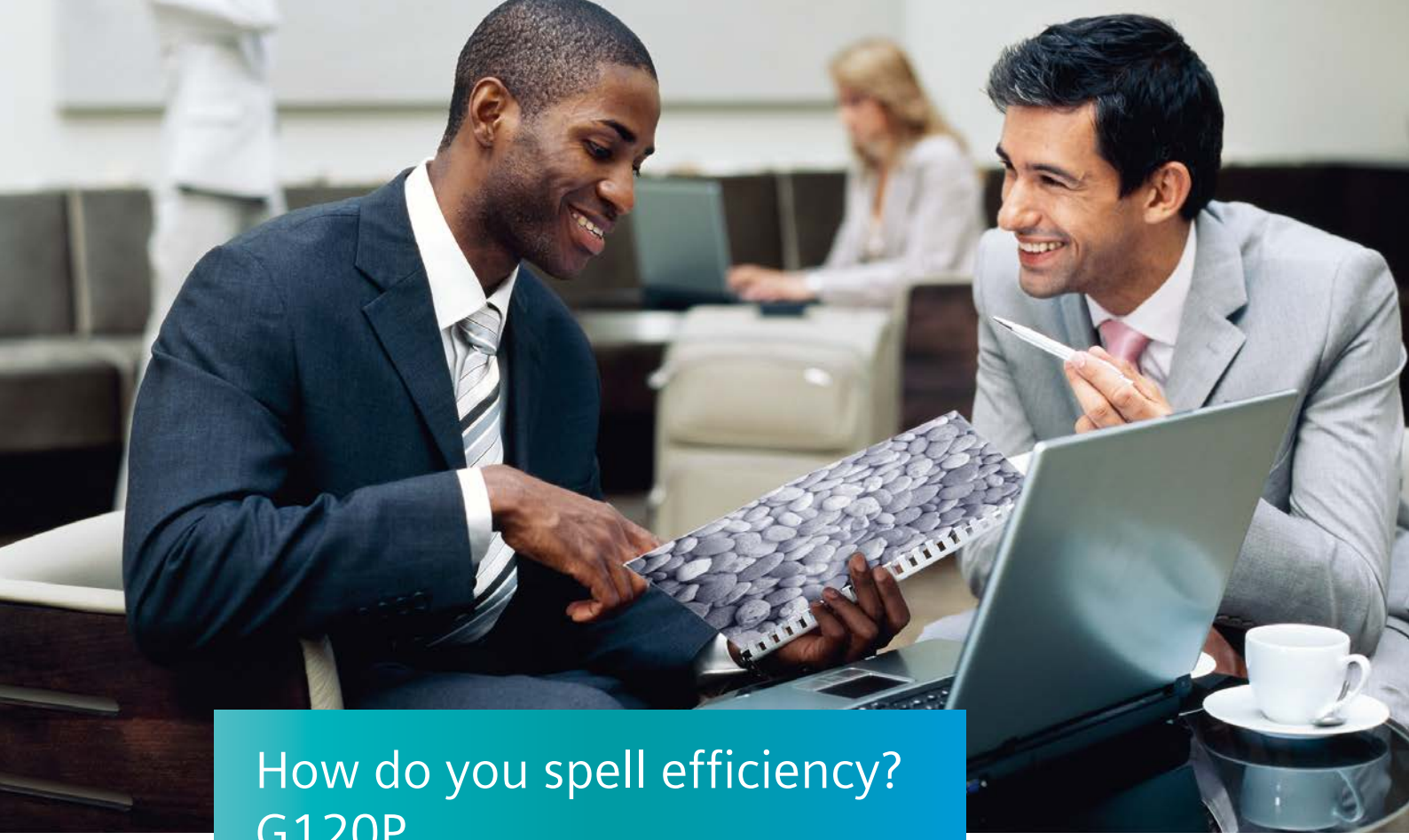
SIEMENS

Ingenuity for life

G120P variable speed drive – boost efficiency, cut costs

Intelligent, versatile controlling for fans and pumps in HVAC plants.
Easy to use – and easy on the environment.

siemens.com/G120P



How do you spell efficiency? G120P.

The new G120P variable speed drive from Siemens is ideal for efficiently controlling air and liquid media in typical commercial and residential HVAC systems. In fact, the G120P provides a number of strategies for controlling fans and pumps that can achieve up to 60% energy savings compared to conventional control methods.

