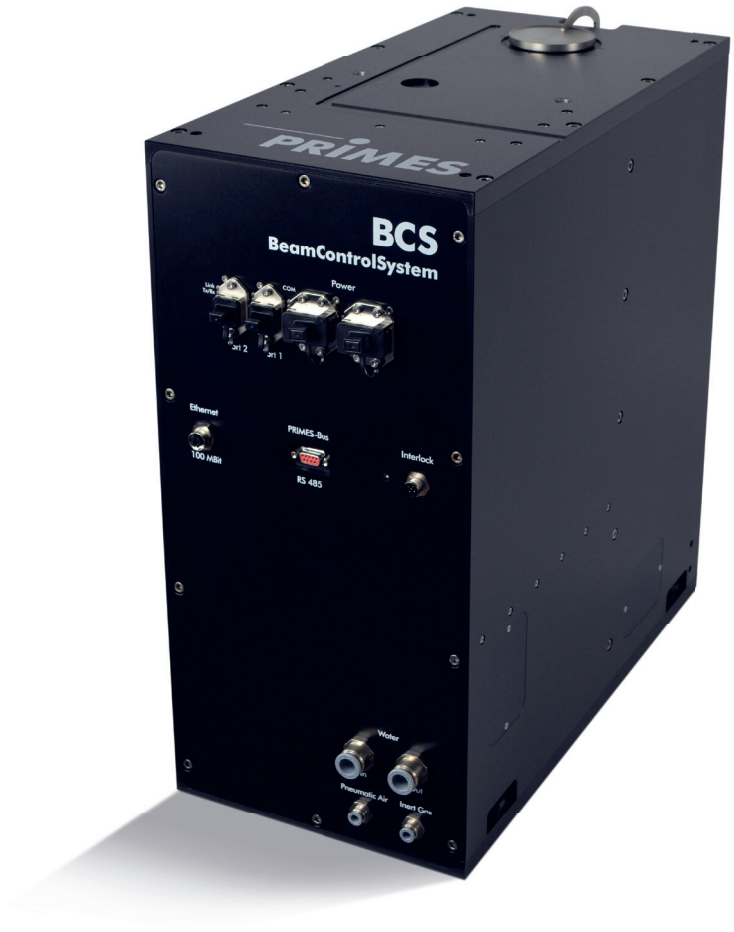
BeamControlSystem



More options with 2-in-1: The BeamControlSystem combo device is designed to automatically measure the most important laser beam parameters on industrial laser production lines. This robust system reliably measures beam power, caustic, and power density distribution. Discover the many different functions it has to offer!

With our proven FocusMonitor and powerful CompactPower-Monitor all packed into one, the BeamControlSystem (BCS) offers focus analysis and power metering and is perfectly suited for permanent integration into a laser material processing system. The beam entrance is protected in standby mode by a pneumatic shutter. This allows the BeamControlSystem to be operated reliably in rough, industrial environments. A laser beam welding robot cell is a typical area of application for the BeamControlSystem, where it might be mounted at a reference point for example. Every time the robot and/or Cartesian axes are referenced, a laser beam analysis can be performed. The robot or master controller open the entrance shutter and a measuring cycle starts.

The Principle

Both systems communicate via a superordinate controller, preferably using script control from the PRIMES LaserDiagnosticsSoftware. This enables fully automatic measurement of laser power and focus geometry using the laser or system controllers. In order to determine the quality, measurement data can be compared with specified limit values using the EVALUATION feature.

The Key Benefits

1. Full control: When min./max values are set for the focus dimensions, laser beam power, etc., a warning is issued with the EVALUATION FEATURE as soon as these threshold values are exceeded.

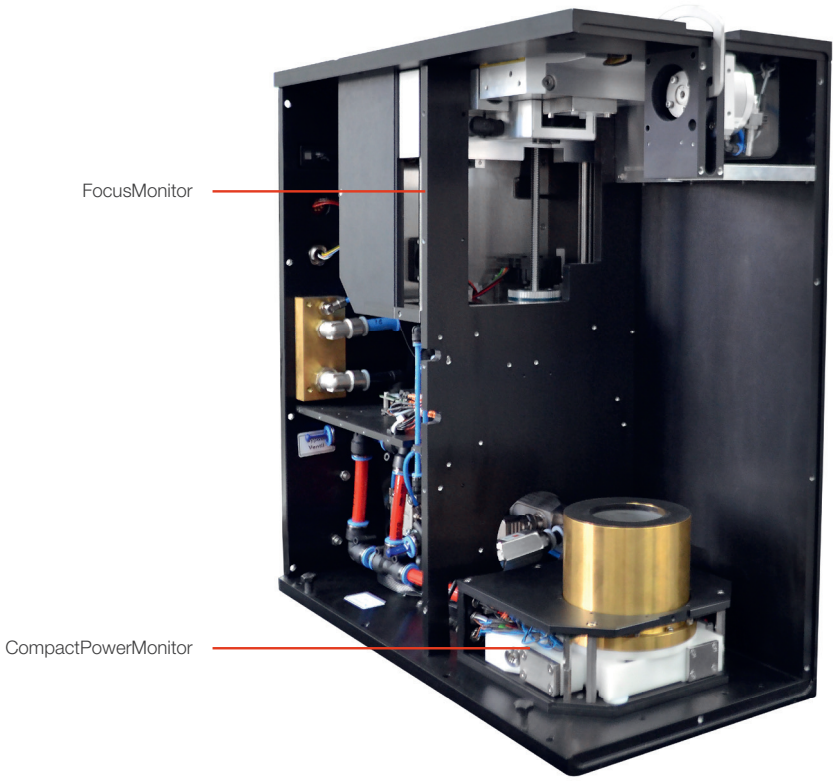
2. Predictive quality assurance: Manual evaluations allow for the recording of measurement data and the identification of trends. This is helpful, since changes in the focus location, focus dimensions, beam quality factor M^2, or beam parameter product can often creep up on you, changing subtly over time.
   As a result, the heat-affected zone of a laser beam welding process may grow slowly and steadily. Accordingly, heat-related warping of the finished components would then gradually increase constantly over time and perhaps even go unnoticed.

Measured Beam Parameters

- Beam power
- Focus position
- Focus diameter
- Rayleigh length
- Beam parameter product
- M^2
- Ellipticity
- Beam direction

Properties of the BeamControlSystem

- Focus measurement from 0.2 mm to 3 mm radius
- Script-controlled automatic measurement processes
- Monitoring limit values for beam parameters
- Electro-pneumatic shutter
- PLC interface for communicating with laser and system controllers
- Control and measurement data management via PC
- Fieldbus interface for system integration



Technical Data

MEASUREMENT PARAMETERS	
Power range, typ.	1 – 10 kW
Wavelength range, typ.	NIR, 10.6 µm
Beam dimensions, typ.	200 – 1 000 µm
SUPPLY DATA	
Cooling water flow rate, typ.	5 – 12 l/min
Cooling water pressure	6 bar
COMMUNICATION	
Interfaces (alternatively)	PROFIBUS®, PROFINET®, RS485, Ethernet
DIMENSIONS AND WEIGHT	
Dimensions (L × W × H)	400 × 245 × 355 mm
Weight (approx.)	30 kg depending on configuration

Please see technical data for FocusMonitor and CompactPowerMonitor.

More info on the BeamControlSystem

Speak with our sales team to figure out the perfect BSC configuration to meet your needs: Sales@primes.de or by phone at +49 6157 9878-0.