

The SIEMENS logo is displayed in a bold, teal, sans-serif font. The background of the entire advertisement is a high-tech industrial setting with a ceiling of yellow acoustic panels, a floor with glowing orange grid lines and heat patterns, and a central server rack. Digital data and network diagrams are overlaid on the scene.

SIEMENS

Ingenuity for life

Engineered with TIA Portal

Heat under control

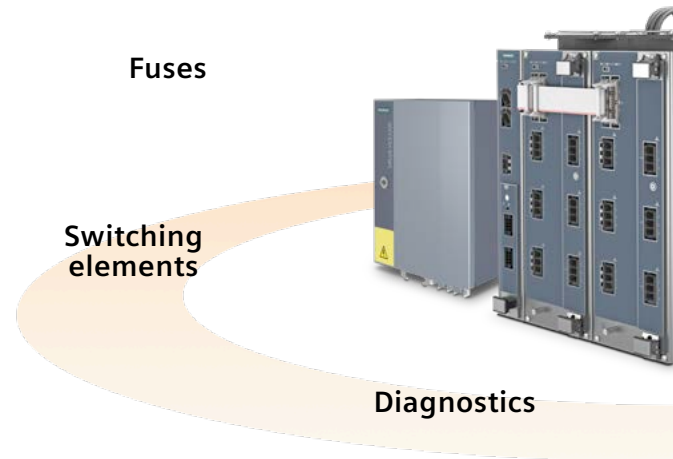
SIPLUS HCS – I/O systems for
industrial heating applications

[siemens.com/hcs](https://www.siemens.com/hcs)

SIPLUS HCS – pinpointed heating

For precise temperature control

From automobile painting and plastics molding to manufacturing PET bottles: reliable, pinpoint control and precise maintenance of temperatures are absolutely crucial to quality in many manufacturing processes and must be ensured at all times. SIPLUS HCS, the industrial heating control systems from Siemens for electrical heating elements, have been reliably providing this service for more than 25 years. And they're getting smarter all the time.



Pinpointed heat

Almost all products require exact temperatures during the manufacturing process, precisely focused in terms of time and space. The SIPLUS HCS I/O system controls electrical heating elements, such as infrared, quartz, and flash heaters, exactly to suit individual requirements.



Intelligent efficiency

Heat needs power – and the less, the better, because energy is expensive, and both national and international standards are becoming increasingly stringent. This is where SIPLUS HCS helps with smart savings – through programmable heating programs, proportioning of the output power ratings, and optimization of production times.

Modular and compact

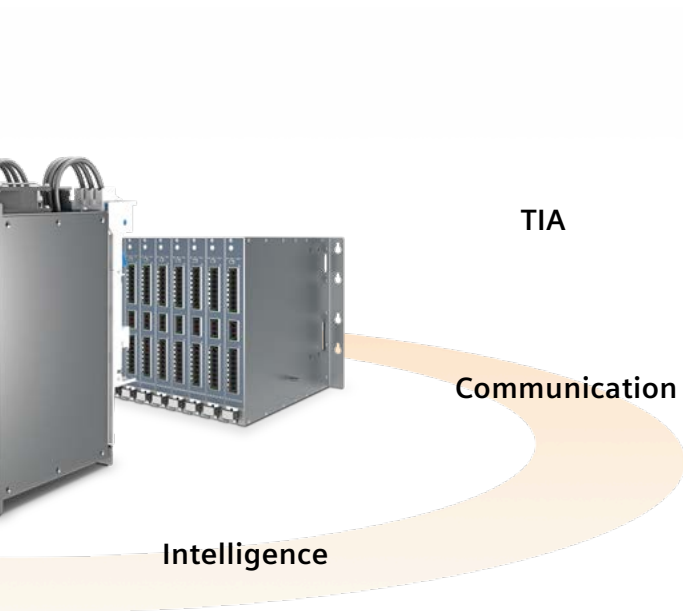
No matter how many heating elements are to be controlled, and how high the required output power rating: SIPLUS HCS is open to modular expansion, and is so versatile it can be adapted to suit specific requirements.

Simple integration

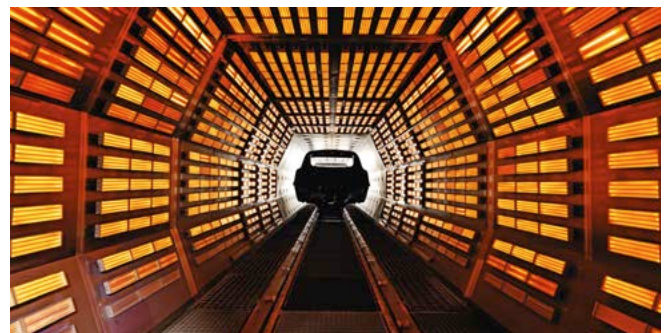
With SIPLUS HCS, heating processes are easy to integrate into Siemens' industrial automation. Thanks to Totally Integrated Automation, all automation components work together perfectly. This means consistent data management, global standards, and standardized interfaces for hardware and software.

