

Data sheet

## LON module

for MULTICAL® 601/602/801

- Free topology, FT-X3
- For mounting in MULTICAL® 601/602/801
- 2 pulse inputs
- Simple installation with visual module indication (WINK)
- Standard twisted pair transceiver, 78 kbit/sec.
- Powered by meter supply
- Flash program memory (exchangeable software)



## Application

The LON module is used for transfer of data from MULTICAL® 601/602/801 either for data reading or for adjustment purposes via the LON bus, which is ideal for i.e. climate control and building automation. Data is communicated at a high speed which makes it possible to connect many applications to the same LON network.

Cabling between the LON module and the other LON-nodes is made with a standard twisted pair cable. The length can be up to 2700 m using bus topology or 500 m using free topology.

The LON module is built up as a separate network node with neuron chip, memory, transceiver and input/output circuit.

The module requires external supply (24 VAC /230 VAC) of MULTICAL® 601/602, battery supply is not possible.

The LON module collects new data from MULTICAL® in a cycle which secures that all data are updated every 30 seconds. Network variables which have been changed compared with latest reading will be updated on the bus. All network variables can be "polled" from other LON nodes in the network.

If you mark heartbeat data ("HB-data"), data will be sent every 30 seconds.

## Network variables

5098861 RevA1	NV Name	NV Index	SNVT Type	Unit	MULTICAL® 601/801 Register	Description	HB
NodeObject	nviRequest	0	SNVT_obj_request	Structure		Node Request	
	nvoStatus	1	SNVT_obj_status	Structure		Node Status	✓
	nvoInfoCode	2	SNVT_state	Structure [*1]	Info	Info code from MULTICAL® 601/801	✓
	nvoHourCount	3	SNVT_count_f	Hour	Hour	Hour counter from MULTICAL® 601/801	
	nvoDateTime	4	SNVT_time_stamp	YY:MM:DD hh:mm:ss	Date & Time	Date and Time from MULTICAL® 601/801	
HeatMeter	nvoE1_HeatV1	5	SNVT_elec_whr_f	Wh	E1	Heat Energy (V1)	✓
	nvoE1_HeatV1_Raw	6	SNVT_reg_val	Raw, Unit, Decimal	E1	Scaled heat energy (V1)	✓
	nvoE2_Control	7	SNVT_elec_whr_f	Wh	E2	Control energy	
	nvoE3_Cool	8	SNVT_elec_whr_f	Wh	E3	Cooling energy	✓
	nvoE4_Forward	9	SNVT_elec_whr_f	Wh	E4	Forward energy	
	nvoE5_Return	10	SNVT_elec_whr_f	Wh	E5	Return energy	
	nvoE6_TapWater	11	SNVT_elec_whr_f	Wh	E6	Tap water energy	
	nvoE7_HeatV2	12	SNVT_elec_whr_f	Wh	E7	Heat energy (V2)	
	nvoPowerV1	13	SNVT_power_f	W	Power1	Power (V1)	✓
	nvoMeterNo	14	SNVT_str_asc	ASCII string	Meter No.	Meter number	✓
nvoConfigNo	15	SNVT_str_asc	ASCII string	Config No.	Meter configuration DDDEFFGGMN		
Flow Sensor	nvoV1_Volume	16	SNVT_vol_f	l	V1	V1 Volume	✓
	nvoV1_Mass	17	SNVT_mass_f	g	M1	V1 Mass	✓
	nvoV1_Flow	18	SNVT_flow_f	l/s	Flow1	V1 Flow	✓
Flow Sensor	nvoV2_Volume	19	SNVT_vol_f	l	V2	V2 Volume	
	nvoV2_Mass	20	SNVT_mass_f	g	M2	V2 Mass	
	nvoV2_Flow	21	SNVT_flow_f	l/s	Flow2	V2 Flow	
Temperature Sensors	nvoTemperature1	22	SNVT_temp_p	°C	T1	Temperature T1	✓
	nvoTemperature2	23	SNVT_temp_p	°C	T2	Temperature T2	✓
	nvoTemperature3	24	SNVT_temp_p	°C	T3	Temperature T3	
	nvoTemperature4	25	SNVT_temp_p	°C	T4	Temperature T4	
	nvoTemperatuDiff	26	SNVT_temp_p	°C	T1-T2	Temperature difference (T1-T2)	✓
Pulse Counter	nvoPulseVA_Vol	27	SNVT_vol_f	l	Pulse input A Volume	Pulse input VA Volume	
	nvoPulseVA_E	28	SNVT_elec_whr_f	Wh	Pulse input A Energy	Pulse input VA Energy	
Pulse Counter B	nvoPulseVB_Vol	29	SNVT_vol_f	l	Pulse input B Volume	Pulse input VB Volume	
	nvoPulseVB_E	30	SNVT_elec_whr_f	Wh	Pulse input B Energy	Pulse input VB Energy	
	nvoV1_Volume_Raw	31	SNVT_reg_val	Raw. Unit Decimal	V1	V1 Volume As shown in MULTICAL® display.	
	nvoV2_Volume_Raw	32	SNVT_reg_val	Raw. Unit Decimal	V2	V2 Volume As shown in MULTICAL® display.	
	nvoE3_Cool_Raw	33	SNVT_reg_val	Raw. Unit Decimal	E3	Cooling Energy As shown in MULTICAL® display.	
	nvoMeterType	34	SNVT_str_asc	ASCII string			
	nviDateTime	35	SNVT_time_stamp	YY:MM:DD	Date & Time	New date and time for MULTICAL®	
	nviHeartbeat	36	SNVT_count	Off or 30 sec		30 sec heartbeat (for nvos marked ✓)	🔄

