Proportional Pressure Regulation

Lucifer® Programmable EPP4 regulators

High Pressure, 1" and 2" Comfort range
Market and/or Sub Market Description

Robotics
Paper industry
Machine tools
Mobile
Buildings
Textile
Instrumentation
Semi conductor

Description of Applications

Welding
Speed and brake control
Sanding
Cutting
Humidification
Tension regulation
Painting
Presses
Polishing
Adaptative suspension control
Value Propositions for Lucifer® EPP4 Comfort Proportional Pressure Regulators

- All parameters fully adjustable through the PC software Calys
- Easy to use software
- Long life expectancy
- Compact and light
- Limited inventory for distributors
- Low power
- Flexible remote display positioning
- Proven expertise of Parker, a pioneer in pressure regulation technology

Calys Software

Calys is a unique software in-house developed to configure all the parameters of the EPP4 Comfort range. Calys is an option of the EPP4. It will be sent via email if you order cable reference 496449 which permits the communication between the EPP4 and a PC.

Calys offers many capabilities:

- It enables the distributors to keep a main generic EPP4 reference in stock, and adjust it to the needs of each customer application. They can switch for example from 0-10 V to 4-20 mA, or from 0-7 bar pressure range to 0-5 bar.
- Engineers designing a pneumatic system are able to monitor precisely all the important values (electrical or pneumatic) directly on their laptop.
- After sales technicians are able to receive via email all the parameters measured by the EPP4 installed on a machine wherever its location.
  This way maintenance operations can be done remotely at distance.

See more detailed technical description of Calys in the "Options" part on page 8.
# Lucifer® EPP4 Comfort Technical Data

## Fluids:
- Lubricated or non lubricated air and neutral gases
- Recommended filtration: 50 μm

## Temperature range:
- Ambient: 0 to +50 °C
- Fluid: 0 to +50 °C

## Inlet pressure range:
- 1 to 12 bar - 1 to 14 bar - 1 to 21 bar
  (the inlet pressure must always be at least 1 bar above the regulated pressure)

## Outlet pressure range:
- 0.05 to 10 bar, 0.1 to 1 bar, 0.1 to 20 bar

## Hysteresis:
- ≤ 100 mbar if P inlet ≤ 10 bar
- ≤ 200 mbar if P inlet > 10 bar

## Air consumption at constant control signal:
None

## Supply voltage:
- 24 V DC ± 15 % (Max. ripple 1 V)

## Power consumption:
- Max. 6 W with 24 V DC and constant changes of the control signal
- < 2 W without change of control signal

## Control signal:
- Analog 0 - 10 V; standard for 0 - 10 bar; adjustable
- Analog 4 - 20 mA; standard for 0 - 10 bar; adjustable

## Outlet sensor signal:
- Analog 0 - 10 V; standard for 0 - 10 bar; adjustable
- Analog 4 - 20 mA; standard for 0 - 10 bar; adjustable
- Digital 0/24 V for alarm features:
  - Adjustable pressure error (+/-)
  - Adjustable delay ON
  - Adjustable delay OFF
  - Adjustable logic (+/-)

## Max. flow:
- G1/2": 150 m³/h - G1": 1 000 m³/h - G2": >2 700 m³/h

## Indicative response time:
- With a volume of 330 cm³ at the outlet of the regulator
  - G1/2": 120 msec
  - G1": 250 msec
  - G2": 250 msec

## Outlet sensor signal:
- With a volume of 330 cm³ at the outlet of the regulator
  - G1/2": 190 msec
  - G1": 400 msec
  - G2": 400 msec

## Safety position:
- In case of control signal failure or if it is less than 50mV, the regulated pressure drops automatically to 0 bar atmospheric pressure (for pressure ranges from 0-10bar, 100mV for pressure range over 10 bar).
- In case of voltage supply failure, the regulated pressure will be kept constant.

## Electrical connection:
- M12 - 8 pin; male connector power supply/control signal
- M12 - 5 pin; male connector communication

## Life expectancy:
- > 20 Mio changes of control signal steps

## Mounting position:
- Indifferent (recommended position: upright; electronic part on top)

## Resistance to vibrations:
- 30 g in all directions

## Protection index:
- IP 65

## Assembly:
- Silicone free

## Electromagnetic compatibility:
- In accordance with
  - EN 61000-6-1: 2001
  - EN 61000-6-2: 2001
  - EN 61000-6-3: 2001
  + A11 2004 edition (01/07/07)
  - EN 61000-6-4: 2001

## Installation and setting instructions:
- See our "Notice 408193" and appendix supplied with the product.

**Note:** Parker reserves the right to change specifications without notification.
Description of Operation

Pneumatic Technology

Construction is made with a full aluminium body.

The piston is fabricated in a special polyacetal and is equipped with high performance dynamic seals, specially developed by Parker Lucifer for this application.

Electronic Technology

The Comfort version uses the board of the EPP4 Basic range for the regulation functions and a second board for specified options.

Technology used is fully digital. The cancellation of potentiometers allows customers to realise an easy, safe and precise set-up in their production.

Block Diagram

The controller receives both the control signal (set pressure) and the feedback signal from the sensor (outlet pressure).

