MP / MFT Glossary

MP = **M**ulti **P**oint

The MP-Bus is Belimo's Master-Slave bus system. Up to 8 Slaves can be connected to one Master. The Slaves can be MFT2 damper actuators, MFT2 valve actuators, MFT fire damper actuators or NMV-D2M VAV-Compact controllers.

MP-Bus Master

In a Master/Slave bus system the Master communicates with his Slaves who do not perform any actions unless they have received an appropriate instruction from the Master first. Up to 8 Slaves, the MFT2 actuators, can be connected to one MP-Bus Master. MP-Bus Masters are MP-Bus Gateway modules (e.g. the UK24LON) which, via the Gateway module, link the MFT2 actuators into a higher-level field bus or to MP-Bus co-operation nodes (DDC controllers with the MP-Bus protocol implemented).

MP-Bus co-operation nodes

On request, Belimo will provide the manufacturers of digital controllers (DDC, PLC) who wish to implement the MP-Bus protocol in their controllers with the full technical specification of the MP-Bus system. These properly adapted digital controllers can then communicate directly with MFT2 actuators.

MFT = **M**ulti **F**unction **T**echnology

MFT and MFT2 actuators with an MP-Bus capability and NMV-D2M VAV-Compact controllers all employ **M**ulti **F**unction **T**echnology. The MFT actuators possess the following four key features:

1. Conventional control
The actuators can be controlled conventionally, i.e. with DC 0...10 V or a 3-point signal.
2. Parameter assignment
The actuators can be adapted for application or service purposes with an MFT parameter assignment device - either the Belimo MFT-P PC-Tool or the MFT-H Manual Parameter Assignment Device. It is possible to adjust parameters such as running time, torque, actuating force, etc.
3. MP-Bus operation
An MFT2 actuator can be changed over from conventional control to bus control by assigning it an MP-Bus address (MP1...MP8).
4. Sensor linking
In MP-Bus operation one sensor can be linked to each MFT/MFT2 actuator. The sensor value is acquired by the actuator and digitised before being transferred to the MP-Bus system.

MFT and MFT2

The only difference between MFT and MFT2 actuators is in the types of sensors that can be connected to the actuators when using MP-Bus operation. Active sensors (DC 0-10 V output) and ON/OFF switches can be connected to MFT actuators and, in addition, MFT2 actuators will also accept passive resistance sensors (e.g. Pt 1000).

MP-Bus Developer's Document

The MP-Bus Developer's Document provides a detailed description of all MP-Bus specifications (MP-Bus protocol, commands and hardware). Belimo will be happy to provide any interested manufacturer of DDC controllers on request with a copy of the MP-Bus Developer's Document so that an MP-Bus interface can be implemented in the DDC controllers from both the hardware and software aspects.

MP-Bus command or protocol

The MP-Bus protocol works with MP-Bus commands which are implemented in the sending algorithm of the Master and can be understood when necessary by the MFT2 actuator.

MFT-H is the MFT manual parameter assignment device. It is used for the on-site adaption of individual parameters of multifunction MFT2 actuators from the application or service aspects.
The adjustable functions depend on the type of MFT2 actuator connected.

MFT-P is a PC-based MFT tool. The MFT-P PC-Tool is used for the on-site adaption of individual parameters of multifunction MFT2 actuators from the application or service aspects. Some typical parameters that can be adjusted are control signal, working range, feedback function and running time. The MFT-P PC-Tool is also used for the commissioning and maintenance of VAV units in conjunction with Belimo NMV-D2M VAV-Compact controllers. The Belimo MFT-P PC-Tool also allows the functions of MFT2 actuators to be tested.
The assigned parameters can either be read out with the PC-Tool or the MFT2 actuator can be operated with it in order to check its correct functioning.

MP-Bus Gateway modules

MP-Bus Gateway modules provide MFT and MFT2 actuators with full communication facilities when incorporated into a higher-level field bus system.