

Dupline® Field- and Installationbus

Dupline® Lonworks Gateway

Type G 3891 0051



- Built-in Dupline® channel generator
- Lonworks transmission media: FTT-10A
- Baudrate: 78 kbps
- SNVT_switch variables for all 128 Digital I/O
- SNVT_state_64 variables to read/write 64 Dupline channels in one variable
- SNVT_temp_p and SNVT_lev_percent variables for 112 Analink I/O
- Split-I/O mode selectable (128 inputs and 128 outputs)
- For mounting on DIN-rail (EN 50 022)
- LED indicators for supply, Dupline® carrier and fault
- LED indicators for Lonworks: Service, Wink and Module Status
- AC power supply

Product Description

Dupline® to Lonworks gateway with built-in channelgenerator. The module, based on FTT-10A transmission media, makes Dupline® digital and analog inputs directly available as standard Lonmark network variables. Also, it is possible to control

Dupline® digital and analog signals using network variables. In total, the module offers 242 input variables and 242 output variables. Several Dupline® gateways can be connected to the same Lonworks network.

Ordering Key

G 3891 0051 230

Type: Dupline®
H8-Housing
Type no.
Supply

Type Selection

Supply	Ordering no.
115/230 VAC	G 3891 0051 230

Input/Output Specifications

Lonworks	
Transmission media	FTT-10A
Connector	Plug-in screw terminals
Communication Speed	78 kbps
XIF-file	G38910051.xif
Dielectric voltage	≥ 4 kVAC (rms)
Lonworks – Dupline®	
Dupline®	
Output voltage	8.2 V
Output current	≤ 100 mA
Short-circuit protection	Yes
All channels ON detector	Yes
Output impedance	≤ 15 Ω
Sequence time	132.3 ms (@ 128 channels)
Adjustments	
1 x 16 pos. rotary switch	No. of Dupline® channels
	8 .. 128 in steps of 8
	Dupline® mode (Normal/Split I/O)
DIP-switch 1	Not used
DIP-switch 2	Not used
DIP-switch 3	Not used
DIP-switch 4	Not used
CE-marking	Yes

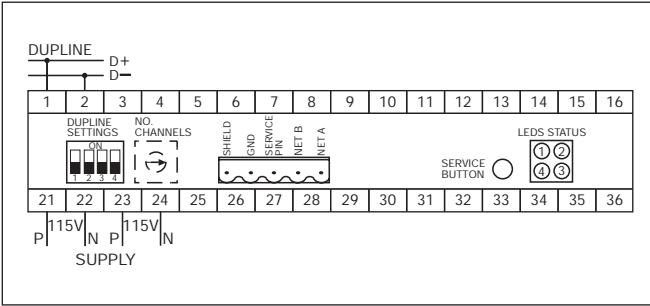
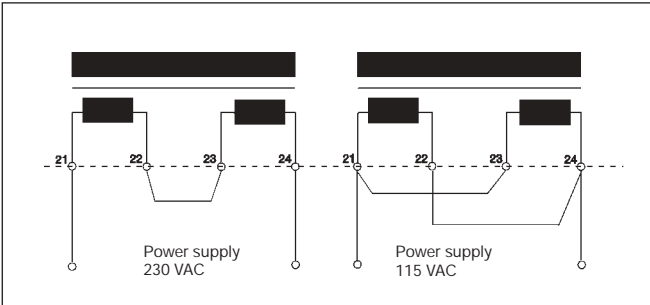
General Specifications

Power ON delay	< 2.5 s until start of Dupline® carrier. < 40 s until correct reading of AnaLink values
Indication for	
Supply ON	LED, green
Dupline® carrier	LED, yellow
Fault	LED, red
Lonworks Service LED	LED, green
Lonworks Wink LED	LED, red
Module Status	LED, green
Environment	
Degree of protection	IP 20
Pollution degree	3 (IEC 60664)
Operating temperature	0° to +50°C (+32° to +122°F)
Storage temperature	-20° to +85°C (-4° to +185°F)
Humidity (non-condensing)	20 to 80% RH
Mechanical resistance	
Shock	15 G (11 ms)
Vibration	2 G (6 to 55 Hz)
Dimensions	H8-housing
Material	(see Technical information)
Weight	540 g

Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Rated operational voltage through term. 21, 22, 23 & 24	See wiring diagram
230	230 VAC ± 15% (IEC 60038)
115	115 VAC ± 15% (IEC 60038)
Frequency	45 to 65 Hz
Rated operational power	11 VA
Rated impulse withstand voltage	4 kV
230	2.5 kV
115	
Dielectric voltage	
Supply - Dupline®	≥ 4 kVAC (rms)
Supply - RS 485	≥ 4 kVAC (rms)

Wiring Diagrams



Mode of Operation

The G38910051 is a Dupline® to Lonworks gateway with built-in channelgenerator. The module, based on FTT-10A transmission media, makes Dupline® digital and analink inputs directly available as standard Lonmark network variables. Also, it is possible to control Dupline® digital and analink signals using network variables. In total, the module offers 242 input variables and 242 output variables. Several Dupline® gateways can be connected to the same Lonworks network.

