

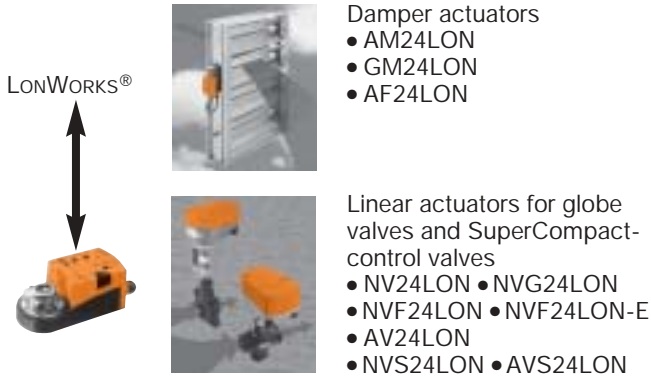
2. + 6. KN-1
Product Information
Actuators for LONWORKS[®]

KN



2. + 6. KN-... Actuators for LonWorks®

Actuators that can be linked directly to a LonWorks® network:





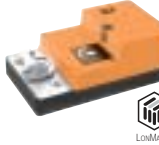

2. + 4. + 6. UK-... UK24LON Gateway MP/LonWorks®

MFT.../MFT2... actuators that can be linked to a LonWorks® network via the UK24LON Gateway unit:












10593309

Damper actuators for LONWORKS®

	Damper actuators	AM24LON  18 Nm AC / DC 24 V	GM24LON  36 Nm AC / DC 24 V	AF24LON  15 Nm with safety function AC / DC 24 V
	Technical data see Page 5			

Valve actuators for LONWORKS®

	Valve actuators for Type H... globe valves	NV24LON  1000 N ¹⁾ / 800 N ²⁾ AC / DC 24 V	NVG24LON  1600 N AC / DC 24 V	NVF24LON  800 N with emergency control function: retracting AC / DC 24 V	NVF24LON-E  800 N with emergency control function: extending AC / DC 24 V	AV24LON  2000 N AC / DC 24 V
	¹⁾ Closing force ²⁾ Blocking force Technical data see Page 6					

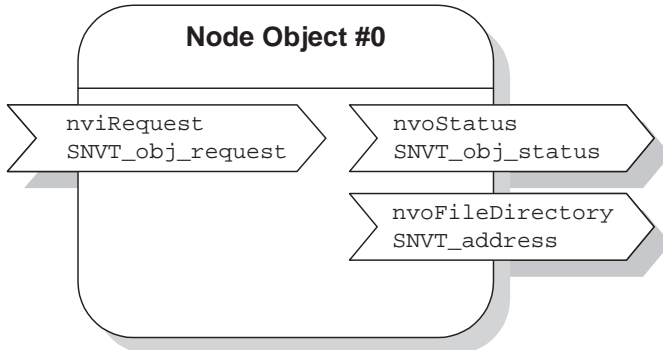
	Valve actuators for SuperCompact-control valves	NVS24LON  1200 N AC / DC 24 V	AVS24LON  2000 N AC / DC 24 V
	Technical data see Page 7		

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Functional Profile according to LONMARK®

Belimo damper actuators and valve actuators with a LON capability have been certified by LONMARK®. The actuator functions are made available to the LONWORKS® network as standard network variables according to LONMARK®. Node Object #0 and Damper Actuator Object #8110 are implemented in all damper and valve actuators.



Node Object #0

The node object contains the functions object status and object request.

nviRequest

SNVT_obj_request

Input variable for requesting the status of a particular object in the node.

