Password protected access levels
- Customised system overview/main screen possible
- Industrial and robust design

CHP System Control

- Gas train control
- Engine start/stop sequence control
- Oil level control
- Pre-heat function
  (Control of heating rod, pumps and mixer valve)
- Remote access via VPN

Engine Control

XIOS^{CHP} combines all control strategies of the different control solutions in one device. This allows an optimal engine reaction on changes in current operating conditions.

Speed control

- Fast reaction on speed and load changes
- Combination with all HEINZMANN actuators possible

AFR control

- Power, lambda or NO_x feedback
- Specific control solutions for different gas qualities

Ignition control

- Speed and load dependent ignition timing
- Autospark function to reduce spark plug wear

Generator Management

- Applications: Island/grid/peak shaving/base load
- Automatic synchronisation and load control
- Voltage/cosPhi control via bias signal to AVR
- Dynamic load adjustment at frequency fluctuations
- Power management

CHP Monitoring

- Engine & CHP temperatures & pressures
- Battery voltage monitoring
- Event data logger with real time clock
- Various sample rates possible;
  high-resolution data logging for pre and post event monitoring;
  low-resolution data logging for general overview
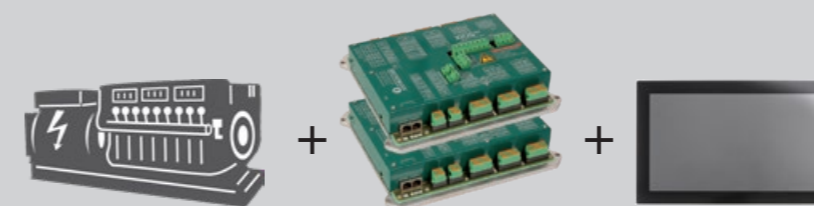
Heat Management

- 4x cooling and circuit control with independent configurable PID control circuits
- CHP selectively heat or load driven

Touch-Screen Control Panel

- Easy handling
- Icon based intuitive interface
- 7" to 15" display, either capacitive or resistive
- Permanent navigation bar including date, time and major icons
- Password protected access levels
- Customised system overview/main screen possible
- Industrial and robust design

XIOS^{CHP} EXTENDED

1x **XIOS**^{CHP} Controller
2x **XIOS**^{I/O} Units
7"-15" Touch-screen
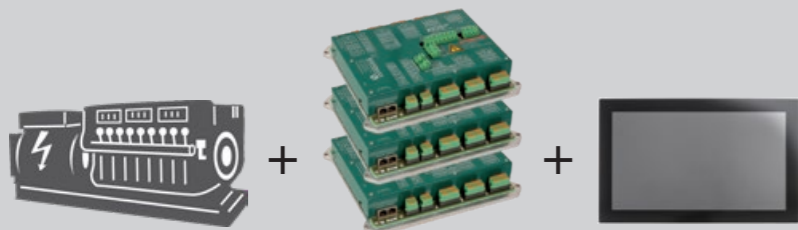
XIOS^{CHP}
I/O Range

Additional discount with the use of Gas2Power system components

Including

✔ CHP Control
✔ Generator Control
✔ Speed Control
✔ AFR Control
✔ Ignition Control
✔ Knock Control
✔ 2 additional XIOS^{I/O} units

Optional

✔ SCR Control

Provides extensive functionalities and numerous I/Os for complex systems

CHP System Control

- Gas train control
- Engine start/stop sequence control
- Oil level control
- Pre-heat function (Control of heating rod, pumps and mixer valve)
- Remote access via VPN

Engine Control

XIOS^{CHP} combines all control strategies of the different control solutions in one device. This allows an optimal engine reaction on changes in current operating conditions.