Dupline Configuration switches

The unit is equipped with the following Dupline® configuration switches. (See also switch settings)

1x16 position rotary-switch for selecting Number of Dupline® Channels in the range 8..128 (in steps of 8). The selected letter indicates the last channel group available on Dupline®. If e.g. H is selected, the 64 channels in groups A..H will be available.

DIP-switch (1) for selection of Dupline® Operation Mode. In "Normal" mode, Dupline® operates as a peer-to-peer

system where the channel generator automatically establishes a connection between Dupline® inputs and Dupline® outputs which are coded to the same Dupline® address. If e.g. an input coded for B5 is activated, the output(s) coded for B5 will also be activated. Consequently a Dupline® output can either be activated through the corresponding Lonworks network variable or by an active Dupline® input coded for the same Dupline® address. In "Split I/O" mode, the Dupline® inputs and Dupline® outputs are created independently by the channel generator. If e.g. an input coded for B5 is activated, the Gateway will propagate the event via the associated Lonmark network variable (like in normal mode), but it will not automatically activate the Dupline® output(s) coded to B5. In "Split I/O" mode, the Dupline® outputs are controlled exclusively through the Lonmark network variables.

DIP-switch (2), DIP-switch (3) and DIP-switch (4) are not used in this module.

The Service-pin, located on the front of the module on the right-hand side, can be used

during commissioning and maintenance. When activated, the G38910051 sends a Lonworks service message containing its 48-bit unique ID on the network. This information can be used by a network management tool (e.g. Lonmaker) to install and configure the node.

Dupline® Input Data

A part of the Gateway input processor reads all the 128 Dupline®-channels as Digital inputs and another part reads the 112 channels (C1 to P8) as Analink inputs. Each Dupline® digital input has a Lonmark network variable of type SNVT_switch assigned to it. It is also possible to read the status of the Dupline® digital input by using the variables nvo_state_64_AH and nvo_state_64_IP, which are of the type SNVT_state_64. Each of these variables contains the status of 64 Dupline® channels (A1-H8, I1-P8) and they are effective in use when a Lonworks device needs to read the status of several Dupline® channels.

There is also a Lonmark network variable assigned to each Dupline® analink input in

the range C1-P8. It has been chosen to make two commonly used variable types available, namely SNVT_temp_p (channels C1-I8) and SNVT_lev_percent (J1-P8). So temperature sensors need to be assigned an address in the range C1-I8, and analink devices with 0-20 mA, 4-20 mA or 0-10 VDC inputs must be assigned an address in the range J1-P8. Also, in order to achieve the correct scaling for an Analink temperature sensor, it is necessary to use the G89111010 or G86111010, which both operate in the range -30 to +60 °C. See table "Lonwork network variables for further information".

Dupline® Output Data

There are 128 network variables of type SNVT_switch available for control of the digital status of each Dupline® channel. It is also possible to perform the control by using the network variables nvi_state_64_AH (covering A1-H8) or nvi_state_64_IP (covering I1-P8), which are of the type SNVT_state_64. These are effective in use if one Lonwork node need to control several Dupline® channels. If Normal mode is selected on DIP-switch (1), the outputs can also be controlled from Dupline®

Mode of Operation (cont.)

transmitters coded for the same address as the output (OR-function).

For control of Dupline® analog outputs, there are 112 network variables of type SNVT_lev_

percent available, one for each channel in the range C1-P8). If e.g. the value 50% is sent to such a variable, the output of a 4-20mA Dupline® module with this address will be 12 mA.

Important note:

The Neuron chip ID is printed on a label on the bottom side of the module.

Lonworks network variables

Digital input variables

Name	Type	Description
nvo_switch_A1	SNVT_switch	Input status A1
nvo_switch_A2	SNVT_switch	Input status A2
nvo_switch_A3	SNVT_switch	Input status A3

nvo_switch_A8	SNVT_switch	Input status A8
nvo_switch_B1	SNVT_switch	Input status B1

nvo_switch_P7	SNVT_switch	Input status P7
nvo_switch_P8	SNVT_switch	Input status P8

nvo_state_64_AH	SNVT_state_64	Input status for all channel in groups A-H
nvo_state_64_IP	SNVT_state_64	Input status for all channel in groups I-P