nvoStatus

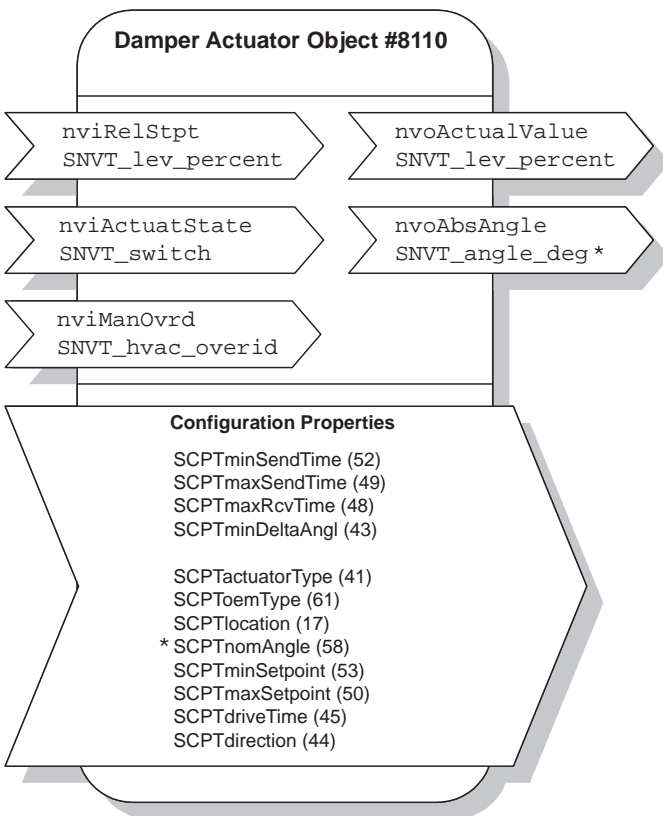
SNVT_obj_status

Output variable which gives the actual status of a particular object in the node.

nvoFileDirectory

SNVT_address

Output variable which shows information in the address area of the Neuron chip.



Damper Actuator Object #8110

The actuator object shows the functions of the LON actuators from the point of view of the LONWORKS® network.

nviRelStpt

SNVT_lev_percent

This input variable provides the actuator with the reference position. The variable is normally linked from the LON to the output variable of an HVAC controller.

nviActuateState

SNVT_switch

This input variable provides the actuator with a preset position. *Note on priority:* The last variable to be active (`nviActuatorState` or `nviRelStpt`) takes priority.

nviManOvrdr

SNVT_hvac_overid

This input variable allows the actuator to be overridden manually to a particular position (the function is only active if preceded by `RQ_OVERRIDE`). This function would typically be used when commissioning an installation.

nvoActualValue

SNVT_lev_percent

This output variable shows the current actual position of the actuator and can be used for resetting control circuits or for indicating positions.

nvoAbsAngle

SNVT_angle_deg




This output variable shows the current actual angle of rotation of a damper actuator or the damper blade and can be used for indicating positions or for servicing purposes (this SNVT is inactive with valve actuators).

* Note: `SNVT_angle_deg` is not valid (indicate invalid value) in the valve actuators (NV... and AV...). In this case `SCPTnom-Angle(58)` is also invalid.

Damper actuators for LONWORKS®



Technical data

	AM24LON	GM24LON	AF24LON
For further general technical data see Product Information 2. + 6. MFT2			
Data for LONWORKS®			
Certified for LONMARK®	•	•	•
Processor Neuron 3120®	•	•	•
Transceiver FTT-10A, compatible with LPT-10	•	•	•
Functional Profile LONMARK® #8110; see Page 4	•	•	•
Plug-In available, suitable for LONMAKER 2.0 / 3.0	•	•	•
Service key and status LED conforming to LONMARK® Guidelines	•	•	•
Lead lengths, cable specifications and topology of the LONWORKS® network in accordance with Echelon recommendations	•	•	•
General actuator data			
Torque	18 Nm	36 Nm	15 Nm
Damper driver with universal spindle clamp	•	•	•
Safety function (spring return)	-	-	•
Max. angle of rotation	95°	95°	95°
Nominal voltage	AC 24 V 50/60 Hz, DC 24 V	•	•
Tolerance range	AC 19.2...28.8 V, DC 21.6...28.8 V	•	•
For wire sizing	6 VA	9 VA	11 VA
Peak inrush current	Imax @ t[ms]	8.3 A @ 5 ms	8.3 A @ 5 ms
Power consumption			
- running	3 W	4.1 W	6.5 W
- stationary	1.7 W	2.5 W	3 W
Connecting lead	1 m long, 5 x 1.5 mm ²	•	•
Running time	motor	150 s	150 s
Running time	spring return	-	≈16 s

Notes

Further technical data:

The basic design of the actuators is identical to the corresponding MFT(2) type. Therefore, if further technical data is required refer to Product Information 2. + 6. MFT2 (general technical data, dimensions, installation instructions, etc.).

Parameter assignment:

Using an MFT parameter assignment device (PC-Tool MFT-P or Manual Parameter Assignment Device MFT-H) it is a very

simple matter to edit any parameters for specific actuators. The adjustable functions and ranges depend on the particular actuator concerned.