SIPLUS HCS – all integrated

All-in-one



SIPLUS HCS heating control systems already contain all the components needed to control heating elements: switching elements, fuses, communication system, intelligent power controlling, Totally Integrated Automation, and detailed diagnostics.



Less overhead

Since all the most important components are integrated, cabling work is reduced by up to 70% in the control cabinet, and there are time savings of up to 20% with on-site commissioning compared to conventional solutions with individual components.

Reduced footprint

All-in-one also reduces the space requirements in the control cabinet by up to 80%, enabling much more compact machines.

Intelligent diagnostics

Pending faults are detected, localized, and reported within a single process cycle. This minimizes downtimes and optimizes plant productivity.

Efficient engineering

A key benefit is the incorporation of SIPLUS HCS heating controllers into the Totally Integrated Automation Portal (TIA Portal): this means that all automation components fall back on a shared database, a standardized operating concept and centralized services. You benefit from reduced engineering overhead and faster commissioning.

Intelligent routine

Integrated control routines reduce current peaks in the network supply because the heating elements are switched on with a time delay. Network voltage compensation enables variations in the input voltage to be equalized, thus ensuring the required output power.

Heating element cables individually fused

The cables of every single heating element are fuse-protected with SIPLUS HCS. This makes it easy to replace fuses by simply removing the relevant plug-in fuse module.








Highly versatile

You can tailor the system's capacity to your requirement. You can also combine different systems. As far as the control mode is concerned, you have a choice between half-wave, soft starting and phase angle control.

SIPLUS HCS

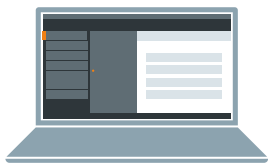
The “hotspots” of the family

From designing, commissioning, operation and maintenance, SIPLUS HCS not only saves time, costs, and resources by up to 70 percent compared with a heating solution comprising individual components. SIPLUS HCS also improves the heating process itself – for less downtimes and better product quality.

-  **All in one**
Integration of all components and functions for controlling electrical heating elements in a modular system.
-  **Less overhead**
Up to 70% less wiring in the control cabinet. Up to 20% shorter commissioning on site
-  **Reduced footprint**
Up to 80 percent space savings in the control cabinet.
-  **Intelligent diagnostics**
Intelligent diagnostic functions detect and localize errors in the load circuit immediately with the support of the extensive TIA system diagnostics.
-  **Easy integration of the heating process**
Comprehensive block library and project example for simple integration of the heating process into the automation system.
-  **Efficient engineering**
Engineering with TIA Portal ensures maximum integration of all components with a shared database
-  **Integrated load management**
Load is distributed evenly across the network as far as specified setpoint values allow.



Space savings of up to **80 percent** in the control cabinet, as well as the reduction in cabling work ...



... together with
"Totally Integrated Automation" ...

...minimize total costs
by up to 70 percent.

The perfect solution for any application

There is a choice of three different heating control systems depending on the requirements of the heating process such as the output power of the heating elements, diagnostic depth and the degree of protection.

SIPLUS HCS3200 – the compact solution

- For controlling 400 V heating elements
- Can be used as a distributed solution with IP65 protection near the heating elements
- Ideal for the linear configuration of heater fields in the manufacture of PET bottles

SIPLUS HCS4200 – the flexible solution

- For controlling 45 V, 70 V, 110 V, 230 / 277 V, 400 / 480 V heating elements
- Exceptionally space-saving and cost-optimized heating solution with different output modules, I/O modules and racks

SIPLUS HCS4300 – the powerful solution

- For controlling 230/277 V, 400/480 V heating elements up to 60 A
- Up to 92 kW per power output module
- Highest level of production reliability thanks to detailed, intelligent diagnostics

