

Dupline® Plug & Play Master Module Interface for Siemens Simatic S7-200 PLC Type G 3496 0010



- Interface for Siemens Simatic S7-200 PLC with the function of a master
- Plug and play: Automatic communication with specific PLC/Controllers
- 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
- Split-I/O mode selectable (128 inputs and 128 outputs)
- LED-indications for supply, Dupline® carrier and Com-port TX
- Galvanically isolated Com-port supplied by internal DC/DC converter

Product Description

G 3496 0010 is designed as a cost-effective solution for interfacing Dupline® I/O's to the Siemens Simatic S7-200 PLC family. 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 0010 700

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

Type Selection

Supply	PLC Interface Conformance	Ordering no.
20-30 VDC	Siemens Simatic S7-200 PLC family	G 3496 0010 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	RS232/RS422/RS485
Connection	9 pole female Sub-D
Dielectric voltage	
Com-port - Dupline®	1 kVAC (rms)
Protocol	Modbus-RTU (function code 03 and 16)
Channel Configuration in PLC	
Baud rate	9600
Data bits	8
Start bit	1
Stop bit	1
Parity	None
Flow-control	None

Input/Output Specifications (Cont.)

Pin assignment	
2-wire RS485	
S/R Data line + (B)	3
S/R Data line - (A)	8
GND	5
4-wire RS485/RS422	
R Data line + (B)	3
R Data line - (A)	8
S Data line + (B)	2
S Data line - (A)	7
Direction	4 (Connect pin 5 to GND when using 4-wire com.)
RS232	
TX	1
RX	9
GND	5

Supply Specifications

Power supply	
Operational voltage (V _m)	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	2 (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 (DMM) controls a 3-wire bus with signal, DC-power and common GND. The DMM is connected to a standard DC-supply, which it synchronizes with the Dupline® carrier signal before it is outputted to supply. The synchronization is necessary in order to enable the Dupline® and DC-supply to share the GND-wire.

The Dupline® Master Module is a Dupline® Channel Generator with the function of a master.

This means that the 128 Dupline® I/O's will be read/written by the DMM and then sent to the PLC.

The DMM can run in two different modes – Normal mode and split I/O 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 output-data received on DMM or by an active Dupline® input coded for the same Dupline®-address. In "Split I/O" mode, the channel generator treats the Dupline® inputs and Dupline® outputs independently. If e.g. an input coded for B5 is activated, the DMM

will make the information available for the PLC (like in normal mode), but it will not automatically activate the Dupline® output(s) coded to B5. The Dupline® outputs are controlled exclusively through the output data received from the PLC. In this mode, up to 128 Dupline® inputs and 128 Dupline® outputs are available, since an input and an output coded to the same Dupline® address can operate independently.

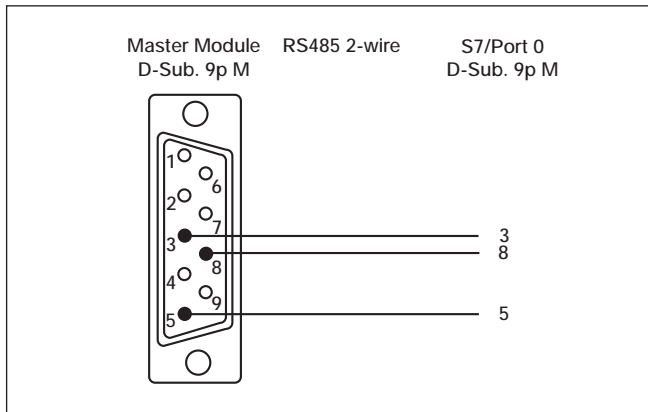
Memory Mapping

Read from Dupline® to Siemens Simatic S7-200															
Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7		
A1	V0.0	B1	V1.0	C1	V2.0	D1	V3.0	E1	V4.0	F1	V5.0	G1	V6.0	H1	V7.0
A2	V0.1	B2	V1.1	C2	V2.1	D2	V3.1	E2	V4.1	F2	V5.1	G2	V6.1	H2	V7.1
A3	V0.2	B3	V1.2	C3	V2.2	D3	V3.2	E3	V4.2	F3	V5.2	G3	V6.2	H3	V7.2
A4	V0.3	B4	V1.3	C4	V2.3	D4	V3.3	E4	V4.3	F4	V5.3	G4	V6.3	H4	V7.3
A5	V0.4	B5	V1.4	C5	V2.4	D5	V3.4	E5	V4.4	F5	V5.4	G5	V6.4	H5	V7.4
A6	V0.5	B6	V1.5	C6	V2.5	D6	V3.5	E6	V4.5	F6	V5.5	G6	V6.5	H6	V7.5
A7	V0.6	B7	V1.6	C7	V2.6	D7	V3.6	E7	V4.6	F7	V5.6	G7	V6.6	H7	V7.6
A8	V0.7	B8	V1.7	C8	V2.7	D8	V3.7	E8	V4.7	F8	V5.7	G8	V6.7	H8	V7.7
Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7		
I1	V8.0	J1	V9.0	K1	V10.0	L1	V11.0	M1	V12.0	N1	V13.0	O1	V14.0	P1	V15.0
I2	V8.1	J2	V9.1	K2	V10.1	L2	V11.1	M2	V12.1	N2	V13.1	O2	V14.1	P2	V15.1
I3	V8.2	J3	V9.2	K3	V10.2	L3	V11.2	M3	V12.2	N3	V13.2	O3	V14.2	P3	V15.2
I4	V8.3	J4	V9.3	K4	V10.3	L4	V11.3	M4	V12.3	N4	V13.3	O4	V14.3	P4	V15.3
I5	V8.4	J5	V9.4	K5	V10.4	L5	V11.4	M5	V12.4	N5	V13.4	O5	V14.4	P5	V15.4
I6	V8.5	J6	V9.5	K6	V10.5	L6	V11.5	M6	V12.5	N6	V13.5	O6	V14.5	P6	V15.5
I7	V8.6	J7	V9.6	K7	V10.6	L7	V11.6	M7	V12.6	N7	V13.6	O7	V14.6	P7	V15.6
I8	V8.7	J8	V9.7	K8	V10.7	L8	V11.7	M8	V12.7	N8	V13.7	O8	V14.7	P8	V15.7