Adjustable parameters:

- Electronic angle of rotation limiting
- Torque: (The rated torque can be reduced to 75%, 50% or 25%. With the AF24LON type – spring return – the torque cannot be reduced).
- Direction of operation reversible.

- Running time (motor): When running times are shorter than the basic value, the values of torque (Nm) and sound power level (dB) of the actuator may be different. It is very important to refer to the corresponding function curves in the Product Information brochure for MFT(2) actuators (2. + 6. MFT2).
- Functional test or adaption can be started.

Wiring diagram/MFT Parameter Assignment Devices see Pages 8 to 10.

Valve actuators for LONWORKS®, for Type H... globe valves



Technische Daten

	NV24LON	NVG24LON	NVF24LON	NVF24LON-E	AV24LON
For further general technical data see Product Information 2. + 6. MFT2					
For the technical data of the corresponding Type H... valves see Product Information 6. H					
Data for LONWORKS®					
Certified for LONMARK®	•	•	•	•	•
Processor Neuron 3120®	•	•	•	•	•
Transceiver FTT-10A, compatible with LPT-10	•	•	•	•	•
Functional Profile LONMARK® #8110; see Page 4	•	•	•	•	•
Plug-In, available, suitable for LONMAKER 2.0 / 3.0	•	•	•	•	•
Service key and status LED conforming to LONMARK® Guidelines	•	•	•	•	•
Lead lengths, cable specifications and topology of the LONWORKS® network in accordance with Echelon recommendations	•	•	•	•	•
General actuator data					
Actuating force (Closing force ¹⁾ , Blocking force ²⁾)	1000 N ¹⁾ /800 N ²⁾	1600 N	800 N	800 N	2000
Nominal stroke	20 mm	20 mm	20 mm	20 mm	40 mm
Suitable for Type H	DN 15...80	DN 15...80	DN 15...80	DN 15...80	DN 65...150
Emergency control function (spring return)	–	–	retracting	extending	–
Emergency control time	–	–	<1.5 s/mm	<1.5 s/mm	–
Nominal voltage	AC 24 V 50/60 Hz, DC 24 V	•	•	•	•
Tolerance range	AC 19.2...28.8 V, DC 21.6...28.8 V	•	•	•	•
For wire sizing	5 VA	5 VA	10 VA	10 VA	12 VA
Power consumption	3 W	3 W	5.5 W	5.5 W	6.5 W
Connecting lead	1 m long, 5 x 1.5 mm ²	•	•	•	•
Running time 150 s	•	•	•	•	•

Notes

Further technical data for valve actuators:

The basic design of the actuators is identical to the corresponding MFT(2) type. Therefore, if further technical data is required refer to Product Information 2. + 6. MFT2 (general technical data, dimensions, installation instructions, etc.).

Parameter assignment:

Using an MFT parameter assignment device (PC-Tool MFT-P or Manual Parameter Assignment Device MFT-H) it is a very simple matter to edit any parameters for

specific actuators. The adjustable functions and ranges depend on the particular actuator concerned.

Adjustable parameters:

- Electronic stroke limiting
- Actuating force: (This can be reduced to 75%, 50% or 25%).
With the NVF24LON and NVF24LON-E types – spring return – the actuating force cannot be reduced.
- Direction of stroke and closing point selection reversible (slide switch).
- Running time (motor): When running

times are shorter than the basic value, the values of actuating force (N) and sound power level (dB) of the actuator may be different. It is very important to refer to the corresponding function curves in the Product Information brochure for MFT(2) actuators (2. + 6. MFT2).



- Functional test or adaption can be started.

Wiring diagram / MFT Parameter Assignment Devices see Pages 8 to 10.

