

Transmitter for Numerical Counter Signals Type FFD 1680



- Transmitter with counter input
- 4-digit totalizing up-counter
- Overflow indication
- Reset input
- D-housing
- Plug-in type module
- LED-indication for supply
- AC or DC power supply

Product Description

Dupline® transmitters with pulse input and 4-digit totalizing up-counter. Reset and disable inputs. Detection, up-

counting and transmission of low-frequency events for readout, control, logging etc.

Ordering Key

FFD 1680 024

Type: Dupline® _____
Input signal _____
Supply _____

Type Selection

Supply

24 VAC
120 VAC
220 VAC

10 to 30 VDC*

Code module

Ordering no. 4-digit counter

FFD 1680 024
FFD 1680 120
FFD 1680 220

FMK A-B to O-P

* All AC types may be supplied with 10 to 30 VDC at pins 3 & 9

Input Specifications

Count input Open loop voltage Short-circuit current Counting range Counting direction Input frequency Contact resistance Dielectric voltage Input - Dupline®	1 contact or NPN transistor 8 VDC 2 mA 0 to 9999 Up ≤ 25 Hz ≤ 100 Ω None	Transmission disable input Open loop voltage Short-circuit current Operating time for signal "1" Operating time for signal "0" Contact resistance Cable length Dielectric voltage Input - Dupline®	1 contact or NPN transistor 8 VDC 2 mA ≤ 1 pulse train + 10 ms ≤ 1 pulse train + 10 ms ≤ 100 Ω ≤ 3 m None
Reset input Open loop voltage Short-circuit current Operating time for signal "1" Operating time for signal "0" Contact resistance Cable length Dielectric voltage Input - Dupline®	1 contact or NPN transistor 8 VDC 2 mA ≤ 1 pulse train + 20 ms ≤ 1 pulse train + 20 ms ≤ 100 Ω ≤ 3 m None		

Supply Specifications

Power supply AC types	Overvoltage cat. III (IEC 60664)
Rated operational voltage through pins A1 & A2	220 230 VAC +6%, -15% (IEC 60038)
	120 120 VAC \pm 10% (IEC 60038)
	024 24 VAC \pm 10%
Frequency	45 to 65 Hz
Voltage interruption	\leq 40 ms
Rated operational power	Typ. 2.5 VA
Rated operational withstand voltage	220 4 kV
	120 2.5 kV
	024 800 V
Dielectric voltage	
Supply - Dupline®	\geq 2 kVAC (rms)
Supply - Count input	\geq 2 kVAC (rms)
Supply - Reset/Disable input	\geq 2 kVAC (rms)
Alternative DC supply	Overvoltage cat. III (IEC 60664)
Supply voltage (V_{DD} in) through pins 3 & 9	10 to 30 VDC (ripple included)
Ripple	\leq 3 V
Reverse polarity protection	Yes
Rated operational current	\leq 20 mA
Inrush current	\leq 1 A
Rated operational withstand voltage	800 V
Dielectric voltage	
Supply - Dupline®	None
Supply - Count input	None
Supply - Reset/Disable input	None

General Specifications

Power ON delay	Undefined, \leq 1 s
Indication for Supply ON	LED, green
Environment	
Degree of protection	IP 20 B
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)
Humidity (non-condensing)	20 to 80%
Mechanical resistance	
Shock	15 G (11 ms)
Vibration	2 G (6 to 55 Hz)
Dimensions	
Material (see "Technical Information")	D-Housing
Weight	200 g
Approvals	CSA

Mode of Operation

Transmitters with 4-digit pulse counting function. The module features reset and transmission disable inputs.

The accumulated counting value is transmitted in BCD representation on the Dupline. This implies that every digit uses 4 channels. The-digit-to-channel allocation is as follows (example with FFD 1680 and FMK C-D plugged in):

10⁰ on highest 4 selected channels (e.g. D5-8).
 10¹ on lower 4 channels of higher group (e.g. D1-4).
 10² on higher 4 channels of lower group (e.g. C5-8).
 10³ on lowest 4 selected channels (e.g. C1-4).

For every digit the most significant bit of the BCD equivalent influences the lowest of the 4 allocated channels.

Activation of the reset function (pin 3 connected to pin 1) always resets the internal counter to 0, irrespective of the disable and counting inputs.

When the transmission disable function is activated (pin 3 connected to pin 5), the transmitter does not transmit its value via the Dupline® whereas the internal counter can still operate.

A Dupline® system can have several FFD 1x80s coded to the same channel groups. In

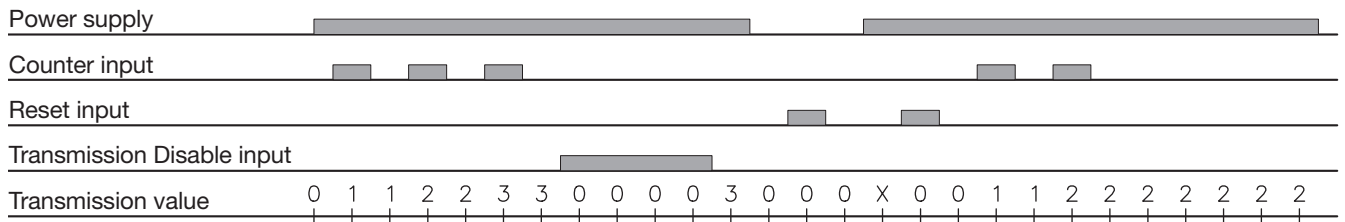
this case the counting values may only be emitted from one transmitter at a time, the other transmitters must be disabled in the meantime. This feature is best obtained by using Dupline® receivers with demultiplex output type D 1230 5111 connected to the transmission disable inputs. FK3C 7640 and FL3C 7640 or D 6369 6475 can be used for display of FFD 1680 values. FK3C 7760 and FL3C 7760 can be used for display of FFD 1780 values.

Overflow: When the counter reaches 9999 (999999), the transmitter activates all coded channels, thereby causing Dupline® displays to become dark.

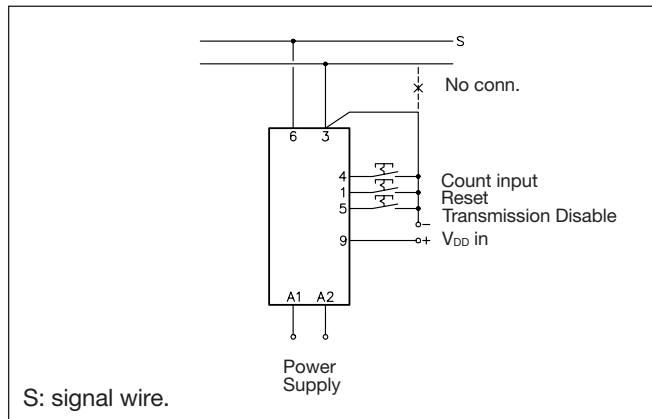
Note: If DC-supplied FFD ... transmitters are used, the length of the supply bus must not exceed 3 m in order to avoid disturbances unbalancing the Dupline®.

Note: Transmitters for numerical signals must not be used in systems where channel generators with 2 or 3 sequences are installed.

Operation Diagram



Wiring Diagram



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".