Drawing on decades of Siemens drive expertise and in-depth HVAC field experience, the G120P is highly reliable and offers many intelligent features and functions tailored to suit HVAC applications. The drive's modular concept makes it exceptionally flexible and service-friendly. And you benefit from easy use, durability and efficiency over the entire life cycle – from installation and commissioning to operation and maintenance.

Who thought cutting costs could be this easy?

One portfolio for all requirements – from industrial to residential

The G120P family includes variable speed drives for all your installation needs – for panel mounting with IP20 protection or for wall mounting with IP54 or IP55 protection, each with filter A or B. Variable speed drives for wall mounting are ideal for the use in harsh environments of up to 60 °C and don't require any additional measures. All variants are supplied with a varnished printed circuit board, making them even more resistant to environmental influences. All this saves you time and costs.

Easy installation and commissioning – even in existing plants

A broad range of intelligent features makes installation particularly flexible and straightforward. The control cable bonding and fixing plate, included as standard, ensures optimum bus communication and signals cabling. Because it has no internal choke, the G120P weighs less than other drives and can be easily mounted. Commissioning is child's play thanks to integrated, application-specific wizards and macros, the comprehensive STARTER software, Micro Memory Card, USB interface and the Intelligent Operator Panel (IOP) with its easy-to-read graphical display.

Versatile functions to increase energy efficiency

The G120P helps you significantly improve energy efficiency throughout the entire process chain. ECO mode, for example, automatically optimizes the power usage of the motor to suit the load. If the motor runs at mains frequency for a preselected period of time, the G120P changes to bypass mode and switches off. When the motor needs to run below the mains frequency, the drive automatically switches on again. These intelligent controls help you save even more energy and extend your devices' service life. What's more, the Low Harmonic Technology used has a real power factor of close to 1, so you experience minimal apparent power. Again, this helps reduce your electricity bills, year after year.

Make a sound investment decision

What makes the new G120P a good investment choice? For one thing, its modular concept reduces costs for logistics and storage – if a component is worn or defective, you can easily replace it and need not exchange the entire variable speed drive. The soft starts and stops, as well as the minimized mains harmonics, reduce motor wear, extending the service life of pumps and fans. And because the G120P prevents torque and load surges, it helps protect the entire system and limits repair and maintenance costs. Last but not least, the achieved efficiency of 98% and the energy savings mean that the G120P amortizes in just a couple of months.

»Installation and commissioning was incredibly easy. Now, our clients' systems use a lot less energy. And Siemens is always on call if we need support. What more could we ask for?«

Lucas Stadelmann
Head of Procurement and Quality Management
Maréchaux Elektro AG
Lucerne, Switzerland

Choose a partner you can count on

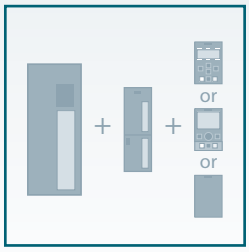
Siemens is a byword for innovation, technology leadership and top quality. Benefit from our decades of HVAC application expertise. Put us to the test: Before you get started, we'll provide you with comprehensive software and documentation to help you plan and commission your plant and calculate the harmonics. And after everything is up and running, you can continue to count on Siemens to provide rapid, knowledgeable support – in many countries even 24 hours a day, 7 days a week!

Highlights

- Broad portfolio with state-of-the-art technology
- Energy savings of up to 60% when operating fans and pumps
- Cost savings thanks to easy installation and commissioning
- Flexible and service-friendly with modular design
- Investment protection due to high reliability and long service life
- Comprehensive software and support from Siemens

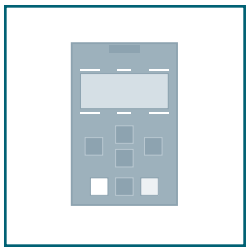
Want more details?

Intelligent features at a glance



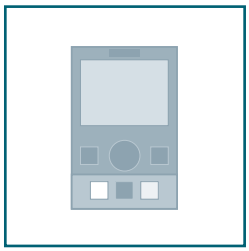
Designed to keep you flexible – with modular components

Consisting of a control unit, a power module and an operator panel or blanking cover, the G120P offers several advantages. First of all, you only buy what you really need – an intelligent operator panel, the basic version or simply a blanking cover. You need only one operator panel to parameterize several variable speed drives. If one component needs replacement, you don't have to purchase a whole new device. And if you exchange the power module, you don't need to reparameterize. In short, modular design means increased service flexibility, reduced costs and environmental friendliness.