Digital output variables

Name	Type	Description
nvi_switch_A1	SNVT_switch	Output control A1
nvi_switch_A2	SNVT_switch	Output control A2
nvi_switch_A3	SNVT_switch	Output control A3

nvi_switch_A8	SNVT_switch	Output control A8
nvi_switch_B1	SNVT_switch	Output control B1

nvi_switch_P7	SNVT_switch	Output control P7
nvi_switch_P8	SNVT_switch	Output control P8

nvi_state_64_AH	SNVT_state_64	Output control for all channel in groups A-H
nvi_state_64_IP	SNVT_state_64	Output control for all channel in groups I-P

Analog input variables

Name	Type	Description
nvo_temp_p_C1	SNVT_temp_p	Analink Temperature C1
nvo_temp_p_C2	SNVT_temp_p	Analink Temperature C2
nvo_temp_p_C3	SNVT_temp_p	Analink Temperature C3

nvo_temp_p_C8	SNVT_temp_p	Analink Temperature C8
nvo_temp_p_D1	SNVT_temp_p	Analink Temperature D1

nvo_temp_p_I7	SNVT_temp_p	Analink Temperature I7
nvo_temp_p_I8	SNVT_temp_p	Analink Temperature I8
nvo_lev_percent_J1	SNVT_lev_percent	Analink Input Value J1
nvo_lev_percent_J2	SNVT_lev_percent	Analink Input Value J2

nvo_lev_percent_J8	SNVT_lev_percent	Analink Input Value J8
nvo_lev_percent_K1	SNVT_lev_percent	Analink Input Value K1

nvo_lev_percent_P7	SNVT_lev_percent	Analink Input Value P7
nvo_lev_percent_P8	SNVT_lev_percent	Analink Input Value P8

Analog output variables

Name	Type	Description
nvi_lev_percent_C1	SNVT_lev_percent	Analink Output Value C1
nvi_lev_percent_C2	SNVT_lev_percent	Analink Output Value C2
nvi_lev_percent_C3	SNVT_lev_percent	Analink Output Value C3

nvi_lev_percent_C8	SNVT_lev_percent	Analink Output Value C8
nvi_lev_percent_D1	SNVT_lev_percent	Analink Output Value D1

nvi_lev_percent_I7	SNVT_lev_percent	Analink Output Value I7
nvi_lev_percent_I8	SNVT_lev_percent	Analink Output Value I8
nvi_lev_percent_J1	SNVT_lev_percent	Analink Output Value J1
nvi_lev_percent_J2	SNVT_lev_percent	Analink Output Value J2


nvi_lev_percent_J8	SNVT_lev_percent	Analink Output Value J8
nvi_lev_percent_K1	SNVT_lev_percent	Analink Output Value K1

nvi_lev_percent_P7	SNVT_lev_percent	Analink Output Value P7
nvi_lev_percent_P8	SNVT_lev_percent	Analink Output Value P8

The LON network variables are divided into 17 functionals blocks. There are no control functions built into the functional blocks. There are 16 blocks with all the variables belonging to a certain Dupline group: Group A, Group B, Group C,....., Group P

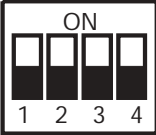
There is 1 block where all Dupline digital inputs and outputs can be accessed effectively through SNVT_state_64 variables: AllDigital

Switch Settings



Number of Dupline Channels
A: Group A 8 channels
B: Groups A..B 16 channels
P: Groups A..P 128 channels

ON



1: Dupline Operation Mode
OFF: Normal (Peer-to-Peer)
ON: Split I/O mode

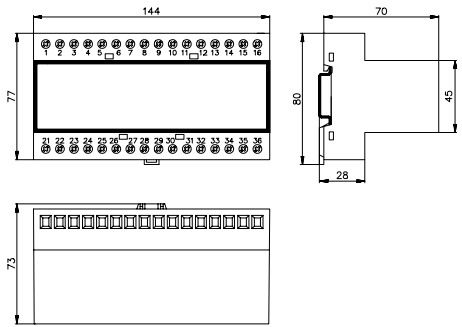
2: Not used
3: Not used
4: Not used

Lonworks LED Indicators (right hand side of the module)

	ON	OFF	Blinking
LED 2	The node is unconfigured and application less	The node is unconfigured and installed in a network	The node has an application but is not yet installed in a network (unconfigured).
LED 3		Normal state	A wink command is received on the Lonworks
LED 4	The module has been initiated correct and is working ok. (solid green LED)	A hardware error has occurred. (solid red LED)	Software error. Restart the module.

Dimensions (mm)

H8-housing



Top view dimensions: 144 (width), 77 (height). Pin numbers 1-16 on top, 17-32 on bottom.

Side view dimensions: 70 (total width), 28 (base width), 80 (height), 45 (flange height).

Front view dimensions: 73 (height).