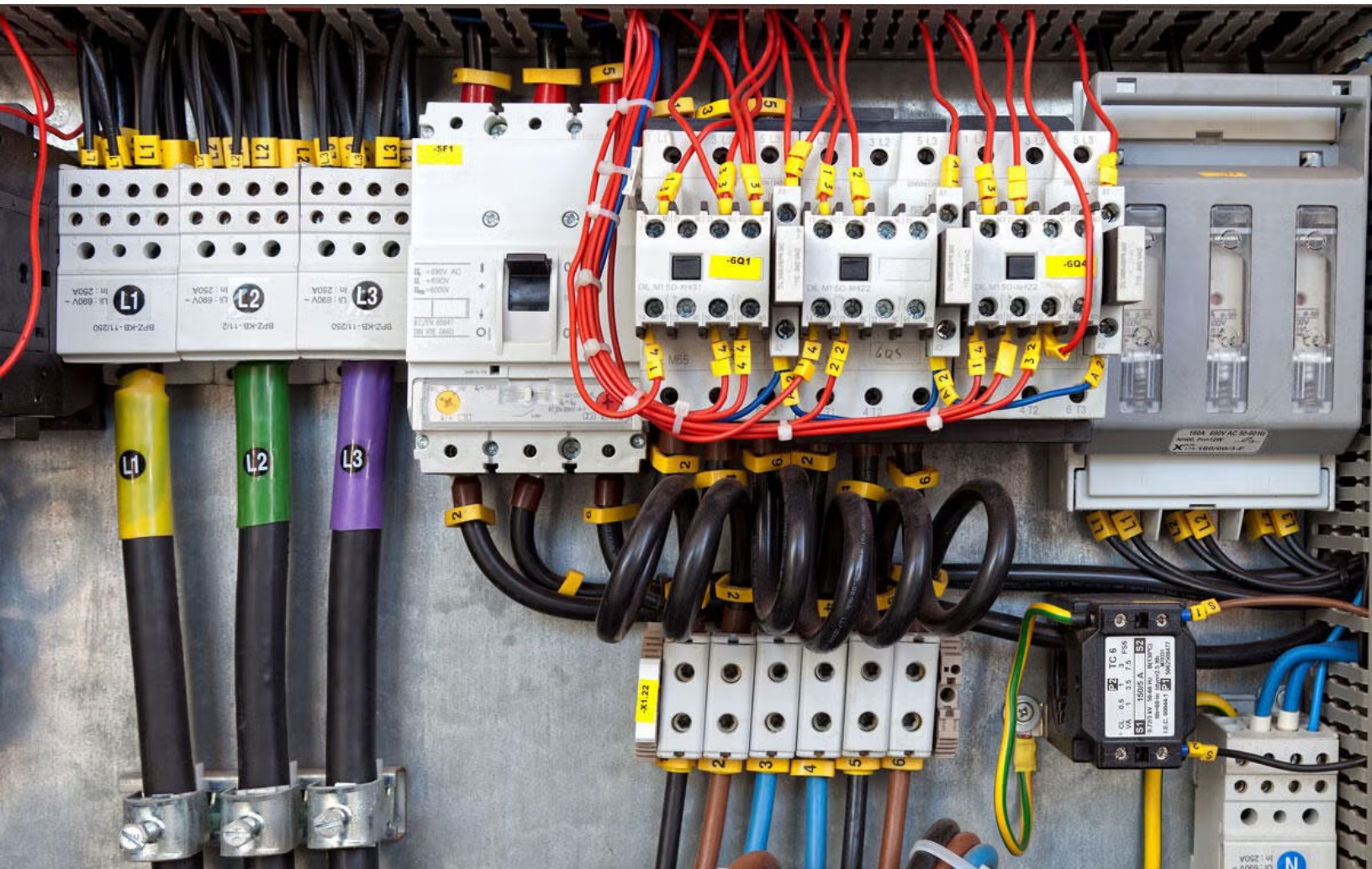


SMARTBOX

SPECTROMETER CONNECTIVITY FOR INDUSTRIAL AUTOMATION



SEAMLESS SPECTROSCOPY FOR YOUR PLC

Avantes spectrometers are invaluable sensors for controlling and monitoring key industrial processes. However, direct communication between a spectrometer and a PLC is difficult due to the volume of data and the high processing requirements.

Fortunately, Avantes makes PLC communication easy with our SmartBox technology. An Avantes SmartBox is a DIN-rail-mounted computer that acts as a bridge between a group of spectrometers and your PLC. The SmartBox manages all the spectrometers and exposes a set of tags that give your PLC exactly what it needs to quickly make decisions.



Industrial applications are highly varied, so SmartBox technology is tailored to each customer's needs. Here is a list of features that we commonly support. If you have something in mind outside this scope, please let us know:

Supported Features:

1. Manage and control the full line of Avantes spectrometers. Depending on data rates per spectrometer, up to six USB spectrometers or twelve Ethernet spectrometers can be supported. Higher numbers are possible but require case-by-case consideration.
2. Configuration and visualization of the connected spectrometers via a built-in web portal, which is customized based on the user's application. A sample web portal is available here: <https://avantesdemos.com/>
3. PLC communication over EtherNet/IP, TCP, UDP, HTTP, Modbus TCP, or Modbus RTU.
4. Integrated signal processing of spectral data, including but not limited to filtering, absorbance, calibration, and linear regression as needed by the application.
5. Data backup and logging.
6. Customized tag sets for easy PLC programming.
7. Deployment of SmartBox software on customer-provided hardware (Linux or Windows).

EXAMPLE CONTROL SEQUENCE FROM THE PLC

READ	Sts_System	→	USINT
WRITE	Cmd_CaptureDark	←	BOOL, 1
WRITE	Cmd_CaptureReference	←	BOOL, 1
WRITE	Cmd_CaptureSample	←	BOOL, 1
READ	Inp_Absorbance_455	→	REAL[6]
READ	Inp_Absorbance_310	→	REAL[6]

A typical tag sequence to read absorbance at two wavelengths from six spectrometers simultaneously.