

# Channel Generators

## Types FPD 1901, D 3490 0000



FPD



D 3490

- Generates 8, 16, 32, 64 or 128 channels
- Number of sequences selectable
- Quartz-controlled oscillator
- Cable compensation
- Stop-function
- Plug-in type (FPD)
- DIN-rail mounting type (D3490) (EN 50022)
- LED-indication for supply
- LED-indication for supply and Dupline® carrier
- AC or DC power supply

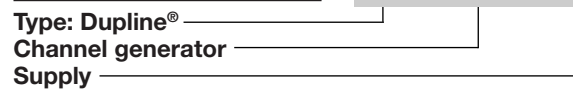
### Product Description

FPD 1901: standard channel generator for all Dupline® systems. Number of channels selectable by means of code module.  
 D 3490 0000: Standard channel generator for all Dupline®

systems, especially suitable for building installations. Isolation according to IEC 60664/60664 A reinforced. Increased Dupline® output power for connection of non-powered Dupline® transmitters.

### Ordering Key

**FPD 1901 024**



### Type Selection

Supply	Ordering no. No. of channels selectable 1, 2 or 3 sequences	Ordering no. No of channels selectable 1, 2 or 3 sequences
24 VAC 120 VAC 220 VAC	FPD 1901 024 FPD 1901 120 FPD 1901 220	D 3490 0000 024 D 3490 0000 115 D 3490 0000 230
15 to 30 VDC	FPD 1901 824	D 3490 0000 824
Code modules: 1 sequence 2 sequences 3 sequences	FMK 8 to FMK 128 FMK 16-2 to 128-2 FMK 16-3 to 128-3	FMK 8 to FMK 128 FMK 16-2 to 128-2 FMK 16-3 to 128-3

### Input/Output Specifications

	FPD 1901 ... (1, 2 or 3 sequences)	D 3490 0000 (1, 2 or 3 sequences)
<b>Inputs</b>		
Function	1 contact	1 contact
Open loop voltage	Stop	Stop
Short-circuit current	12 VDC	12 VDC
Operating time for signal "1"	5 mA	1.25 mA
Operating time for signal "0"	≤ 1 s	≤ 1 s
Contact resistance	≤ 10 ms	≤ 10 ms
Cable length	≤ 100 W	≤ 100 W
Insulation voltage	≤ 3m	≤ 3 m
Input - Dupline®	None	None
<b>Outputs</b>		
Number of outputs	Dupline® carrier	Dupline® carrier
Output voltage	1	1
Current	8.2 VDC	8.2 VDC
Short-circuit protection	≤ 40 mA	≤ 70 mA
	≤ 600 s	≤ 60 s

## Input/Output Specifications (cont.)

	FPD 1901 ... (1, 2 or 3 sequences)	D 3490 0000 (1, 2 or 3 sequences)
<b>Output (cont.)</b>		
Output impedance	-	≤ 25 Ω
Sequence time	Time for 1 pulse train (± 1%):	Time for 1 pulse train (± 1%)
Code module FMK 8	15.63 ms *	15.63 ms *
Code module FMK 16	23.44 ms *	23.44 ms *
Code module FMK 32	39.06 ms *	39.06 ms *
Code module FMK 64	70.31 ms *	70.31 ms *
Code module FMK 128	132.80 ms *	132.80 ms *
Distance to transmitters	100% (refer to "Cable Selection")	100% (refer to "Cable Selection")

\* When using 2 or 3 sequences, the sequence time will be 2 or 3 times higher.

## Supply Specifications

<b>Power supply AC types</b>	Overvoltage cat. III (IEC 60664)
Rated operational voltage through pins A1 & A2	220 230 VAC +6%, -15% (IEC 60038)
	120 120 VAC ± 10% (IEC 60038)
	024 24 VAC ± 10%
through term. 21 & 22	230 230 VAC ± 15% (IEC 60038)
	115 115 VAC ± 15% (IEC 60038)
	024 24 VAC ± 15%
Frequency	45 to 65 Hz
Voltage interruption	≤ 40 ms
Rated operational power	Typ. 2.5 VA
Rated impulse withstand voltage	220 4 kV
	120 2.5 kV
	024 800 V
Dielectric voltage	
Supply - Dupline® FPD 1901	None
D 3490 0000	≥ 4 kVAC (rms)
Supply - Inputs FPD 1901	≥ 2 kVAC (rms)
D 3490 0000	≥ 4 kVAC (rms)
<b>Power supply DC types</b>	Overvoltage cat. III (IEC 600664)
Rated operational voltage through pins A1 & A2	824 15 to 30 VDC (ripple included)
Ripple	≤ 3 V
Reverse polarity protection	Yes
Current consumption	≤ 90 mA
Inrush current	≤ 1 A
Rated impulse withstand voltage	800 V
Dielectric voltage	
Supply - Dupline®	None
Supply - Input	≥ 200 VAC (rms)

## General Specifications

<b>Power ON delay</b>	≤ 1 s
<b>Indication for</b>	
Supply ON	LED, green
Dupline® carrier*	LED, yellow
<b>Environment</b>	
Degree of protection	IP 20
Pollution degree	3 (IEC 60664)
Operating temperature	-20° to +50°C (-4° to +122°F)
Storage temperature	-50° to +85°C (-58° to +185°F)
<b>Humidity (non-condensing)</b>	20 to 80%
<b>Mechanical resistance</b>	
Shock	15 G (11 ms)
Vibration	2 G (6 to 55 Hz)
<b>Dimensions</b>	
<b>Material</b> (see "Technical Information")	D-housing, H4-housing
<b>Weight</b>	
FPD 1901	AC type 200 g
	DC type 125 g
D 3490 0000	250 g
<b>Approvals</b>	CSA, UL (only FPD 1901)
* Not applicable to FPD 1901	

