RT 010 – RT 060 EXPERIMENTS IN THE FUNDAMENTALS OF CONTROL ENGINEERING

RT 020 *Training System: Flow Control, HSI*

RT 030 *Training System: Pressure Control, HSI*

RT 040 *Training System: Temperature Control, HSI*

RT 050 *Training System: Speed Control, HSI*

RT 060 *Training System: Position Control, HSI*

Control engineering is a key area in any study of automation.

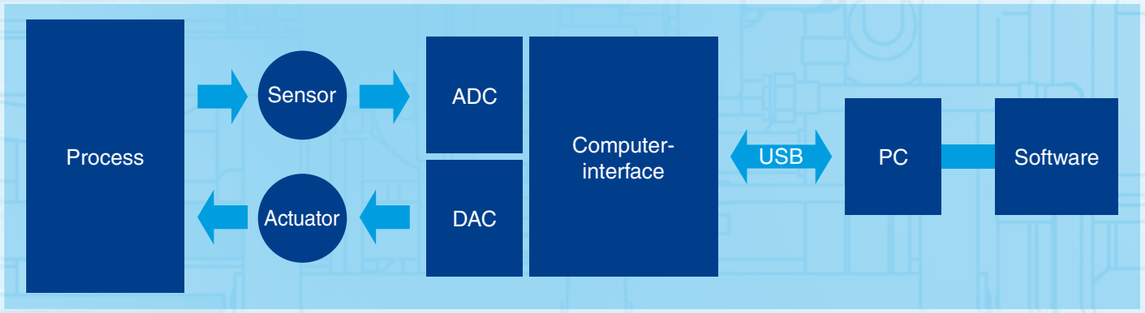
With this model series, GUNT offers six systems providing an introduction to the fundamentals of control engineering through the use of experimentation. Software plays a key role as an integral component of the equipment concept, in the sense of hardware/software integration (HSI). It relieves students from routine activities and supports interactive action when they are experimenting with new approaches.

The effects of changes to controller parameters or disturbance variables on the system behaviour can be investigated quickly and easily. In contrast to purely computer-based simulation, these actual models of controlled systems provide a closer link to the real world, and so aid understanding.

The network capability of the software enables teacher/student systems to be established.

RT 010 *Training System: Level Control, HSI*

COOPERATION OF HARDWARE AND SOFTWARE – HARDWARE/SOFTWARE INTEGRATION (HSI)



Advantages

- Compact benchtop models
- Ideally suited to multi-user applications
- Typical controlled systems from the field of process engineering such as flow, level, pressure, temperature, speed and position
- High level of observability of processes based on transparent elements (covers, containers, lines)
- Richly featured Software
- Computer interface with USB port

Comprehensive experiment programme for each experimental unit:

- Control loop analysis
- Influence of controller parameters on control action and disturbance response
- Stability of the open and closed loop
- Controller optimisation

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments.

Software

State-of-the-art control and data acquisition software based on LabVIEW for Windows

- Software controller in real time, possible with real controlled system or simulation options
- Setpoint profiles (programme controller)
- Display and storage of all process variables
- Network capability
- Language switching

Software functionality

- Process schematics with online display of all process variables
- User control and parameter setting of the software controllers
- Manual control of actuators and disturbance feedforward control
- Recording of step responses for system identification
- Manual and automatic controller optimisation
- Stability tests
- Controlled system simulations for simplified system models