Any difference between the two amplifier inputs results in a corresponding output (PID regulation) which drives the appropriate 2-way pulse which modulated solenoid valve so that the piston moves to correct the pressure.

The same feedback signal from the sensor is used for the output feedback in voltage and current.

The digital signal (alarm) is activated when the conditions (out of pressure or time tolerance) are met.
## Lucifer® EPP4 Comfort References

<table>
<thead>
<tr>
<th>Codes</th>
<th>Pipe</th>
<th>Max inlet pressure (bar)</th>
<th>Pressure range (bar)</th>
<th>Control signal (see options)</th>
<th>Dimensional Drawing</th>
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</table>

Other specific settings or specialties are available, please contact us.

If you need more informations on the rest of the Lucifer® EPP4 range, please consult:
- 8683UK -> EPP4 Basic 1/4”
- 8684UK -> EPP4 Basic 1/2”
- 2201UK -> EPP4 Comfort 1/4” & 1/2”
Lucifer® EPP4 Comfort
Technical Characteristics

Flow Curve 1/2"

Flow Curve 1"

Flow Curve 2"
Lucifer® EPP4 Comfort Options

Additional Features

The EPP4 Comfort offers two main options - a remote display and a software to easily set the regulator’s parameters.

These are the key feature options for a comfortable use.

- A remote display connected to the pressure regulator offers flexible monitoring.
- A panel mounting kit is available to install the remote display.
- Calys is an easy-to-use software package designed to allow the user to match his regulators performance directly to his specific application.
- A power supply and control signal cable.

The B connector offers connection to the remote display or the PC.
Lucifer® EPP4 Comfort Options

Remote Display

This option includes the Remote Display and 1.5 meter connecting cable.

Compact and highly readable remote LED display:
- Bar and PSI scales
- Security lock
- 1.5 m cable
- Mounting brackets

Order the Remote Display under reference 496490

Panel Mounting Kit

Order the Panel Mounting Kit under reference 496610
Calys is a software to set all relevant parameters of the Lucifer® EPP4 Comfort. The cable 496449 (option) is needed to let the EPP4 communicate with any configured PC, this software is supplied free of charge with each cable unit.

Calys offers the following features:

- Live monitoring (control signal, regulated pressure, supply voltage,...)
- Recording of the main parameters (control signal, regulated pressure, supply voltage,...) in an Excel file
- Free calibration for the inputs and outputs
- Adjustable alarm (positive-negative, pressure limits, delays)
- Configuration files easy to duplicate
- Complete and interactive help file

- Data in 4 different pressure units
- Menus in 4 languages (English, German, French and Italian)
- Cable 496449 with RS-232 and USB connection

Order the PC software (including cable) under reference 496449

Order the power supply / control signal cable under reference 496796
Lucifer® EPP4 Comfort Range 1/2"

Dimensions

Accessories

Mounting brackets to be ordered separately

Order reference 491366

Order reference 491367
Lucifer® EPP4 Comfort Range 1/2"

Dimensions

Accessories

Mounting brackets to be ordered separately

Order reference 491366

Order reference 491367
Lucifer® EPP4 Comfort Range 1"

Dimensions
Lucifer® EPP4 Comfort Range 2"

Dimensions

WARNING - USER RESPONSIBILITY
FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

• This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

• The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

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AEROSPACE
Key Markets
- Aircraft engines
- Aerospace
- Aerospace & defense
- Military
- Military aircraft
- Motor vehicles
- Unmanned aerial vehicles

Key Products
- Flight control systems & components
- Fluid systems & components
- Inert nitrogen generation systems
- Pneumatic systems & components
- Wheels & brakes

CLIMATE CONTROL
Key Markets
- Air conditioning
- Food & beverage
- Life sciences & medical
- Precision cooling
- Refrigeration
- Transportation

Key Products
- CO2 controls
- Electronic controllers
- Filter driers
- Pressure regulating valves
- Solenoid valves
- Thermostatic expansion valves

ELECTROMECHANICAL
Key Markets
- Aerospace
- Factory automation
- Food & beverage
- Life sciences & medical
- Marine
- Marine equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products
- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearboxes
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides & stages
- Precision stages
- Screw motors, drives & controls
- Structural extrusions

FLUID & GAS HANDLING
Key Markets
- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products
- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

HYDRAULICS
Key Markets
- Aerospace
- Agriculture
- Construction machinery
- Food & beverage
- Industrial machinery
- Mine
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products
- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

PNEUMATICS
Key Markets
- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life sciences & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products
- Air preparation
- Compact cylinders
- Fieldbus valve systems
- Gripers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & gripers
- Pneumatic valves and controls
- Robotic cylinders
- Rotary actuators
- Telescopic cylinders
- Vacuum generators, caps & sensors

PROCESS CONTROL
Key Markets
- Chemical & refining
- Food, beverage & dairy
- General industrial
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation
- Process

Key Products
- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fitting, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds

SEALING & SHIELDING
Key Markets
- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products
- Dynamic seals
- Electrostatic rings
- EM shielding
- Enclosed & precision-cut, fabricated elastomeric seals
- Homogeneous & insert elastomeric shapes
- High temperature metal seals
- Metal & plastic Elasticsearch composite seals
- Thermal management
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