

- Interface for Modbus-RTU with the function of a slave
- Built-in Dupline® Channel Generator
- 128 I/O's and DC power supply on 3 wires
- RS232/RS422/RS485 port for making an interface to the 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
- Sends out sync. signal for the Carpark sensors

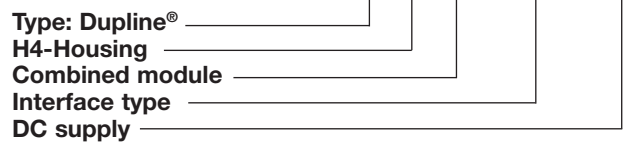
Product Description

GP 3496 0005 has been designed as a cost-effective Plug & Play solution for making an interface between Dupline® I/O's and control systems. It has four functions: Dupline® channel generator, power supply

synchronization (enables a 3-wire system with supply), RS232/RS422/RS485 interface, and it produces a synchronization signal on two specific Dupline® addresses for the Dupline® Carpark system.

Ordering Key

GP34960005700



Type Selection

Supply	PLC Interface Conformance	Ordering no.
20-30 VDC	Modbus-RTU, Function code 01, 02, 03, 04, 05, 06 & 16	GP 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	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® DMM can be connected to the same network and operate together with other modules using the same protocol as operator panels, MMI's frequency inverters, I/O-modules etc. The GP34960005 has been developed for carpark installations. DIP sw 6 must be set in ON-position, because the

GP34960005 will then automatically send out a synchronization signal needed by the carpark sensors. This synchronization signal ensures that two neighbour sensors are not making ultrasonic measurements simultaneously. Please note that the addresses P5, P6 are reserved for this purpose, but also P7 and P8 cannot be used. The first sensor on a line must be programmed to P5, the next to P6, the next to P5 and the next to P6. All the sensors must be programmed with P5 or P6 on I/O6 respectively to avoid simultaneous pulses. (see diagram below).

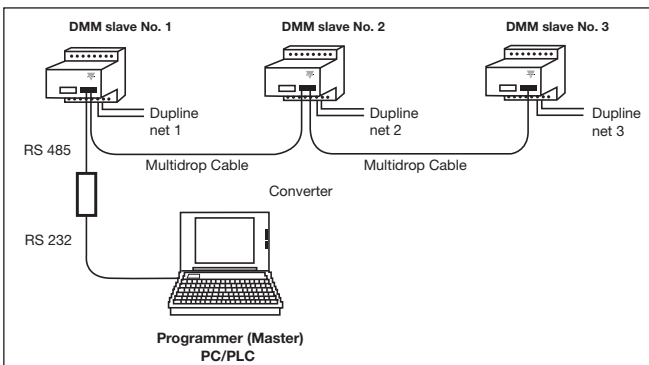
Dip-Switch Setting

Sw.1-4	On/Off:	Device no. 1-16 (all off = 16)
Sw.5	On:	64 Dupline® channels
	Off:	128 Dupline® channels
Sw.6	On:	Synchronization function on P5 and P6 activated.
	Off:	Test mode for internal use

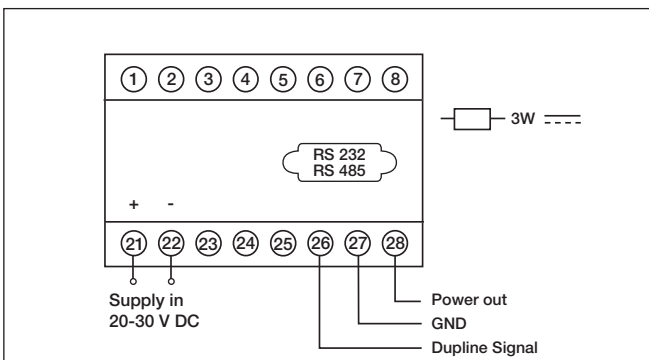
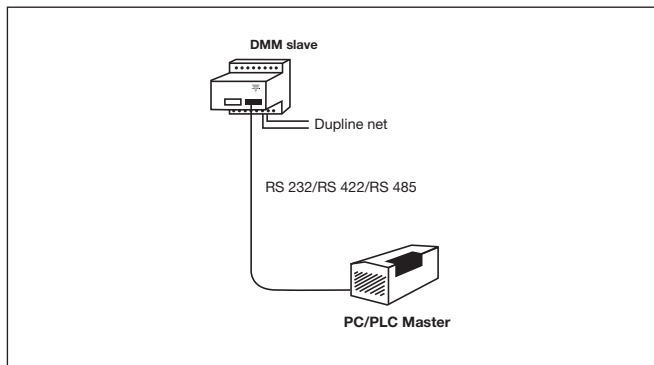
Device no.	Sw1	Sw2	Sw3	Sw4
01	0	0	0	1
02	0	0	1	0
03	0	0	1	1
04	0	0	1	0
-				
15	1	1	1	1
16	0	0	0	0

