LON-module for MULTICAL®

Free topology, FTT-10A

Plug-in module for MULTICAL® and MULTICAL® III

Easy to fit with visual indication of module (WINK)

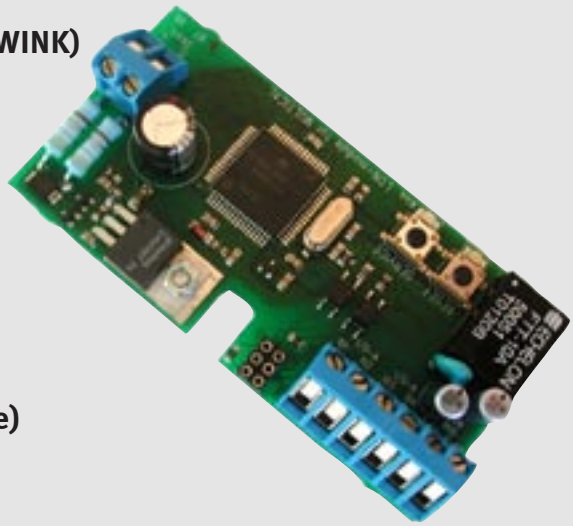
2 extra pulse inputs/outputs

Standard twisted pair transceiver 78 kBit/s

24 VAC/DC ± 30% supply

Provides 10 functional blocks

Flash program memory (replaceable software)



Application

The LON-module is used to transmit data from MULTICAL®, 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/output circuit. The module can be supplied by either 24 VAC or 24 VDC. The optimal solution is to supply the module parallel to MULTICAL® (24 V version).

The LON-module reads new MULTICAL® data every 10 seconds. All data are updated every 60 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® data strings as 37 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.

Functional Block	Name	Explanation	Enhed	Type
FlowSensor [0]	nvoFlow[1]	Flow (V1)	Litres/sec.	SNVT_flow_f
FlowSensor [0]	nvoMass[1]	Mass (V1)	Gram	SNVT_mass_f
FlowSensor [0]	nvoVolume[1]	Volume (V1)	Litre	SNVT_vol_f
FlowSensor [I]	nvoFlow[2]	Flow (V2)	Litres/sec.	SNVT_flow_f
FlowSensor [I]	nvoMass[2]	Mass (V2)	Gram	SNVT_mass_f
FlowSensor [I]	nvoVolume[2]	Volume (V2)	Litre	SNVT_vol_f
Heatmeter	nvoCoolEnergy	Cooling energy	Wh	SNVT_elec_whr_f
Heatmeter	nvoCustomerNo	Customer No.	ASCII string	SNVT_str_asc
Heatmeter	nvoEnergy	Energy	Wh	SNVT_elec_whr_f
Heatmeter	nvoEnergyScaled	Scaled energy quantity	raw *7	SNVT_reg_val
Heatmeter	nvoMeterCodeA	A-code for the meter	Figure	SNVT_count
Heatmeter	nvoMeterCodeB	B-code for the meter	Figure	SNVT_count
Heatmeter	nvoMeterCodeCCC	CCC-code for the meter	Figure	SNVT_count
Heatmeter	nvoMeterCodeDD	DD-code for the meter	Figure	SNVT_count
Heatmeter	nvoMeterCodeMN	MN-code for the meter	Figure	SNVT_count
Heatmeter	nvoPower	Power	W	SNVT_power_f
Heatmeter	nvoTempDiff	Differential temperature	°C	SNVT_temp_p
MeterTariff	nviTL2	Value and change of TL2 (W, °C, l/s) *5	Figure	SNVT_count_f
MeterTariff	nviTL2Time	Value and change of TL2 (tid) *5	Structure *3	SNVT_time_stamp
MeterTariff	nviTL3	Value and change of TL3 (W, °C, l/s) *5	Figure	SNVT_count_f
MeterTariff	nviTL3Time	Value and change of TL3 (tid) *5	Structure *3	SNVT_time_stamp
MeterTariff	nvoTA2	TA2	Wh	SNVT_elec_whr_f
MeterTariff	nvoTA3	TA3	Wh	SNVT_elec_whr_f
MeterTariff	nvoTariffType	Chosen tariff function	Figure	SNVT_count
NodeObject	nviRequest	Request node status	Structure *1	SNVT_obj_request
NodeObject	nvoDateTime *6	Date and time	Structure *3	SNVT_time_stamp
NodeObject	nvoInfocode	Decoded info code of MULTICAL®	Bit pattern *2	SNVT_state
NodeObject	nvoRunHour	Hour counter	Figure	SNVT_count_f
NodeObject	nvoStatus	Node status	Structure *1	SNVT_obj_status
PulseCounter B	nvoEnergy_IOB	Input-b (energy) *4	Wh	SNVT_elec_whr_f
PulseCounter B	nvoMode_IOB	Includes the GG code	Figure	SNVT_count
PulseCounter B	nvoVolume_IOB	Input-b (volume) *4	Litre	SNVT_vol_f
PulseCounter A	nvoMode_IOA	Includes the FF code	Figure	SNVT_count
PulseCounter A	nvoVolume_IOA	Input-a	Litre	SNVT_vol_f
TempSensor [0]	nvoTemp[1]	Forward temperature	°C	SNVT_temp_p
TempSensor [1]	nvoTemp[2]	Return temperature	°C	SNVT_temp_p
TempSensor [2]	nvoTemp[3]	Tap water temperature	°C	SNVT_temp_p

NB: If the module is mounted in MULTICAL® III unsupported network variables will be answered with the value 0.

Technical data

Electrical data

Supply	24 VAC/DC ±30%
Power consumption	ca. 35 mA DC
Transmission speed	78 kBit/sec.
Transceiver type	FTT-10A
Recommended cable	22-24 AWG, twisted pair *)
Cable length	500..2700 m, depending on cable type and installation conditions *)
Updating	Data is collected from MULTICAL® every 10 s. Full update every 60 s.
Transmission	Every 10 s. provided that data has changed since the latest reading of MULTICAL®. 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/outputs, which can be used for totalization of pulses from water and electricity meters. The inputs and outputs are self-configuring based on the MULTICAL® 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®

Marking and approvals

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

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

Software

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

Through replacement of software the module can be activated to transmit control data every 10 s., this only applies to MULTICAL® (not MULTICAL® III).

Order specification

Description	Type No.
LON-module for MULTICAL®	66-0F-000-100
Kamstrup Trafo 230/24 V	66-99-401

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

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Authorized distributor

Please contact Kamstrup A/S
for information about your nearest distributor