Memory Mapping (cont.)

Write to Dupline® from Siemens Simatic S7-200															
Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7
A1	V16.0	B1	V17.0	C1	V18.0	D1	V19.0	E1	V20.0	F1	V21.0	G1	V22.0	H1	V23.0
A2	V16.1	B2	V17.1	C2	V18.1	D2	V19.1	E2	V20.1	F2	V21.1	G2	V22.1	H2	V23.1
A3	V16.2	B3	V17.2	C3	V18.2	D3	V19.2	E3	V20.2	F3	V21.2	G3	V22.2	H3	V23.2
A4	V16.3	B4	V17.3	C4	V18.3	D4	V19.3	E4	V20.3	F4	V21.3	G4	V22.3	H4	V23.3
A5	V16.4	B5	V17.4	C5	V18.4	D5	V19.4	E5	V20.4	F5	V21.4	G5	V22.4	H5	V23.4
A6	V16.5	B6	V17.5	C6	V18.5	D6	V19.5	E6	V20.5	F6	V21.5	G6	V22.5	H6	V23.5
A7	V16.6	B7	V17.6	C7	V18.6	D7	V19.6	E7	V20.6	F7	V21.6	G7	V22.6	H7	V23.6
A8	V16.7	B8	V17.7	C8	V18.7	D8	V19.7	E8	V20.7	F8	V21.7	G8	V22.7	H8	V23.7
Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7	Dup.	S7
I1	V24.0	J1	V25.0	K1	V26.0	L1	V27.0	M1	V28.0	N1	V29.0	O1	V30.0	P1	V31.0
I2	V24.1	J2	V25.1	K2	V26.1	L2	V27.1	M2	V28.1	N2	V29.1	O2	V30.1	P2	V31.1
I3	V24.2	J3	V25.2	K3	V26.2	L3	V27.2	M3	V28.2	N3	V29.2	O3	V30.2	P3	V31.2
I4	V24.3	J4	V25.3	K4	V26.3	L4	V27.3	M4	V28.3	N4	V29.3	O4	V30.3	P4	V31.3
I5	V24.4	J5	V25.4	K5	V26.4	L5	V27.4	M5	V28.4	N5	V29.4	O5	V30.4	P5	V31.4
I6	V24.5	J6	V25.5	K6	V26.5	L6	V27.5	M6	V28.5	N6	V29.5	O6	V30.5	P6	V31.5
I7	V24.6	J7	V25.6	K7	V26.6	L7	V27.6	M7	V28.6	N7	V29.6	O7	V30.6	P7	V31.6
I8	V24.7	J8	V25.7	K8	V26.7	L8	V27.7	M8	V28.7	N8	V29.7	O8	V30.7	P8	V31.7

Pin Assignment



Dip-Switch Setting

- Sw.4 On:** Split I/O Channel Generator Mode (Receivers activated by the PLC)
- Sw.4 Off:** Normal Dupline® Monostable Channel Generator Mode
- SW.5 On:** 64 Dupline® channels
- SW.5 Off:** 128 Dupline® channels
- Sw.6 On:** Maintain data on Dupline® in case of communication failure
- Sw.6 Off:** Clear data on Dupline® after 10 sec. of communication failure

Accessories

Cable Sub-D 9p M/Sub-D 9p M RS-485-SI1

Additional Information

Scope of supply

1 x Master Module	G3496 0010 700
1 x Support software for S7	SW G3496 0010 700

Installation Hints

- Slow flashing TX-LED**
 - Polling without contact to S7 PLC
 - Check the wiring.
- Fast flashing TX-LED**
 - Communication OK
- No Dupline® Carrier-LED**
 - Dupline® Short circuit.
 - Short circuit between the two Dupline® wires.