SIPLUS HCS3200

Super-compact

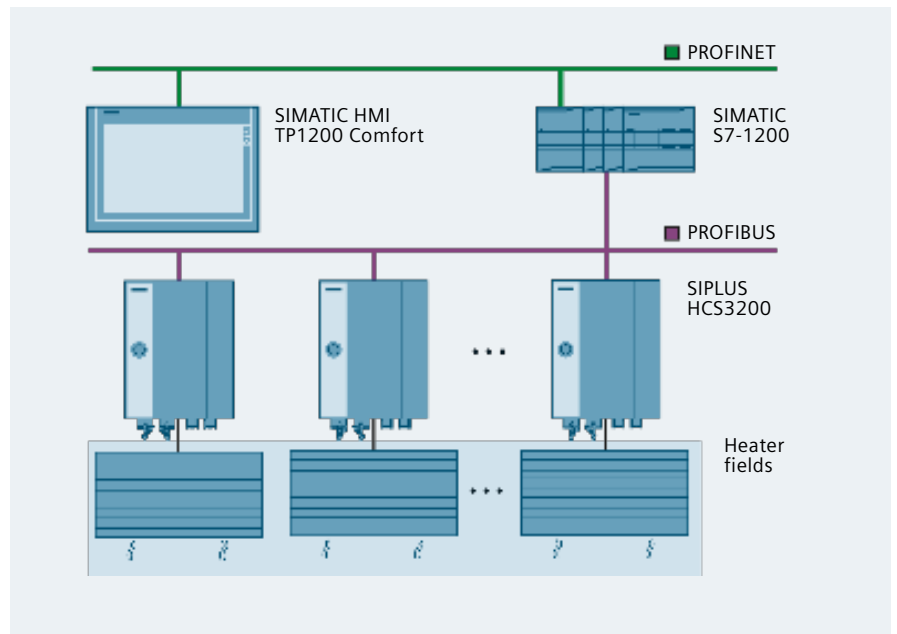
IP65 type of protection enables use near the heating elements, significantly reducing the time and effort required for cabling.

Special application

PET blow molding

Functionality

- For controlling 400 V heating elements
- Compact design with IP65 type of protection
- 9 power outputs up to a maximum of 4 kW per output
- Up to 25 kW output power per device
- External fan up to 500 W can be connected
- Can be used in ambient temperatures up to 50 °C
- Two integrated and automatically monitored fuses per power output, for user-friendly fault diagnostics and increased process reliability
- Diagnostics via PROFIBUS DP without affecting the heating process



SIPLUS HCS4200

Extremely flexible



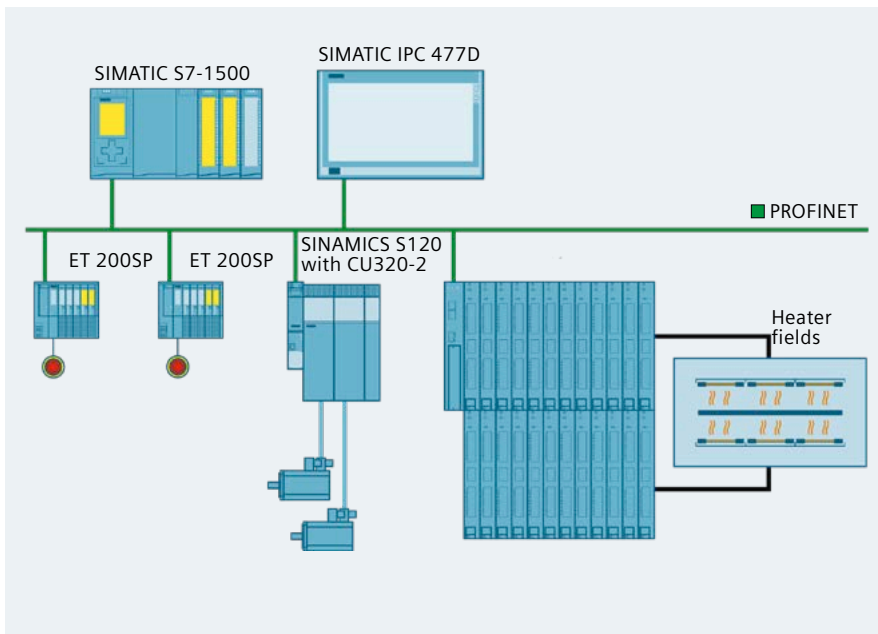
Ideal for space-saving installation in the control cabinet – with up to 384 power outputs per PROFINET node and up to 20 A per output.

Special applications

Drying paints and coatings, thermoforming – for example, car door interiors, refrigerator door interiors and suitcases, welding plastics and baking of food.