Cost-effective basic commissioning – the Basic Operator Panel (BOP-2)

The BOP-2 is a basic operator panel that allows the G120P to realize its maximum IP55 environmental rating. This attractivelypriced panel is designed for experienced installers who can program the drive without needing the intuitive features of the IOP, or for installers using the STARTER software. The simple menu layout is easy to grasp, and information referred to most frequently can be accessed quickly.



Intuitive graphics and wizards – the Intelligent Operator Panel (IOP)

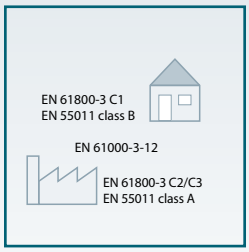
The IOP is an intelligent operator panel with IP54 protection.
It is designed for beginners and experts alike. In addition to the functionalities of BOP-2, IOP features a display with clear text and graphics, different language settings and extensive context-sensitive help options. What's more, the integrated application wizards and the graphic trending function make it especially easy to commission, diagnose and operate the G120P on site.

Convenience from the very start – STARTER and Micro Memory Cards (MMC)

The user-friendly STARTER software allows you to commission the G120P on your laptop. STARTER provides intuitive, menuguided options for commissioning, optimization and diagnosis. The optional MMC is very handy for cloning configurations and can also be used to store backup data, for example when exchanging a drive.

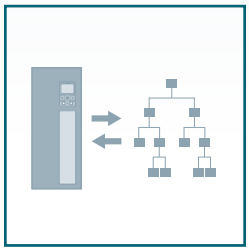
No add-ons required – meets all relevant standards

The G120P is available with integrated EMC filters of class A or B and is designed to comply with CE and c-tick, as well as all applicable EN standards. This makes the drive suitable for use in residential, business and commercial areas as well as industrial environments. And with the Low Harmonic Technology, harmonic currents can be reduced directly on the AC line, without any internal or external chokes.



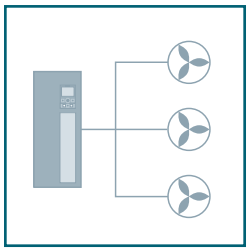
Integrates anywhere – multiple communication options

The G120P variable speed drive offers the communication standards USS, Modbus RTU, BACnet MS/TP and P1. CANopen and PROFIBUS are optional. This selection enables integration in most of the major building automation and control systems worldwide, such as Desigo™ from Siemens. And because bus protocols can read the inputs, the G120P can act as an I/O module, thus reducing costs.



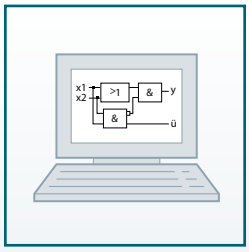
Something for everyone – versatile I/Os for any application

Truly resourceful, the G120P is equipped with a large number of I/Os (6x DI, 3x DO, 4x AI, 2x AO), including two temperature sensor inputs, or up to one passive and three active inputs that can feed their own dedicated PID controllers – including independent setpoints – before being processed for Max/Avg/Min signal selection. There is provision for day/night setpoints and many other features relevant to HVAC. For instance, the G120P could, as a stand-alone system, service a simple dual zone ventilation system, or a three zone stairwell pressurization system for safe building evacuation.



Streamlined and flexible – PLC with programmable function blocks

Complex local control tasks can be easily realized using programmable logic control (PLC) functions. The integrated, freely programmable logical function blocks reduce the need for additional external controls. No other investments are required – even for challenging applications.



Managing the flow

Highlights

- Smart features tailored to pump installations
- Increased plant safety with a variety of intelligent functions
- Reduced harmonics and wear, protecting your investment
- Application expertise and support from Siemens

Demand-controlled pumps

Tailored to the needs of pump installations, the new G120P variable speed drive supports optimum operation with an active and intelligent control – keeping you on the safe side and reducing operating costs.

Intelligent functions for enhanced safety

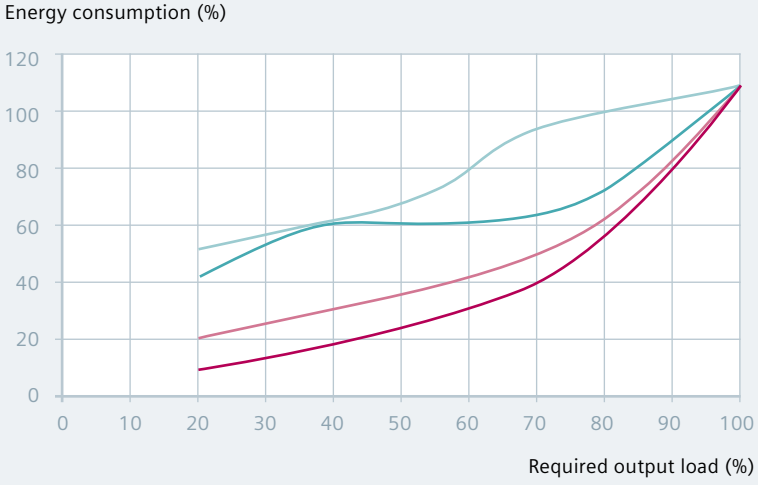
As standard, the G120P can detect a variety of events, such as when:

- Pump is blocked or running dry
- Motor is overloaded
- Pipes have burst or are leaking
- Pump is running outside the characteristic curve

In each of these potentially dangerous scenarios, the G120P protects your plant – either by triggering an alarm, decreasing the motor's speed, switching the pump off, or performing a programmed action. And when the pump is not needed, the smart hibernation mode can prevent unnecessary wear and tear – and save you even more energy. The integrated real-time clock with three programmable timers allows you to set the running times of the G120P individually.

Your partner for planning

To achieve this level of intelligence, careful planning is necessary. The pump must be appropriately sized and the pressure sensors correctly placed. Of all the variable speed drive manufacturers worldwide, Siemens is the only one offering in-depth HVAC expertise together with a comprehensive portfolio of perfectly matched components. As your partner, Siemens helps you maximize safety and convenience, limit energy consumption and reduce operating expenses.



Electric drives market in HVAC industry:
Energy consumption versus required output load (Europe), 2010

Source:
„Electric Drives Market in European HVAC Industry", p. 19, 2011

Efficiency pays off
HVAC plants are sized to handle a wide range of loads, but often – 85% of the time, on average – the actual demand is lower than the maximum rating. This is where variable speed drives can provide a valuable service. By allowing the various pumps and fans within the system to wind back to match the actual demand, energy consumption can be reduced by up to 60%. This translates into a significant reduction in running costs.

Bringing in fresh air

Demand-controlled fans

In ventilation plants, G120P variable speed drives help you cut costs and optimize safety. The drives ensure that supply and exhaust fans are operating according to actual demand.

More safety and efficiency

As standard, the G120P can detect a variety of events, such as when:

- Belt has failed
- Fan is blocked
- Motor is overloaded
- Bearing is worn down

The G120P continuously monitors key parameters such as power consumption and speed, and alerts the user if the airflow is interrupted. An external belt monitor is not required.

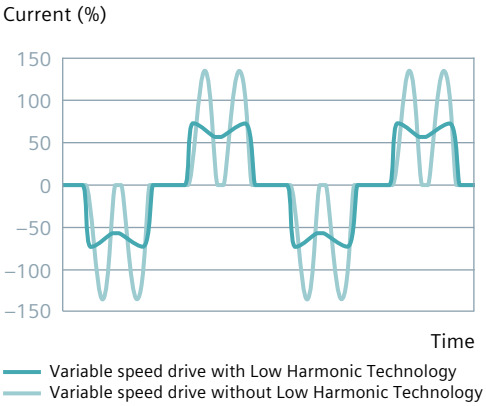
Whenever demand is low, the intelligent hibernation mode kicks in, reducing energy consumption and wear. Last but not least, the G120P also has an automatic restart function in case a short disturbance or power outage should occur.

Saving lives with essential service mode (ESM)

In the event of a fire, the G120P automatically changes over to ESM, ensuring that the system ignores all external faults and warnings. The goal is to maintain an overpressure through ventilation as long as possible, so that escape routes are kept free of smoke and doors can continue to be opened easily.

Highlights

- Smart ventilation-specific functions for all types of events
- Increased safety thanks to essential service mode (ESM)
- Investment security through intelligent monitoring
- Up to 60% energy savings, cutting operation costs



Low Harmonic Technology

Low Harmonic Technology, developed by Siemens, reduces harmonic currents directly on the AC line. Extra components such as external chokes or filters are a thing of the past. Benefits of Low Harmonic Technology include:

– Direct cost savings – additional components are unnecessary
– Lower maintenance costs and longer service life
– Additional protection for sensitive equipment
– Less blind current – possible compensation costs are cut

Our world is undergoing changes that force us to think in new ways: demographic change, urbanization, global warming and resource shortages. Maximum efficiency has top priority – and not only where energy is concerned. In addition, we need to increase comfort for the well-being of users. Also, our need for safety and security is constantly growing. For our customers, success is defined by how well they manage these challenges. Siemens has the answers.

"We are the trusted technology partner for energy-efficient, safe and secure buildings and infrastructure."

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