

Dupline® Master Module Interface for Modbus-RTU Type G 3496 0005



- Modbus-RTU Slave
- Built-in normal Dupline® Channel Generator
- 128 I/O's and DC power supply on 3 wires
- 32 Analink Inputs
- 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
- Galvanic isolated Com-port supplied by internal DC/DC converter

Product Description

G 3496 0005 is designed as a cost-effective Plug & Play solution for interfacing Dupline® I/O's to control systems. It performs three functions: Dupline® channel gen-

erator, power supply synchronization (enables 3-wire system with supply) and RS232/RS422/RS485 interface.

Ordering Key

G 3496 0005 700

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

Type Selection

Supply	PLC Interface Conformance	Ordering no.
20-30 VDC	Modbus-RTU, Protocol command 03 & 16	G 3496 0005 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	Modbus-RTU
Baud rate	9600
Data bits	8
Start bit	-
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

Supply Specifications

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

General Specifications

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

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® gateways 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.

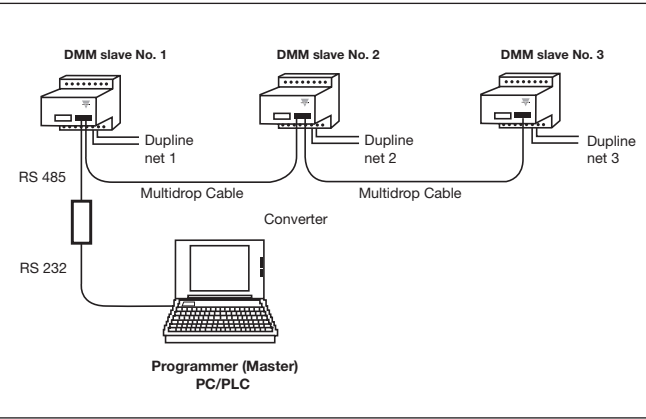
When the Dupline® Master Module has received a telegram with Dupline® output-information to Dupline® Receivers, it will automatically respond with a telegram with Dupline® input-information to Dupline® Transmitters.

Dip-Switch Setting

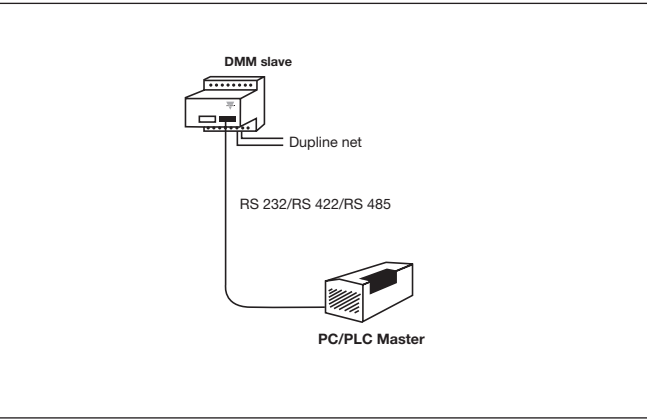
Sw.1-4	On/Off:	Device no. 0-15 (all off = 0)
Sw.5	On:	64 Dupline® channels
	Off:	128 Dupline® channels

Wiring Diagrams

Multidrop



Peer to Peer



Telegram Structure

Modbus-RTU Function Code 03: Read Holding Registers
Query message

Field Name	Example (HEX)	Description
Slave Address	07	Addressed to DMM no. 7
Function	03	Read Registers
Starting Address Hi	00	Starting register no. 0
Starting Address Lo	00	
Number of registers Hi	00	Read 5 Registers (Group A-J)
Number of registers Lo	05	
Error Check	XX XX	-

Response Message

Field Name	Example (HEX)	Description
Slave Address	07	Addressed to DMM no. 7
Function	03	Read Registers
Byte Count	0A	10 bytes (5 Registers)
Data Hi Register no. 1	00	Dupline® Group B
Data Lo Register no. 1	40	Dupline® Group A (A7 ON)

Data Hi Register no. 5	00	Dupline® Group J
Data Lo Register no. 5	00	Dupline® Group I
Error Check	XX XX	-

Telegram Structure (Cont.)