Valve actuators for LONWORKS® for Type S6... SuperCompact-control valves



Technical data

	NVS24LON	AVS24LON
For further general technical data see Product Information 2. + 6. MFT2		
For the technical data of the corresponding Type S6... valves see Product Information 6. S		
Data for LONWORKS®		
Certified for LONMARK®	•	•
Processor Neuron 3120®	•	•
Transceiver FTT-10A, compatible with LPT-10	•	•
Functional Profile LONMARK® #8110, see Page 4	•	•
Plug-In, available, suitable for LONMAKER 2.0 / 3.0	•	•
Service key and status LED conforming to LONMARK® Guidelines	•	•
Lead lengths, cable specifications and topology of the LONWORKS® network in accordance with Echelon recommendations	•	•
General actuator data		
Actuating force	1200 N	2000 N
Stroke	23 mm	53 mm
Suitable for Type S... globe valves	S625...S680	S650...S6150
Nominal voltage	AC 24 V 50/60 Hz, DC 24 V	•
Tolerance range	AC 19.2...28.8 V, DC 21.6...28.8 V	•
For wire sizing	5 VA	10 VA
Power consumption	3 W	6 W
Connecting lead	1 m long, 5 x 1.5 mm ²	•
Running time 150 s	•	•

Notes

Further technical data for valve actuators:

The basic design of the actuators is identical to the corresponding MFT(2) type. Therefore, if further technical data is required refer to Product Information 2. + 6. MFT2 (general technical data, dimensions, installation instructions, etc.).

Parameter assignment:

Using an MFT parameter assignment device (PC-Tool MFT-P or Manual Parameter Assignment Device MFT-H) it is a very simple matter to edit any parameters for

specific actuators. The adjustable functions and ranges depend on the particular actuator concerned.

Adjustable parameters:

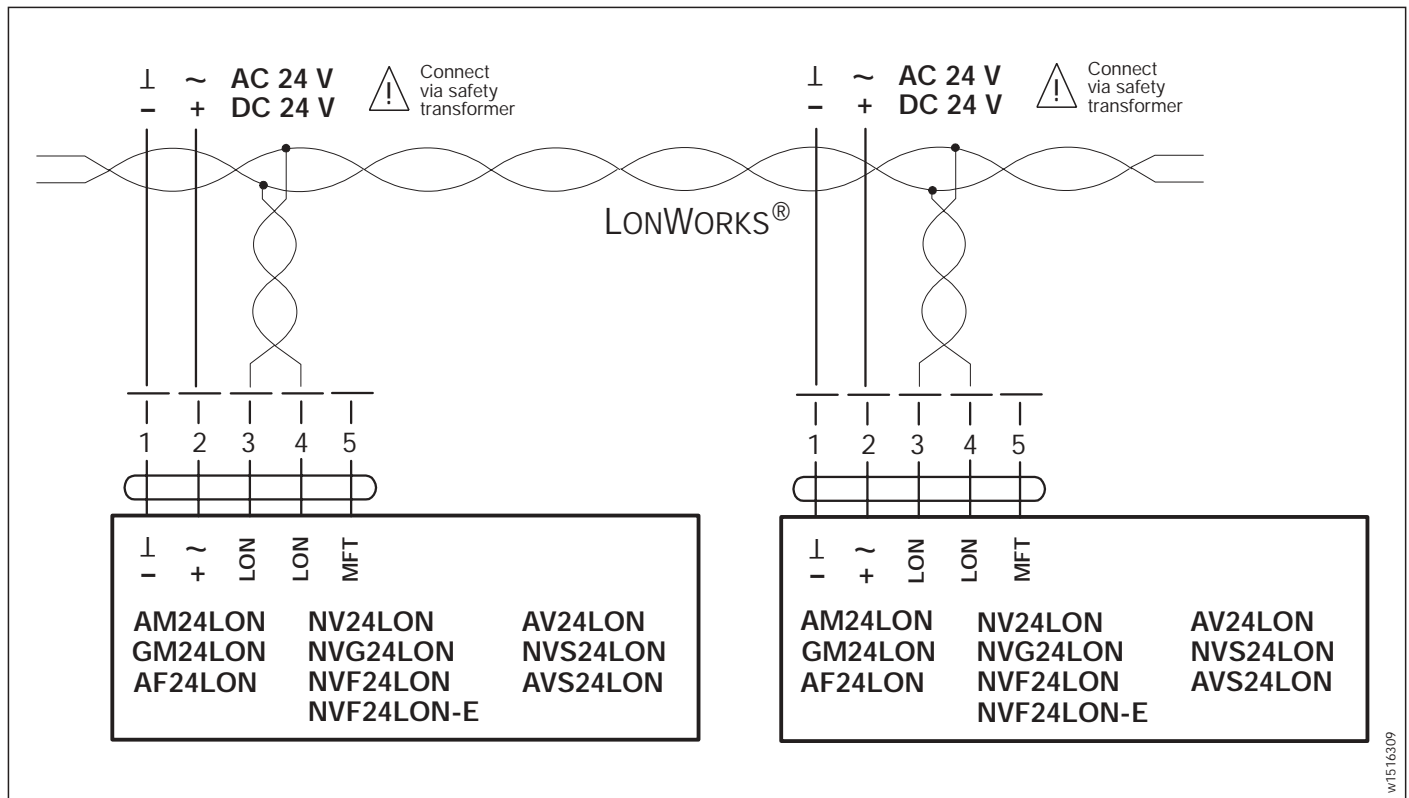
- Electronic stroke limiting
- Actuating force: (This can be reduced to 75%, 50% or 25%).
- Direction of stroke reversible.
- The closing point must not be altered (slide switch).
- Running time (motor): When running times are shorter than the basic value, the values of actuating force (N) and

