

# IPC-201

## Test control system for common-rail components

### OVERVIEW OF INJECTOR PUMP CONTROL (IPC)

The operation of common-rail systems under test conditions takes high demands to measuring and testing technology regarding the reproducibility and reliability. The IPC product family from Bosch Engineering GmbH was specially designed for development, endurance testing and quality assurance.

Due to different fields of applications it is possible that the IPC runs with single components of common-rail systems, such as high-pressure pumps, as well as entire common-rail systems including injectors and actuators of the high-pressure control circuit. IPC test control units are modular build of a control unit and power stage unit, and therefore enable adaption to the respective test requirements. The wiring harness included in the scope of delivery connects the sensors and actuators of the common-rail system with the test control unit. The scope of delivery also includes PC software that serves as a graphic configuration and operation interface. Communication with the test control unit takes place via a USB connection or CAN interface.



IPC-201

### Functions

- ▶ Parallel operation of two solenoid powerstages; freely configurable; up to 16 energizing events per 720° CrS or 360° pump angle
- ▶ Drive and control of common-rail high-pressure pumps with electric control valve, including rail pressure control (PCV, MeUn) and load spectrum
- ▶ Freely parameterizable, clocked control; variable boost- and clearing function
- ▶ Analysis of switching time by BIP/EIP and TDC character recognition (by use of electric control valve)
- ▶ Integrated diagnostic functionality
- ▶ Overvoltage protection
- ▶ 8 - 28 V operation
- ▶ Monitor outputs (U, I, N)
- ▶ User-friendly calibration software
- ▶ Integrated measurement data acquisition
- ▶ CAN interface for remote operation
- ▶ CE compliant

### IPC-201 TEST CONTROL UNIT (USE OF ELECTRIC CONTROL VALVE)

The IPC-201 test control unit is designed for testing of common-rail high-pressure pumps with an electric control valve. The equipment is designed for the angular synchronous control of the control valve.

The IPC-201 consists of a plug-in module with common-rail high-pressure system control, closed-loop control functionality (1 and 2 actuators) and communication interfaces (USB and CAN). One power stage module with solenoid power stages for control valve ensure angle-synchronous actuation up to two solenoid injectors. Up to 4 partial injections per 360° pump angle are possible on each power-stage, a simultaneous and parallel operation of the power stage is possible. The control of the solenoid valve can be parameterized flexible and boost phase can be activated as required. Boost-voltage is application-specific adjustable.

## TECHNICAL FEATURES

IPC-201	
Dimensions (H x W x D)	320 x 265 x 435 mm 19", 7 RU, 48 HP
Supply voltage	8 – 28 V DC
Revolution speed	60 – 6,000 rpm
Number of CR actuators	max. 2
Number of energizing events	max. 16 per 720° CrS or 360° pump angle
Minimum time between energizing events	20 µs
Actuation angle	0 – 720° CrS or 0 – 360° pump angle
Positioning accuracy of angle	up to +/- 0.1°
Pick-up current	1.5 – 30 A *
Holding current	1.5 – 30 A *
Boost current	1.5 – 30 A *
Current resolution	0.01 A
Hysteresis	0.5 – 15 A
Booster voltage	max. 75 V
Voltage resolution	0.1 V
Perm. ambient temperature	5 °C – 40 °C
PWM frequency	100 Hz – 1 kHz
Control interface	USB, CAN
Complies with provisions of EU directives	2014/30/EU (EMC) 2011/65/EU (RoHS) 2014/35/EU (Low Voltage)

The IPC-201 features a CrS/CaS input (60-2 pattern) or a rotary encoder interface for incremental encoder (3,600 boost per rotation) to ensure angle-synchronous actuation.

## SCOPE OF DELIVERY

### IPC-201 test control unit

Common-rail test control unit for high-pressure pumps with electric control unit; max. 2 valves; up to 16 energizing events per 720° CrS or 360° pump angle; simultaneous and parallel power stage actuation; 8 - 28 V voltage supply; high-pressure control 1- and 2-actuator; also suitable to drive conventional high-pressure pumps; e.g. for CP1, CP3, CP4 and CPN

Design: 19", 7 RU, 48 HP

### IPC-CT201 control software

IPC-201 control software; setup file for parameters, measurement and service software for Windows operating system; measurement data acquisition and onboard data storage

### KBPB-IPC201-SET wiring harness set

Wiring harness set (CON1/4, CON2, CON3) for CR test benches for operating an IPC-201 test control unit on a component test bench; actuation of 2 CR actuators; incl. adapter

### Documentation and installation file

Device-, GUI- and function-documentation and installation files for IPC-CT control software

\* Value of 1.5 A only valid for slow current rise, depending on the inductance of the component

## Ordering information

### Article description

IPC201 CR test control unit

### Item numbers

F037.B00.209-02 | IPC201-STD

CR test control unit with inductive transmitter-interface (60-2)

F037.B00.256-02 | IPC201-ROD

CR test control unit with rotary encoder interface  
(incremental encoder with 3,600 boosts per rotation)

### Price and delivery time / individual solutions

upon request

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