LON module for MULTICAL® 601

Free topology, FTT-10A and FT-X1

Plug-in module for MULTICAL® 601

2 extra pulse inputs

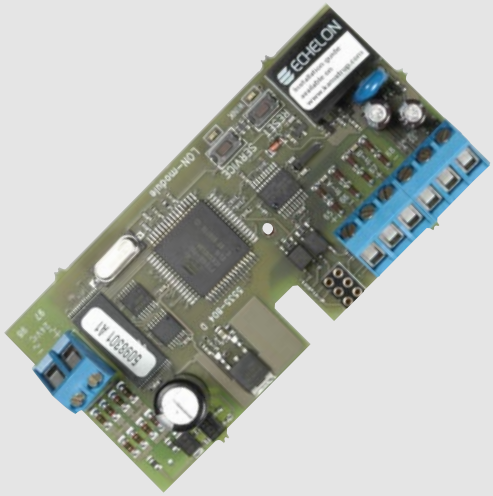
Easy to fit with visual indication of module (WINK)

Standard twisted pair transceiver 78 kBit/s

24 VAC ±30% supply

Coprocessor for improving the LON Bus communication

Flash program memory (replaceable software)



Application

The LON-module is used to transmit data from MULTICAL® 601, either in connection with data acquisition or regulation, by means of a LON-network. An ideal solution for air conditioning and building automation. The communication rate is high, making it possible to connect a large number of applications on the same LON-network.

The cables between the LON-module and the LON-nodes are standard twisted pair cables with lengths up to 2700 m in bus topology or 500 m in free topology.

The LON-module comprises an independent network node and a neuron-chip, memory, transceiver and an input circuit. The module can be supplied by 24 VAC. The optimal solution is to supply the module parallel to MULTICAL® 601(24 VAC version).

The LON-module reads new MULTICAL® 601 data in a cycle ensuring that all data are updated every 30 seconds. Network variables that have changed since the last reading will be updated on the bus. All network variables can be polled from the other LON-nodes on the network.

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Network variables

The LON-module manages the following MULTICAL® 601 data strings as 31 SNVTs (standard network variables):

For further information on SNVT formats, please refer to the SNVT Master List, published by the Echelon Corporation.

During installation the LON-module is self-documenting.

	NV Name	NV Index	SNVT Type	Unit	MULTICAL® 601 Register	Description
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
	nvoHourCount	3	SNVT_count_f	hour	Hour	Hour counter from MULTICAL® 601
	nvoDateTime	4	SNVT_time_stamp	YY:MM:DD hh:mm:ss	Date & Time	Date and Time from MULTICAL® 601
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	Flow 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	SVNT_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

*1) 16 bit structure primarily representing the info codes from MULTICAL® 601

Bit 0: MULTICAL® 601 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: Leakage in the cold-water system
Bit 7: Flow sensor V2 pulse value error
Bit 8: Leakage in the heating system
Bit 9: Burst in the heating system
Bit 10: Flow sensor V10 communication error
Bit 11: Flow sensor V1 pulse value error
Bit 12: Flow sensor V1 air error
Bit 13: Flow sensor V2 air error
Bit 14: Flow sensor V1 wrong direction
Bit 15: Flow sensor V2 wrong direction

Not all info codes apply for all meters.
See Technical Description, MULTICAL® 601 for details.

Technical data

Electrical data

Supply	24 VAC ±30%
Power consumption	+40 mA DC
Transmission speed	78 kBit/sec.
Transceiver type	FTT-10A and FT-X1
Recommended cable	22-24 AWG, twisted pair *).
Cable length	500..2700 m, depending on cable type and installation conditions *).
Updating	Full update every 30 sec.
Transmission	When change in value since previous reading from MULTICAL® 601. Furthermore, all variables can be polled as required.

*) Please refer to the LONmark Layers 1-6, Interoperability Guidelines for further information.

Pulse inputs	The module has two pulse inputs, which can be used for totalization of pulses from water and electricity meters. The inputs, pulse resolution and unit are self-configuring based on the MULTICAL® 601 setup (FF and GG Codes).

Mechanical data

Dimensions, WxHxD	90 x 70 x 20 mm
Ambient temperature	0...55°C
Fitting	A plug-in module for MULTICAL® 601.

Marking and approvals

Approved by the Danish TS and PTB in Germany for integration in MULTICAL® 601.

Requirements for CE-marking are fulfilled when the LON-module is fitted into MULTICAL® 601

Software

New software for updating or extending the module can be downloaded into the module via the LON-Network.

Order specification

Description	Type No.
LON-module for MULTICAL® 601	670024000-000
Kamstrup Trafo 230/24 VAC	66-99-403

XIF-files and standard software are available on www.kamstrup.com

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