sound power level (dB) of the actuator may be different. It is very important to refer to the corresponding function curves in the Product Information brochure for MFT(2) actuators (2. + 6. MFT2).

- Functional test or adaption can be started.

Wiring diagram/MFT Parameter Assignment Devices see Pages 8 to 10.

Wiring diagram for LON actuators



MFT parameter assignment devices for LON actuators

MFT parameter assignment devices

The MFT parameter assignment devices (PC-Tool MFT-P or Manual Parameter Assignment Device MFT-H) are used for the on-site editing of individual parameters of LON actuators for the purpose of application and servicing. Running time and torque or actuating force are typical parameters that can be edited. When the LON actuators are being manufactured at the factory they are parameterised with basic values for standard applications.

Adjustable functions, depending on the actuator

A specific configuration table depending on the particular application is stored in each actuator. The table determines which menu items in the MFT parameter assignment device can be selected and which values can be edited. When an MFT parameter assignment device (PC-Tool MFT-P or Manual Parameter Assignment Device MFT-H) is connected to an actuator the device automatically reads out the configuration table from the actuator.



Inactive display

Any parameters and menu items that cannot be accessed in a particular actuator are blanked out by the Manual Parameter Assignment Device MFT-H or, in the case of the PC-Tool MFT-P, are greyed out.

Functional testing with Belimo MFT parameter assignment devices

The MFT parameter assignment devices can also be used for testing the proper functioning of LON actuators. The parameterized values can either be read out with the device or it can be used to test the actuator functions.

Do not forget the operating instructions

Before using an MFT parameter assignment device for the first time it is very important to consult the operating instructions that come with it (in the case of the Manual Parameter Assignment Device MFT-H these are hardcopy instructions and in the case of the PC-Tool MFT-P it is a Help File).

Note on the communications setup PC-Tool MFT-P << >> LON actuator

Once a LON actuator has been connected to the power supply the PC-Tool has only 30 seconds to establish communications with the actuator. After that, the actuator automatically connects itself

to the LONWORKS® network. However, if the PC-Tool does establish communications with the actuator within that period of time they will remain in operation for as long as necessary. As long as the PC-Tool is communicating with the actuator there can be no exchange of data bet-

ween LONWORKS®, and the actuator. From what has been described it is possible to derive a sequential procedure for the communications circuitry as shown in Diagrams 3 and 4.

Diagram 3
Connecting the PC-Tool MFT-P

Typical application:

Parameterizing a LON actuator when it has already been incorporated into an installation.

Procedure for setting up communications:

1. Connect up as shown in the diagram. Do not connect Core 2 of the LON actuator to the 24 V AC or DC power supply yet (connection is identified by a switch symbol).
2. Start up the PC-Tool and select the <<PP>> toolbar in the address field.
3. Power up the LON actuator, i.e. by connecting Core 2, identified by a switch symbol, to 24 V AC or DC.
4. Communications between the PC-Tool and the LON actuator are now established.