Functionality

- For energy-efficient control of heating elements with various voltages: 45 V, 70 V, 110 V, 230/277 V, 400/480 V
- Up to 48 kW output power per power output module (POM)
- Max. 16 power outputs per POM
- Max. 24 POMs per PROFINET node
- Quick installation and flexible expansion thanks to variety of POMs and rack sizes
- Installation of racks directly on rear panel of control cabinet
- Intelligent and detailed diagnosis of heating elements even connected in parallel
- Convenient commissioning with the PRONETA diagnostics tool
- PROFINET/PROFIBUS communication
- I/O modules for additional functions



SIPLUS HCS4300

High performance up to 60 A

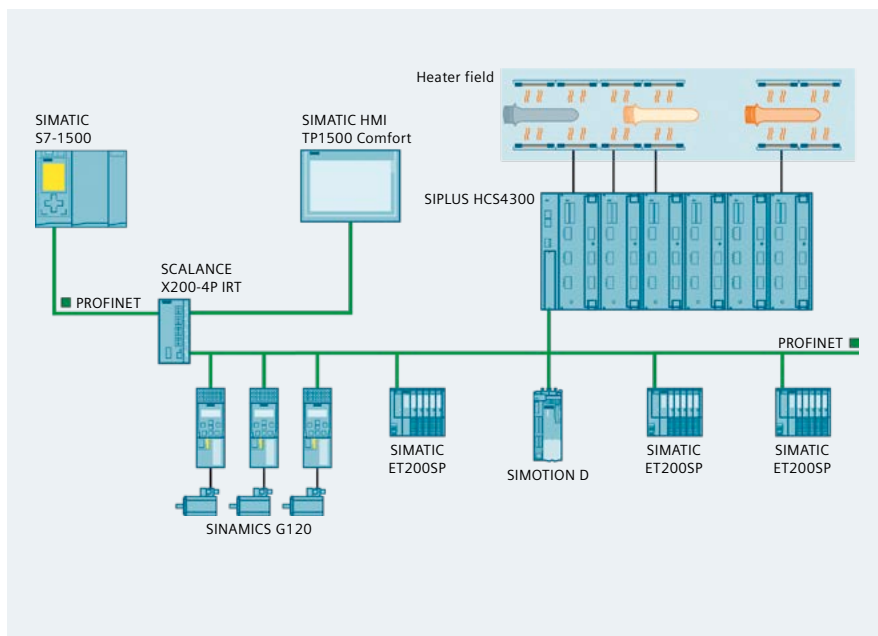
Offers maximum output power and production reliability thanks to its detailed diagnostics. Enables detection of internal faults in the load circuit, tripped fuses and defective heating element cables. Monitoring includes parameters such as network voltage and internal temperature.

Special applications

Manufacturing PET bottles, treating carbon materials and thermoforming of plastics

Functionality

- For controlling 230/277 V, 400/480V heating elements
- Up to 92 kW output power per power output module (POM) at 480 V
- Max. 60 A per output
- Max. 9 power outputs per POM
- Max. 24 POMs per PROFINET / PROFIBUS node
- Quick mounting on busbar or onto rear control cabinet panel
- Integrated network voltage compensation
- Supply and return circuit of every heating element protected by individual fuses
- Convenient commissioning with the PRONETA diagnostics tool
- I/O modules for additional functions



Totally Integrated Automation

Efficient starting. Enhanced productivity.

The I/O systems are an integral part of Totally Integrated Automation (TIA), Siemens' industrial automation. The open system architecture stands for the efficient interaction of all automation components.

Engineered with TIA Portal

A decisive benefit is the incorporation of the SIPLUS HCS heating control system into the TIA Portal: this means that all automation components thus fall back on a shared database, a standardized operating concept and centralized services. You benefit from reduced engineering overhead and faster commissioning.

Configuration control

With the configuration control, stations can be easily modified or extended without engineering effort.

PRONETA

The PRONETA configuration and diagnostics tool simplifies commissioning and configuration in PROFINET networks. The topology of a network is read automatically. SIPLUS HCS can be parameterized, controlled and tested easily with the aid of PRONETA. It enables a wiring test during installation – with clearly arranged documentation of test results.

SIPLUS HCS program library: Easy integration of heating processes

Using the SIPLUS HCS program library and a detailed project example, heating processes can be easily integrated into the automation system. Individual program blocks only need to be adapted to the respective application.