Speed Control

- Fast reaction on speed and load changes
- Combination with all HEINZMANN actuators possible

AFR Control

- Power, lambda or NO_x feedback
- Specific control solutions for different gas qualities

Ignition Control

- Speed and load dependent ignition timing
- Autospark function to reduce spark plug wear

Knock Control

- Monitoring of knocking combustion
- Ignition angle correction and load reduction

Generator Management

- Applications: Island/grid/peak shaving/base load
- Automatic synchronisation and load control
- Voltage/cosPhi control via bias signal to AVR
- Dynamic load adjustment at frequency fluctuations
- Power management

CHP Monitoring

- Engine & CHP temperatures & pressures
- Battery voltage monitoring
- Event data logger with real time clock
- Various sample rates possible;
  high-resolution data logging for pre and post event monitoring;
  low-resolution data logging for general overview

Heat Management

- 4x cooling and circuit control with independent configurable PID control circuits
- CHP selectively heat or load driven

Touch-Screen Control Panel

- Easy handling
- Icon based intuitive interface
- 7" to 15" display, either capacitive or resistive
- Icon based intuitive usability
- Permanent navigation bar including date, time and major icons
- Password protected access levels
- Customised system overview/main screen possible
- Industrial and robust design

XIOS^{CHP} BASIC
Exemplary I/O range

General	4x DI & 2x DO
	for CHP release/stop, warnings and shutdown
Generator Control	Measurement inputs for voltage & current L1, L2, L3, N
	2x AO/DO
	for AVR & breaker control
Gas Train	3x DI & 2x DO
	for pressure switches, double-solenoid valve, valve proving system
Speed Control	1x 4Q actuator drive, 2x inductive pickup
Engine Monitoring & CHP Control	6x DI & 6x DO, 3x AI, 7x Temp. in
	for control of two cooling/heating circuits pressure and temperature monitoring of air, manifold, oil, coolant, control of electric starter, ventilation, ...

XIOS^{CHP} MEDIUM & EXTENDED

For advanced control requirements, the XIOS^{CHP} BASIC version is expanded to the system options MEDIUM and EXTENDED with one or two additional XIOS^{I/O} units for further control functionalities and numerous I/Os.

The scope of additional inputs and outputs is widely user-definable, as the main module of XIOS^{I/O} can be enhanced with various I/O boards.

	XIOS^{CHP} MEDIUM expanded by 1x **XIOS**^{I/O} unit	XIOS^{CHP} EXTENDED expanded by 2x **XIOS**^{I/O} units

I/O Range

XIOS^{I/O} main module	up to 19x DI/AI (discrete/0 ... 5 V / 0 ... 10 V)
	6x DI
	4x DO (max. 4 A)
	4x sensor supply (5 VDC & 12 VDC)

Including Extension Boards

Up to 11 extension boards of the types:

Extension board MA1	2x thermocouple (Type J/K/E/R/S/B/N/T/L)
Extension board MA2	4x DO/AO (discrete / 0 ... 5 V / 0 ... 20 mA / PWM)
Extension board MA3	4x DI/AI (DI discrete or frequency / 0 ... 5 V / 0 ... 36 V / 0 ... 20 mA / Pt100 / Pt200 / Pt1000)
Extension board MA7	6x DI (discrete, up to 32 V)
Extension board MA8	2x DO half-bridge current read-back (PWM freq. up to 1.5 kHz)

XIOS^{CHP}

Touch-Screen Control Panel

7" Resistive Display	
Resolution	800 x 480
Aspect ratio	5:3
Contrast ratio	250:1
Operating temperature	0 … +65 °C
10,4" Capacitive Display	
Resolution	1024 x 768
Aspect ratio	4:3
Contrast ratio	1200:1
Operating temperature	0 … +50 °C
15" Capacitive Display	
Resolution	1024 x 768
Aspect ratio	4:3
Contrast ratio	1500:1
Operating temperature	0 … +50 °C

Coming soon

- User defined PLC functions
- Cloud based data access
- VDE-AR-N 4110 certification

HEINZMANN®

www.heinzmann-chp.com