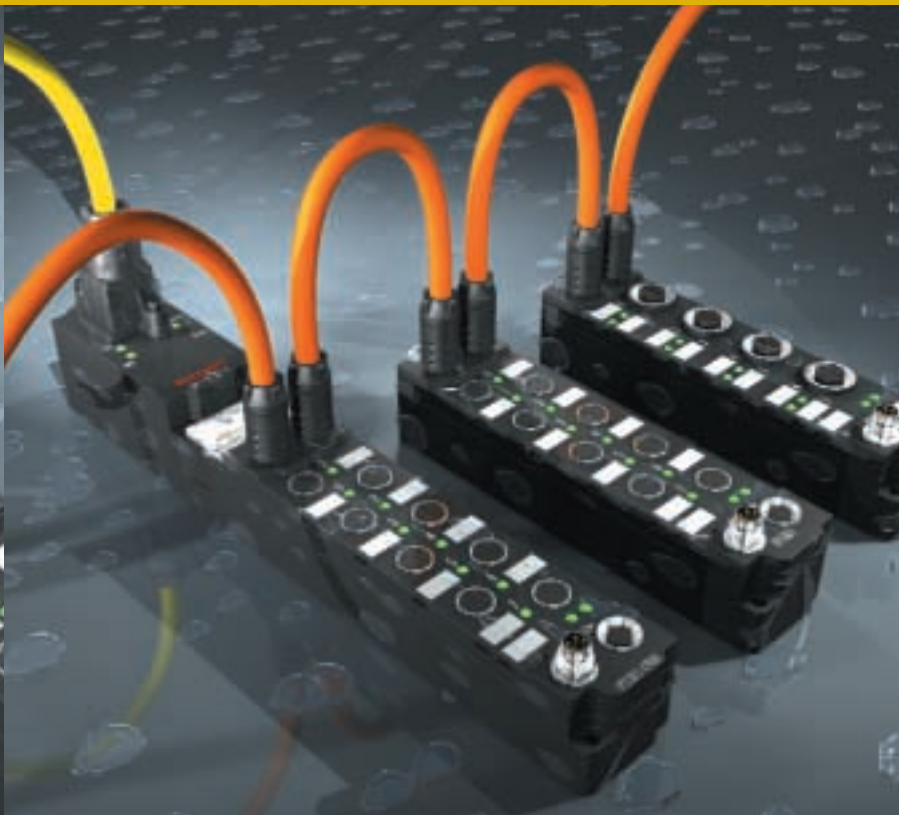
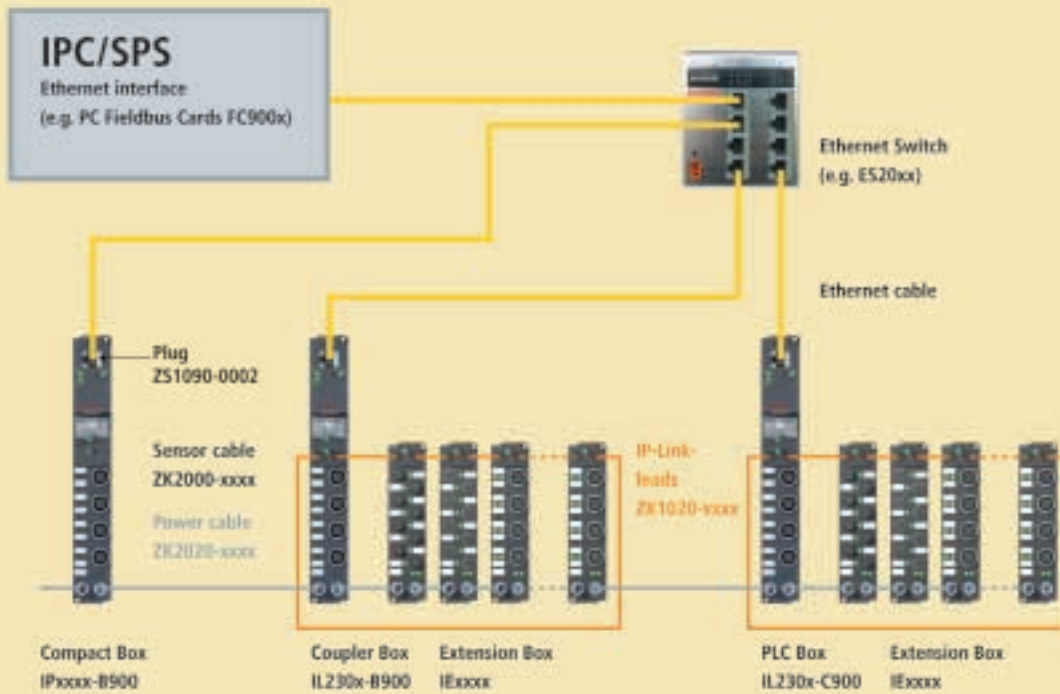