Technical specifications at a glance



	HCS3200 – The compact solution	HCS4200 – The flexible solution
Article No.	6BK1932¹⁾	6BK1942¹⁾
Max. output power per output	10 A	20 A
Load voltage	400 V	45 V, 70 V, 110 V, 230/277 V, 400/480 V
Number of outputs per POM	9	max. 16
Max. output power per device/POM	25,2 kW	27,7 kW at 277 V, 48 kW at 480 V
No. of max. possible power outputs	9	384
Bus topology	PROFIBUS DP	PROFINET, PROFIBUS DP
Diagnostics	Implicit voltage diagnostics for detecting internal and external faults, e.g. wire break, tripped fuse, defective heating elements	Implicit voltage diagnostics for detecting internal and external faults, e.g. wire break, tripped fuse, defective heating elements, current diagnosis
I/O modules (PM) optional	–	PM for temperature measurement, DI/DO, current and voltage measurement
Electrical data		
Line supply	4-pin connector at the bottom	3-pin connector on the front
Power supply	400 V AC Line frequency: 47 to 63 Hz Integrated line voltage compensation	45 / 70 / 110 / 230 / 277 / 400 / 480 V AC Line frequency: 47 to 63 Hz Optional line voltage compensation with PM U/I
Load types	Ohmic loads	Ohmic loads
Wiring of the heaters	Phase-Phase	Phase-Phase, Phase-Neutral, Economy Circuit (wye connection)
Control mode	Half-wave control with solid-state relay that switches at zero crossing	Half-wave control, soft start or phase angle control
Mechanical design		
Dimensions (W x H x D)	300 x 430 x 200 mm	<ul style="list-style-type: none"> • CIM: 43 x 285 x 136 mm, POM: 36 x 285 x 281 mm • CIM Compact incl. Rack + Fan for 2 POM: 104 x 339 x 296 mm • Rack for 12 POM: 488 x 285 x 293 mm • Rack for 4 POM: 204 x 285 x 293 mm • Fan module for 4 POM: 142 x 94 x 274 mm
Fans	1 output for external 230 V AC fan	Fan module for 4 POMs each (optional)
Environmental conditions/standards		
Ambient temperature (operation)	0 to +50 °C	0 to +55 °C
Type of protection	IP65	IP20
Certifications	CE, cULus, KC, EAC, C-Tick, PROFIBUS	CE, cULus, KC, EAC, RCM, PROFINET, PROFIBUS

1) You can find up-to-date ordering data as well as our terms of sale and delivery on the Internet at siemens.com/industrymall

References



HCS4300 – The powerful solution

6BK1943 ¹⁾

60 A

230/277V, 400/480 V

max. 9

53 kW at 277 V, 92 kW at 480 V

216

PROFINET, PROFIBUS DP

Implicit voltage diagnostics for detecting internal and external faults, e.g. wire break, tripped fuse, defective heating elements, current diagnosis

PM for temperature measurement, DI/DO, current and voltage measurement

Rear busbar or 3-pin terminal

230 / 277 / 400 / 480 V AC
Line frequency: 47 to 63 Hz
Integrated line voltage compensation

Ohmic loads

Phase-to-phase, phase/neutral, closed delta

Half-wave control, soft start or phase angle control

- CIM: 56 x 285 x 136 mm
- POM busbar mounting: 104 x 340 x 250 mm
- POM rear-panel mounting: 104 x 344 x 217 mm

Fan integrated

0 to +55 °C

IP20

CE, cULus, KC, EAC, RCM, PROFINET, PROFIBUS



Geiss AG – more precise thermoforming machines thanks to an industrial solution from Siemens



Dieffenbacher GmbH - fastest tape laying system in the world achieves high product quality through consolidation



Metrik Sondermaschinenbau e. K. – efficient use of space and maximum precision in plastics welding



Vesper GmbH & Co. KG - hot solution for cool automotive interiors: laminating-edge-folding system without sliders

Turn up the heat: SIPLUS HCS

- All in one
- Less overhead
- Reduced footprint
- Intelligent diagnostics
- Easy integration of the heating process
- Efficient engineering
- Integrated load management

Find out more:
[siemens.com/hcs](https://www.siemens.com/hcs)

Published by
Siemens AG 2020

Digital Factory
P.O. Box 48 48
90026 Nuremberg, Germany

For the U.S. published by
Siemens Industry Inc.

100 Technology Drive
Alpharetta, GA 30005
United States

Article No.: DFFA-B10103-03-7600
Printed in Germany
Dispo 46371
75624 WS 03200.2

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

Siemens provides automation and drive products with industrial security functions that support the secure operation of plants or machines. They are an important component in a holistic industrial security concept. With this in mind, our products undergo continuous development. We therefore recommend that you keep yourself informed with respect to our product updates. You can find more information at: <http://support.automation.siemens.com> where you can also register for a product-specific newsletter.

For the secure operation of a plant/machine, it is also necessary to take suitable protective measures (e.g. cell protection concept), and to integrate the automation and drives components into a holistic, state-of-the-art industrial security concept for the entire plant/machine. Products used from other manufacturers should also be taken into account here.

For more information, go to:
www.siemens.com/industrialsecurity

Follow us on:
twitter.com/siemensindustry
youtube.com/siemens