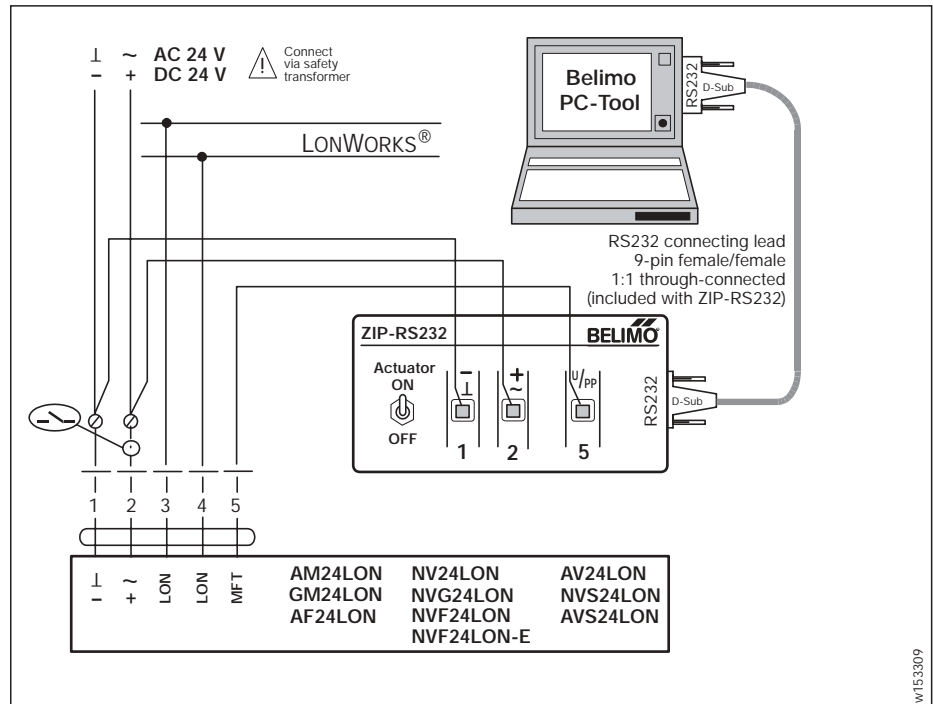


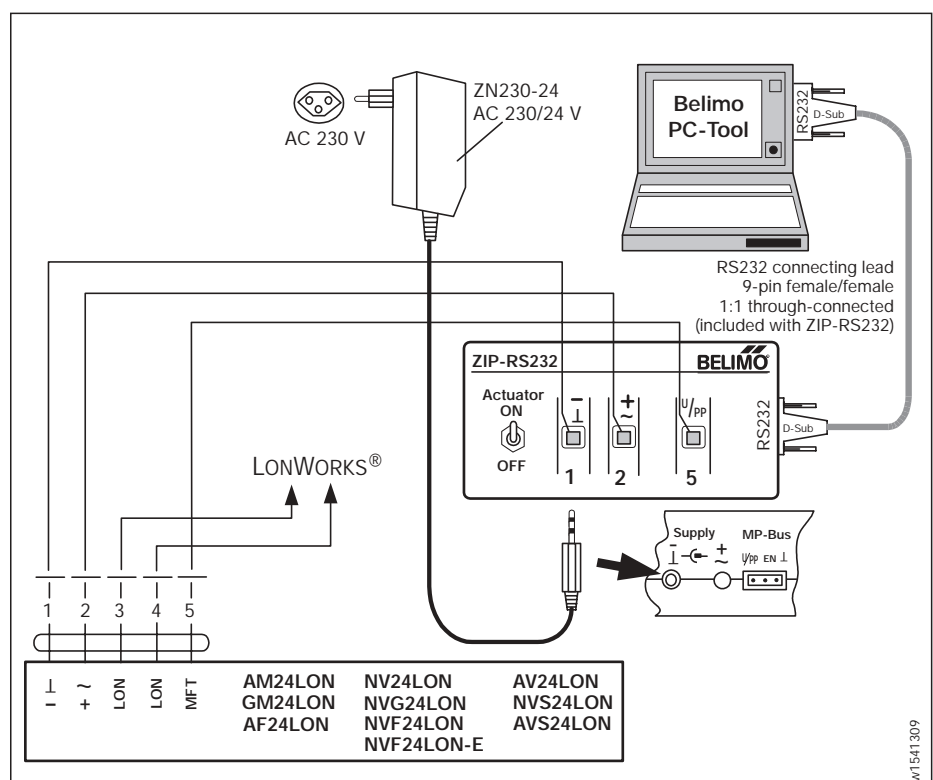
Diagram 4
Connecting the PC-Tool MFT-P

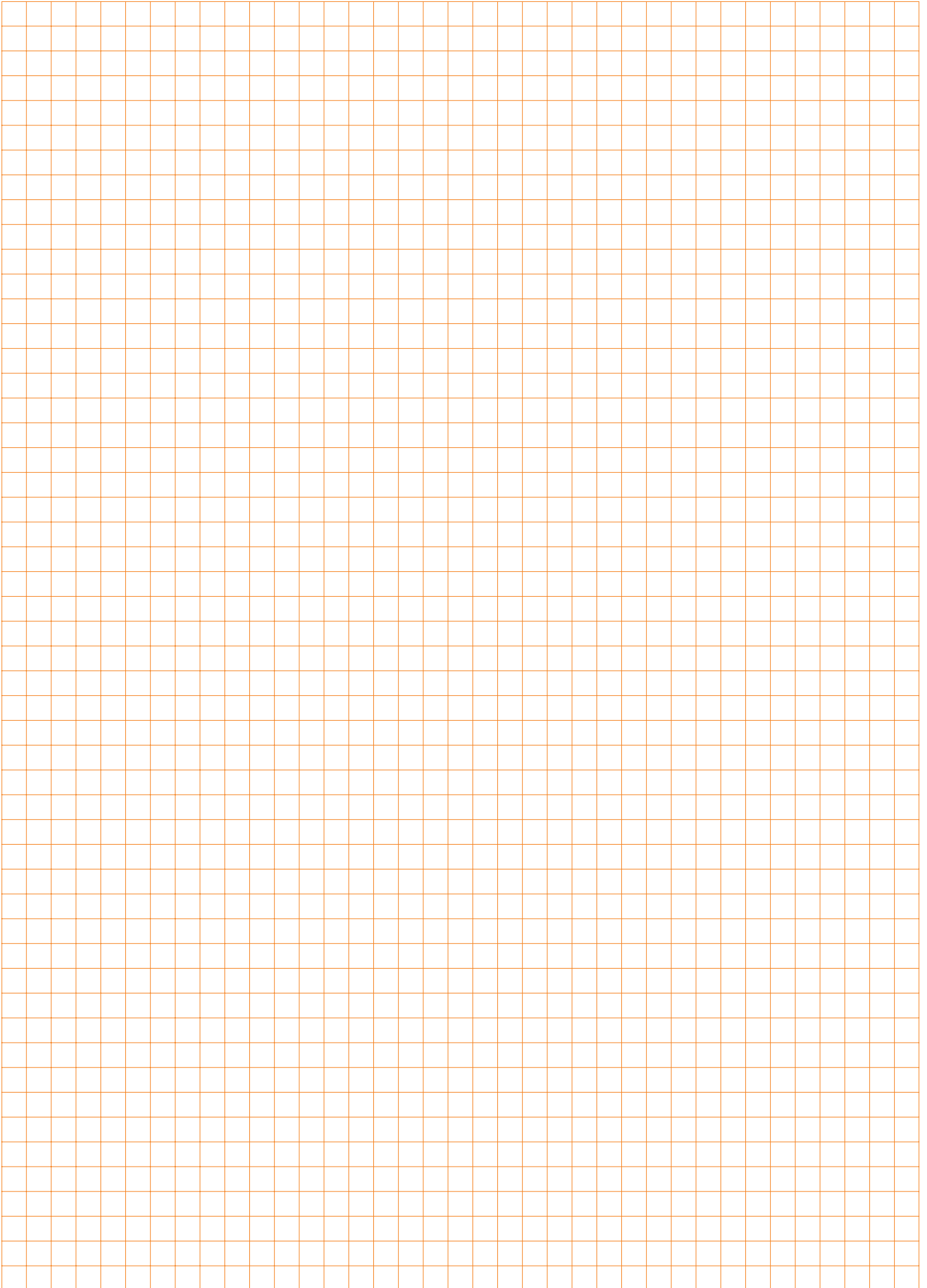
Typical application:

Parameterizing a LON actuator before it is incorporated into an installation.

Procedure for setting up communications:

1. Set the <<Actuator>> switch on the ZIP-RS232 unit to the OFF position and connect up as shown in the diagram.
2. Start up the PC-Tool and select the <<PP>> toolbar in the address field.
3. Power up the LON actuator, i.e. set the <<Actuator>> switch on the ZIP-RS232 unit, identified by a switch symbol, to the ON position.
4. Communications between the PC-Tool and the LON actuator are now established.





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