Ethernet for harsh environments

→ For many years, Ethernet products from Beckhoff have been used in many areas of automation technology. Products range from the Industrial PC to the I/O level. The fieldbus components with Ethernet connection are now also available as IP 67 Fieldbus Box versions. In addition to many tasks that do not require real-time responses and for which ADS and Modbus TCP/IP are used, Beckhoff real-time Ethernet can also be used in time-critical applications.





IP-Link with increased distance

The IP 67 Extension Box modules are coupled via the fast fiber optic bus IP-Link. Up to now, the distance between two modules within this ring was limited to 5 m. Beckhoff has now approved a distance of 15 meters for the IP-Link connection between the modules. This tremendously expands the potential area of application. Many applications that could up to now not be realized due to the 5 m restriction can now utilize the benefits of the compact, cost-effective Fieldbus Box modules.



For Ethernet applications, the Compact Box, Coupler Box and the PLC Box extend the waterproof Fieldbus Box modules. The functionality of the new Ethernet Box corresponds to the IP 20 implementation in the BK9000 Bus Coupler or in the programmable BC9000 Bus Terminal Controller. Users can now combine the benefits of the direct application (without control cabinet) of fieldbus components with continuously developing Ethernet networking. Existing programs can be ported without problem.

Ethernet protocols

In addition to the very widespread Modbus TCP protocol, the Ethernet Box also communicates via the ADS (Automation Device Specification) developed by Beckhoff. The ADS routing functionality enables communication via any route – between tasks and software modules within a TwinCAT control, between PCs via Ethernet, and via the main fieldbusses directly to the decentralized automation devices. Fieldbus modules connected to the fieldbus/Ethernet, e.g. the IL2301-

C900 Controller Box, can thus be programmed and debugged online via the bus and an Ethernet network, for example.

The Ethernet Box modules also support the variant with the real-time capability from Beckhoff. All these protocols are automatically detected, i.e. no adjustment at the module is therefore required. All protocols require the assignment of an IP address, which can be achieved in various ways:

- | Address assignment via the KS2000 configuration software
- | Address assignment via DHCP server
- | Address assignment via BOOTP server or
- | Address assignment by ARP message

Due to its design, the Fieldbus Box provides a hexadecimal rotary selection switch for address selection, instead of the DIP switch provided by the BK9000 Ethernet Bus Coupler.

Beckhoff decided to use an RJ45 type connector plug. In IP 67 mode with an encapsulated version, water-

tightness is thus ensured. For lower protection class requirements, a standard RJ45 patch cable can be used, for example.

The Ethernet Coupler Box itself already has 4 digital inputs and 4 digital outputs. The remaining machine signals are "collected" via the Extension Box modules, up to 120 of which can be connected to a Coupler Box. In addition to the digital standard input and output variants, modules for incremental encoders, SSI interfaces or serial communication interfaces and other devices are available.

Through this integration of the box via the Ethernet, the application options of the Ethernet box in protection class IP 67 are almost unlimited, ranging from production data acquisition (PDA) to machine control.