## Mode of Operation

The channel generators generate pulse trains and synchronize the transmission signals for an entire system of Dupline® modules. At the same time they supply non-powered Dupline® transmitters. If the stop-function is activated (pins 2 & 3 interconnected), the signal trans-

mission stops immediately, and 8 VDC is supplied to the two wires keeping all connected Dupline® modules ready for operation. When the stop-function is deactivated, a delay of approx. 2 s elapses before the signal transmission is resumed. The stop input must be acti-

vated whenever new Dupline® modules are to be connected to the system or whenever Dupline® modules need to be removed or replaced. The selection of 2 or 3 sequences means that 2 or 3 consecutive signals of a transmitter must show iden-

tical status until the channel generator changes the duty cycle for the respective channel. This change of duty cycle causes the receivers to change their status.

## Mode of Operation (cont.)

**Note:**

- Do not use 2 or 3 sequences if analog modules or counters are connected to the system.
- Do not use 3 sequences if the modem interface D9091 ... is used in the system.
- The transmission distance of a Dupline® network is reduced by 33% when using 2 or 3 sequences, compared to the figures given under "Cable Selection".

In Dupline® systems with digital transmitters and receivers the use of 2 or 3 sequences is only recommended in cases of extremely long cabling in high noise level environment. Application of 2 or 3 sequences results in absolutely correct transmission but also in a slow reaction time for the system.

HF disturbance that is induced to the Dupline® may be suppressed by interconnec-

tion of pins 4 & 6 (FPD 1901) or terminals 4 & 1 (D 3490 0000). For inductive cables a separate capacitor of less than 1 µF may be mounted between pins 3 & 6 (FPD 1901) or terminals 1 & 2 (D 3490 0000). But in the majority of cases the cable appears to be capacitive requiring no additional capacitor.

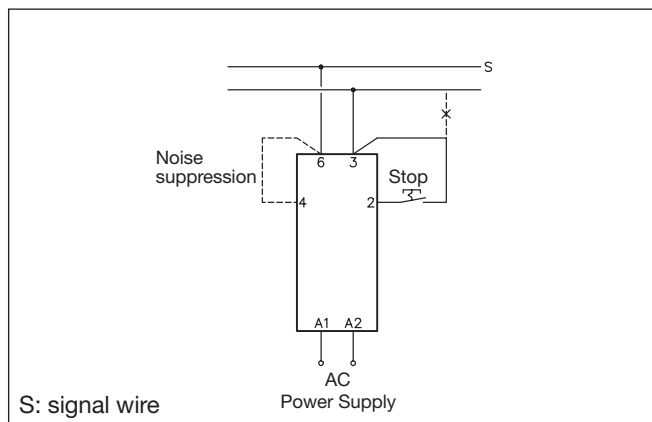
**Note:** It is highly recommended to place the channel generator in the middle of a Dupline® system.

## Operation Diagram

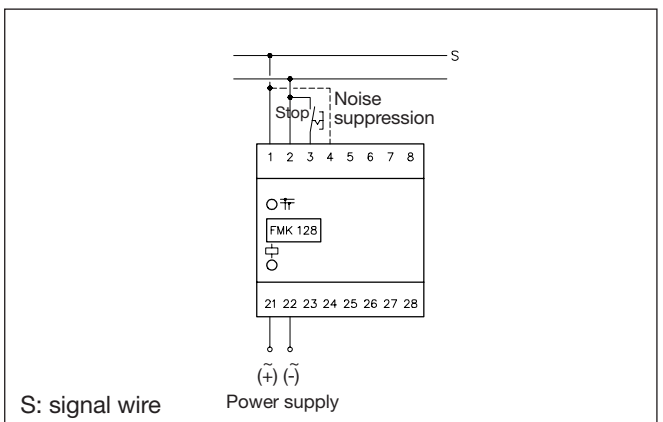


## Wiring Diagrams

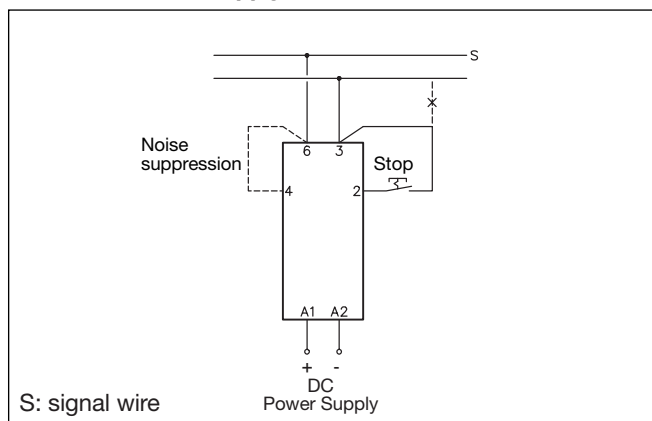
### FPD 1901 AC supply



### D 3490 0000



### FPD 1901 824 DC supply



## Accessories

Socket◇	D 411
Socket cover	BB 5
Hold down spring◇	HF
Front mounting bezel	FRS 2
DIN-rail for D 411	FMD 411

For further information refer to "Accessories".