## Network variables

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\*1] 16 bit structure, which represents the info codes of MULTICAL® 601/602/801

Bit 0:	MULTICAL® reset
Bit 1:	-n/a-
Bit 2:	Temperature sensor T2 outside measuring range
Bit 3:	Temperature sensor T1 outside measuring range
Bit 4:	Flow sensor V1, communication error
Bit 5:	Temperature sensor T3 outside measuring range
Bit 6:	Leak in cold water system
Bit 7:	Flow sensor V2 pulse figure error
Bit 8:	Leak in heating system
Bit 9:	Burst in heating system
Bit 10:	Flow sensor V2 communication error
Bit 11:	Flow sensor V1 pulse figure error
Bit 12:	Flow sensor V1 air problem
Bit 13:	Flow sensor V2 air problem
Bit 14:	Flow sensor V1 wrong flow direction
Bit 15:	Flow sensor V2 wrong flow direction

Some info codes do not apply to all meters.

See Technical Description of the MULTICAL® 601/602/801 in question for details.

## Technical information

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### Electrical data

Supply	Powered by MULTICAL® supply.
Current consumption	<30 mA DC; Typically <10mA DC
Transmission speed	78 kBit/sec.
Transceiver type	FT-X3
Recommended cable	22-24 AWG, twisted pair*
Cable length	500...2700 m, depending on cable type and installation conditions*
Update	Complete update every 30 sec.
Transmission	Is sent if data is changed compared to latest reading of MULTICAL®. Furthermore, all variables can be polled at any time. Heartbeat can be activated.

\* See "LONmark Layers 1-6, Interoperability Guidelines" for further information.

Pulse inputs	The module has two pulse inputs which can be used for summation of pulses from water and electricity meters. The pulse resolutions and units of the inputs are automatically configured on the basis of the MULTICAL® 601/602/801 setup (FF and GG codes).
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## Technical information

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### Mechanical data

Dimensions, WxHxD	90x70x20 mm
Ambient temperature	0...55°C
Mounting	For mounting in MULTICAL® 601/602/801

### Marking/Approvals

PTB and TS approved for mounting in MULTICAL® 601/602/801  
CE-marking applies when the LON module is mounted in MULTICAL® 601/602/801

## Software

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New software for update or extension of the module can be downloaded to the module via the LON network.

## Ordering

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Description	Type no.
LON module for MULTICAL® 601	670024000-000
LON module for MULTICAL® 602	6020024000-000
LON module for MULTICAL® 801, module 1	670024000-000
LON module for MULTICAL® 801, module 2	670Y00000-000

XIF files and standard software are available on:

[www.kamstrup.com](http://www.kamstrup.com) > Service & Support > Downloads > LON for heat meters, cooling meters and water meters

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