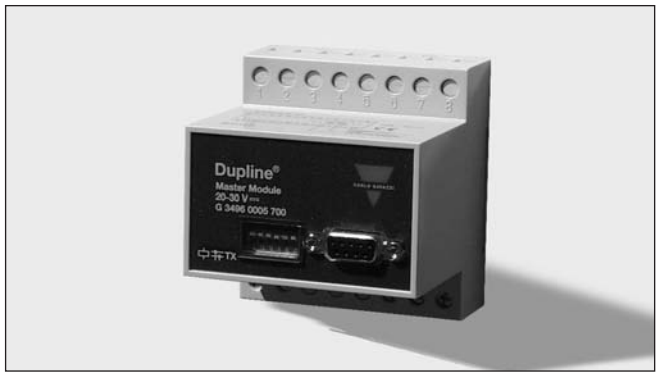
Dupline® Master Module
Interface for Standard Optolink Protocol
Type G 3496 0000



- **Standard Optolink Protocol Slave**
- **Built-in normal Dupline® Channel Generator**
- **128 I/O's and DC power supply on 3 wires**
- **RS232/RS422/RS485 port for interfacing to control system**
- **Multidropping of up to 16 devices on RS485**
- **LED-indications for supply, Dupline® carrier and Com-port TX**
- **Galvanically isolated Com-port supplied by internal DC/DC converter**

Product Description

G 3496 0000 is designed as a cost-effective solution for interfacing Dupline® I/O's to control systems. It performs three functions: Dupline® channel generator, power supply synchronization (enables 3-wire system with supply) and RS232/RS422/RS485 interface.

Ordering Key

G 3496 0000 700

Type: Dupline®
H4-Housing
Combined module
Interface type
DC supply

Type Selection

Supply	PLC Interface type	Ordering no.
20-30 VDC	Optolink Standard protocol	**G 3496 0000 700**

Input/Output Specifications

Power output	
Output voltage	20-30 VDC (pulsating)
Output current	< 3.0 A @ 50°C
Short circuit protection	4 A quick acting fuse
Output voltage drop	< 1.0 V
Dupline® carrier	
Output voltage	8.2 V (pulsating)
Current	< 60 mA
Short circuit protection	Yes
Scan time	
128 channels	132.2 ms
64 channels	69.8 ms
Communication port	
Standard	RS 232/RS 422/ RS 485
Split I/O / Normal mode	Normal mode
Connection	9 pole female SUB-D
Dielectric voltage	
Com-port - Dupline®	1 kVAC (rms)
Protocol	Optolink
Baud rate	19200
Data bits	8
Start bit	1
Stop bit	1
Parity	None
Flow-control	None

Input/Output Specifications (Cont.)

Pin assignment	
2-wire RS 485	
S/R Data line + (B)	Pin 3
S/R Data line - (A)	Pin 8
GND	Pin 5
4-wire RS 485/RS 422	
R Data line + (B)	Pin 3
R Data line - (A)	Pin 8
S Data line + (B)	Pin 2
S Data line - (A)	Pin 7
Direction	Pin 4 (Connect to GND pin 5 when using 4-wire communication)
RS 232	
TX	Pin 1
RX	Pin 9
GND	Pin 5

* Note see wiring diagrams for PC-connection

Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Operational voltage (V_{in})	20-30 VDC
Reverse polarity protection	None
Current consumption	< 150 mA + Power load
Power dissipation	< 5 W
Transient protection voltage	800 V
Dielectric voltage	
Supply - Dupline®	None
Supply - com-port	1 kVAC (rms)

General Specifications

Power ON delay	2 s
Indication for	
Com-port Tx	LED, red
Supply ON	LED, green
Dupline® carrier	LED, yellow
Environment	
Pollution degree	3 (IEC 60664)
Operating temperature	0° to +50°C (+32° to +122°F)
Storage temperature	-50° to +85°C (-58° to +185°F)
Humidity (non-condensing)	20 to 80%
Mechanical resistance	
Shock	15 G (11 ms)
Vibration	2 G (6 to 55 Hz)
Dimensions	H4-Housing
Material	(see Technical information)
Weight	100 g

Mode of Operation

The Dupline® Master Module is a Dupline® Channel Generator with the function of a slave. This means that the 128 Dupline® I/O's can be read/controlled by a PC/PLC or a Control board master from many different suppliers. Up to 16 Dupline® Master Modules can be connected to the same network and operate together with other modules using the same protocol like operator panels, MMI's frequency inverters, I/O-modules etc.

When the Dupline® Master Module has received a telegram with output data for Dupline® Receivers, it will automatically respond with a telegram with input data from Dupline® Transmitters.

