Dupline® Hi-Line Booster Module for Valve Control Type GH34850000

Dupline®
Fieldbus **Installationbus**

- Generates 28 V Hi-Line signal
- Supplies and controls up to 64 valve I/O modules over two wires
- Up to 7 km transmission distance
- Built-in Gas-arrestor for lightning protection
- H4 housing
- LED-indications for Dupline carrier, Hi-Line carrier and supply
- DC power supplied

Product Description

GH34850000724 is a converter module for the Dupline® irrigation control concept. It converts a standard Dupline® signal to a 28V "Hi-Line" signal, which can be used to supply and control up to 64 Valve I/O modules. GH34850000724 can be used with any type of Dupline® channel generator, including Modbus interfaces and dedicated interfaces for most PLC brands.
The two-wire Hi-Line cable can be up to 7 km long.

Ordering Key

GH34850000724

Type: Dupline®
H4-Housing
DC supply

Type Selection

Supply type	Ordering no.
20-30 VDC	**GH34850000724**

Input/Output Specifications

Inputs

Terminals 24(+) & 25(-)	Dupline® Bus
Current consumption	2 mA
Max. distance between channel generator and GH34850000	50 m

Outputs

Terminals 27(+) & 28(-)	Hi-Line Bus
Short-circuit protection	Yes
Overload protection	Yes
Max. bus load	64 Valve modules (GH64404412 or GH34404412)

Supply Specifications

Supply	Supply must be galvanically isolated from mains and PE, and only connected to the Dupline® channel generator and the Dupline® booster module.
Rated operational voltage	through term. 21(+) & 22(-) 20 to 30 VDC (ripple included)
Ripple	≤ 3 V
Reverse polarity protection	Yes
Rated operational current	≤ 300 mA
Transient protection voltage	800 V
Dielectric voltage	
Supply – Dupline®	None
Supply - Hi-Line	None

General Specifications

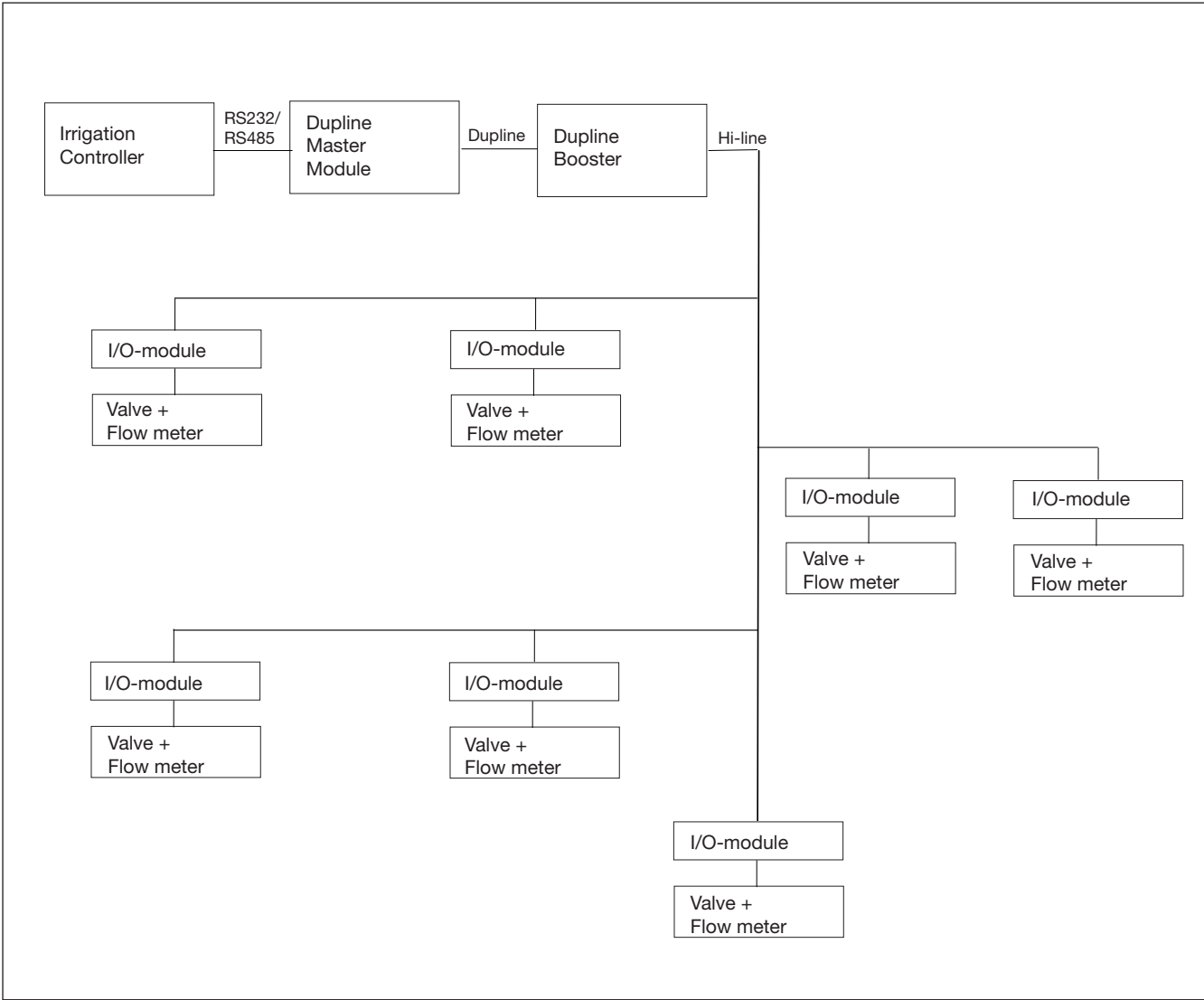|	
Power ON delay	max. 120 sec. (with 64 modules connected)
Indication for	
Dupline® carrier in	LED, yellow
Hi-Line carrier out	LED, yellow
Supply	LED, green
Environment	
Degree of protection	IP20 B
Pollution degree	3 (IEC 60664)
Operating temperature	0° to +50°C (+32° to +122°F)
Storage temperature	-20° to +85°C (-4° to +185°F)
Humidity (non-condensing)	20 to 80%
Dimensions	H4- housing
Material	Noryl SE1, Grey
Mechanical resistance	
Shock	15 G (11 ms)
Vibration	2 G (6 to 55 Hz)
Weight	200 g