Wiring Diagrams

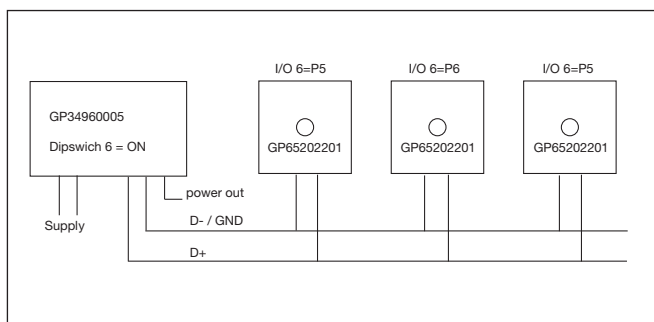
Multidrop



Peer to Peer



Carpark with Synchronization Function



Telegram Structure

Modbus-RTU Function code 01: Read Output Table (Data to receivers) or 02: Read Input Table (Data from transmitters)

Field Name	Example (HEX)	Description
Slave Address	07	Addressed to DMM no. 7
Function	01/02	Read Output/Input Table
Starting Point no. Hi	00	Read Dupline® A6
Starting Point no. Lo	05*	(Point no. 6)
Number of points	00	Always 00 01
Number of points	01	
Error Check	XX XX	-

Response Message

Field Name	Example (HEX)	Description
Slave Address	07	Addressed from DMM no. 7
Function	01/02	Read Output/Input Table
Byte Count	01	1 byte
Data	01	Dupline® Channel A6 (ON)
Error Check	XX XX	-

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 from 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	-

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 from 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	-

* According to modbus protocol definition the starting address/point is transferred as one less than the number of the first reg/point to be read/written to

Memory Mapping

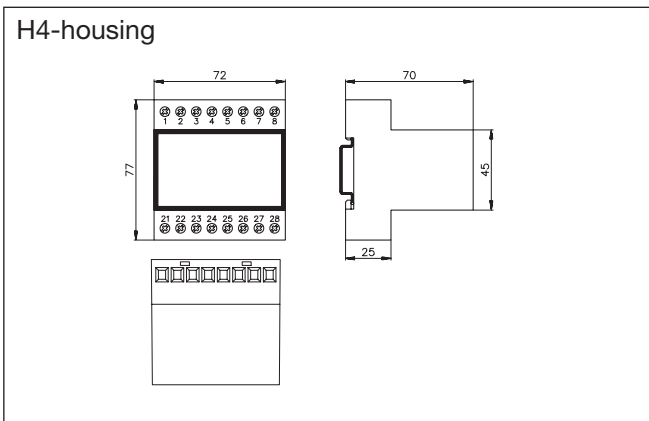
Read Output Table (01). Read Input Table (02) and Force Single Output (05)

Point no.	Dupline® Channel
1	A1
2	A2
3	A3
-	-
124	P4

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

Reg. no.	HIGH BYTE								LSB	LOW BYTE							
	MSB							LSB		MSB							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	
129									A1	A2	A3	A4	A5	A6	A7	A8	
130									B1	B2	B3	B4	B5	B6	B7	B8	
131									C1	C2	C3	C4	C5	C6	C7	C8	
132									D1	D2	D3	D4	D5	D6	D7	D8	
-									-	-	-	-	-	-	-	-	
144									P1	P2	P3	P4	P5	P6	P7	P8	

Dimensions (mm)



Installation Hints

No TX-LED

Checksum Error

The Checksum has been calculated in a wrong way.

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.

Delivery Contents

1 x Master Module

GP3496 0005 700

Additional Information

Modbus RTU memory map and Modbus RTU telegram structure can be downloaded from our homepage www.dupline.com. Choose "download" and then "product specific".