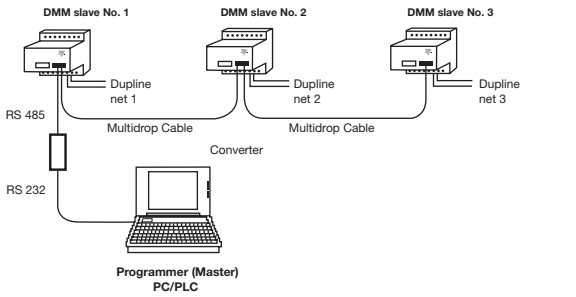
Dip-Switch Setting

Sw.1-4 **On/Off:** Device no. 0-15 (all off = 0)
Sw.5 **On:** 64 Dupline® channels
Off: 128 Dupline® channels

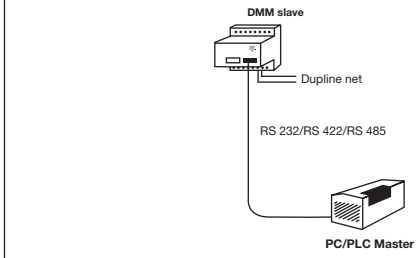
Device no.	Sw1	Sw2	Sw3	Sw4
00	0	0	0	0
01	0	0	0	1
02	0	0	1	0
03	0	0	1	1
-				
14	1	1	1	0
15	1	1	1	1

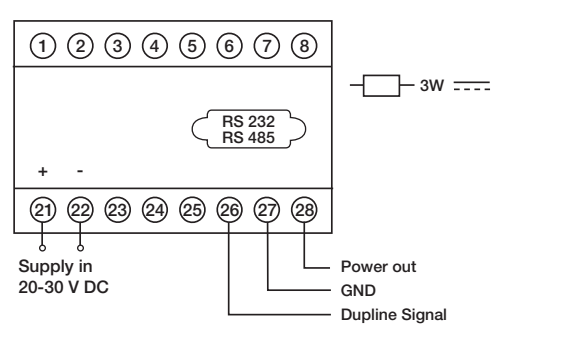
Wiring Diagrams

Multidrop



Peer to Peer





Cable wiring between PC and DMM

PC	⟷	G3496 0000
DP9	⟷	DP9
Pin 2	⟷	Pin 1
Pin 3	⟷	Pin 9
Pin 5	⟷	Pin 5

Telegram Structure

All telegrams are built up as shown in schedule - no matter if they are sent from the PC/PLC/ Controlboard to the DMM or they are returned by the DMM.
The communication is executed by using telegrams that start with the ASCII-character “s” and end with the ASCII-character “e”. All information transmitted between these two characters is compressed to achieve short telegrams with a high data throughput. By using this compression, the signal status of the 8 channels within a Dupline® address group are transmitted as only two ASCII-characters. This is done by converting the lower 4-Bit and the upper 4-Bit of a Data byte into hexadecimal numbers and the subsequent transformation of these numbers into ASCII-characters.

Field Name	Example	Description
Start	**s**	Start
Destination Address	**@M**	Addressed to DMM no. 13
No. og Data words	**@H**	8 data words (Group A - H)
Status	**@A**	Turnaround delay = 1ms
Source Address	**A@**	PC / PLC is always 10 Hex
Data word# 1	**NB**	Set A1,A2,A3,A4 Clear A4,A5,A6,A8
Data word# 2 - 8	**@@,@@,...@@**	Clear Group B - H
Checksum	**OH**	
End	**e**	END

Memory Mapping

ASCII Transformation for a Group of 4 Dupline® Channels

Channel Status Ch. 1 - Ch. 4 / Ch. 5 - Ch. 8				Hex	ASCII	Channel Status Ch. 1 - Ch. 4 / Ch. 5 - Ch. 8				Hex	ASCII
0	0	0	0	0	**@**	1	0	0	0	8	**H**
0	0	0	1	1	**A**	1	0	0	1	9	**I**
0	0	1	0	2	**B**	1	0	1	0	A	**J**
0	0	1	1	3	**C**	1	0	1	1	B	**K**
0	1	0	0	4	**D**	1	1	0	0	C	**L**
0	1	0	1	5	**E**	1	1	0	1	D	**M**
0	1	1	0	6	**F**	1	1	1	0	E	**N**
0	1	1	1	7	**G**	1	1	1	1	F	**O**

Installation Hints

No TX-LED

Checksum Error — The Checksum is being cal culated in a wrong way.

Order/download the document: — Telegram structure for DMM G34960000 from our Homepage: www.dupline.com

Wrong telegram structure — See “Telegram Structure”

Hardware fault — Check the wiring. Try to send the telegram-example mentioned in “Telegram Structure”.

No Dupline® Carrier-LED

Short circuit — Short circuit between the two Dupline® wires.

Request response — Check the Turnaround delay in the Status byte.

Accessories

Document — Telegram Structure for DMM G34960000

Additional Information

Scope of supply
1 x Master Module — G3496 0000 700

Dimensions (mm)

H4-housing