Modbus-RTU Function Code 16: Write Multiple Registers Query Message

Field Name	Example (HEX)	Description
Slave Address	07	Addressed to DMM no. 7
Function	10	Write Registers
Starting Address Hi	00	Starting Register no. 0
Starting Address Lo	00	
Number of registers Hi	00	Write 5 Registers (Group A-J)
Number of registers Lo	05	
Byte Count	0A	10 Bytes (5 Registers)
Data Hi Register 1	02	Dupline® Group B (B2 ON)
Data Lo Register 1	00	Dupline® Group A

Data Hi Register 5	00	Dupline® Group J
Data Lo Register 5	00	Dupline® Group I
Error Check	XX XX	-

Response Message

Field Name	Example (HEX)	Description
Slave Address	07	Addressed to DMM no. 7
Function	10	Write Registers
Starting Address Hi	00	Starting register no. 0
Starting Address Lo	00	
Number of registers Hi	00	Write 5 Registers (Group A-J)
Number of registers Lo	05	
Error Check	XX XX	-

Memory Mapping

Digital read (Modbus Function 03) and Digital Write (Modbus Function 16)

Reg. no.	HIGH BYTE								LSB	LOW BYTE								LSB
1	B8	B7	B6	B5	B4	B3	B2	B1		A8	A7	A6	A5	A4	A3	A2	A1	
2	D8	D7	D6	D5	D4	D3	D2	D1		C8	C7	C6	C5	C4	C3	C2	C1	
3	F8	F7	F6	F5	F4	F3	F2	F1		E8	E7	E6	E5	E4	E3	E2	E1	
4	H8	H7	H6	H5	H4	H3	H2	H1		G8	G7	G6	G5	G4	G3	G2	G1	
5	J8	J7	J6	J5	J4	J3	J2	J1		I8	I7	I6	I5	I4	I3	I2	I1	
6	L8	L7	L6	L5	L4	L3	L2	L1		K8	K7	K6	K5	K4	K3	K2	K1	
7	N8	N7	N6	N5	N4	N3	N2	N1		M8	M7	M6	M5	M4	M3	M2	M1	
8	P8	P7	P6	P5	P4	P3	P2	P1		O8	O7	O6	O5	O4	O3	O2	O1	

Analink read (Modbus Function 03) – 32 Analink Inputs

Reg no.	MSB	HIGH BYTE	LSB	MSB	LOW BYTE	LSB
9	Analink value 0-255 from A2			Analink value 0-255 from A1		
10	Analink value 0-255 from A4			Analink value 0-255 from A3		
11	Analink value 0-255 from A6			Analink value 0-255 from A5		
12	Analink value 0-255 from A8			Analink value 0-255 from A7		
13	Analink value 0-255 from B2			Analink value 0-255 from B1		
14	Analink value 0-255 from B4			Analink value 0-255 from B3		
15	Analink value 0-255 from B6			Analink value 0-255 from B5		
16	Analink value 0-255 from B8			Analink value 0-255 from B7		
17	Analink value 0-255 from C2			Analink value 0-255 from C1		
18	Analink value 0-255 from C4			Analink value 0-255 from C3		
19	Analink value 0-255 from C6			Analink value 0-255 from C5		
20	Analink value 0-255 from C8			Analink value 0-255 from C7		
21	Analink value 0-255 from D2			Analink value 0-255 from D1		
22	Analink value 0-255 from D4			Analink value 0-255 from D3		
23	Analink value 0-255 from D6			Analink value 0-255 from D5		
24	Analink value 0-255 from D8			Analink value 0-255 from D7		

Installation Hints

No TX-LED

Checksum Error

The Checksum has been calculated in a wrong way.
Order/download the document: "Telegram structure for DMM G34960005" from our Homepage: www.dupline.com

Wrong telegram structure

Hardware fault

See "Telegram Structure"
Check the wiring. Try to send the telegram-example mention in "Telegram Structure."

No Dupline® Carrier-Led

Short circuit

Short circuit between the two Dupline® wires.

Accessories

Document Telegram Structure for DMM G34960000

Additional Information

Scope of supply
1 x Master Module

G3496 0005 700