Mode of Operation

The purpose of the Dupline Irrigation Bus System is to reduce the cost of the wiring in irrigation systems. By connecting the Irrigation Controller with all the valves in the field via a 2-wire bus, a much simpler and more flexible solution is achieved compared to the traditional multicore cable with a hot-wire for each valve. The bus system enables the Irrigation Controller to control each individual valve (open/closed) and it also carries the power required to operate the valves, which must be 3-wire 12 VDC latching types. It is also possible to send information from the field to the Irrigation Controller, e.g. pulses from a flow meter. Each valve must be connected to a bus I/O-module with 2 digital outputs (open, close) and 2 digital inputs. The interface between the Irrigation Controller and the Dupline Master Module is achieved via serial communication (RS232 or RS485) between the two devices.

The GH34850000724 booster module increases the voltage level of the standard Dupline signal to 28 VDC in order to achieve sufficient voltage level to operate the valves. The diagram below shows the topology of the system.

Specifications are subject to change without notice (05.04.2006)
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System Characteristics

Cable requirements
Min. cable cross-section
1.5 mm2
Shield not required
Twist not required
Free topology

Distance and number of valves
Max. 64 valves on one line (128 outputs, 128 inputs)
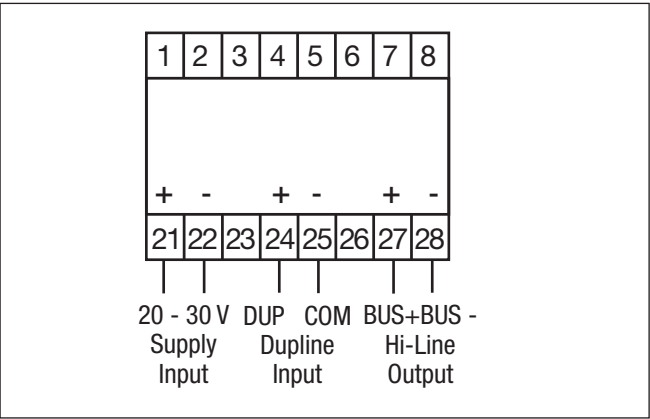Up to 7 km communication distance

There must be min. 10 s between two valve operations on the line.

The table below shows the max. number of valves on one line as a function of distance and cross-section of the cable. The "shaded" cells are always valid. The unshaded cells are based on a uniform distribution of the valves and are hence valid

when the **average** distance between the valves and the Hi-Line Booster is below 0.75 of the distance between the Hi-line Booster and the farthest valve.

12 VDC latching valve

	1 km	2 km	3 km	4 km	5 km	6 km	7 km
1.5 sq.mm	64	64	64	64	64	54	44
2.5 sq.mm	64	64	64	64	64	64	64

Loss of bus signal
If the valve I/O-module looses the bus signal, it will automatically close the valve.

Wiring Diagram

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

| + | - | + | - | + | - |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |

20 - 30 V
Supply
Input

DUP
Dupline
Input

COM

BUS+ BUS -
Hi-Line
Output

Dimensions (mm)

H4-housing

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