

# Dupline® Field- and Installationbus Transmitter for Analog Current Signals Types FFD 1530, FFD 1531, FFD 1532

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- Transmitter with current input
- Current input signals:  
FFD 1530: 1 x 0 to 1 mA  
FFD 1531: 1 x 0 to 20 mA  
FFD 1532: 1 x 4 to 20 mA
- 8-bit (8 channels) resolution
- Binary transmission
- Enable input function
- D-housing
- Plug-in type module
- AC power supply

## Product Description

Dupline transmitters for external supply. Standard current signal input (0 to 1 mA, 0 to 20 mA, 4 to 20 mA). Convert analog current signals into binary codes.

## Ordering Key

**FFD 1530 024**

Type: Dupline  
Input signal  
Supply

## Type Selection

| Supply                       | Ordering no.<br>1 signal<br>0 to 1 mA        | Ordering no.<br>1 signal<br>0 to 20 mA       | Ordering no.<br>1 signal<br>4 to 20 mA       |
|------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| 24 VAC<br>120 VAC<br>220 VAC | FFD 1530 024<br>FFD 1530 120<br>FFD 1530 220 | FFD 1531 024<br>FFD 1531 120<br>FFD 1531 220 | FFD 1532 024<br>FFD 1532 120<br>FFD 1532 220 |
| Code module                  | FMK A to FMK P                               | FMK A to FMK P                               | FMK A to FMK P                               |

## Input Specifications

|                                               | FFD 1530 ...<br>(8 channels)         | FFD 1531 ...<br>(8 channels)         | FFD 1532 ...<br>(8 channels)         |
|-----------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| <b>Signal input</b>                           |                                      |                                      |                                      |
| Signal range                                  | 1 current input<br>0 to 1 mA         | 1 current input<br>0 to 20 mA        | 1 current input<br>4 to 20 mA        |
| Zero adjustment (X <sub>1</sub> )             | None                                 | None                                 | None                                 |
| Span adjustment (X <sub>2</sub> )             | None                                 | None                                 | None                                 |
| Span                                          | None                                 | None                                 | None                                 |
| Input resistance                              | ≤ 470 Ω                              | ≤ 47 Ω                               | ≤ 47 Ω                               |
| Resolution                                    | 8 bits (3.92 µA/LSB)                 | 8 bits (78.43 µA/LSB)                | 8 bits (62.75 µA/LSB)                |
| Settling time                                 | ≤ 1 pulse train + 10 ms              | ≤ 1 pulse train + 10 ms              | ≤ 1 pulse train + 10 ms              |
| Open circuit monitoring                       | None                                 | None                                 | None                                 |
| Inaccuracy (ref. temp. 20°C)<br>of full scale | ≤ 1%                                 | ≤ 1%                                 | ≤ 1%                                 |
| Cable length                                  | ≤ 3 m                                | ≤ 3 m                                | ≤ 3 m                                |
| Dielectric voltage                            | ≥ 200 VAC (rms)                      | ≥ 200 VAC (rms)                      | ≥ 200 VAC (rms)                      |
| Input - Dupline                               |                                      |                                      |                                      |
| <b>Transmission enable input</b>              |                                      |                                      |                                      |
| Open loop voltage                             | 1 contact or NPN transistor<br>5 VDC | 1 contact or NPN transistor<br>5 VDC | 1 contact or NPN transistor<br>5 VDC |
| Short-circuit current                         | 1 mA                                 | 1 mA                                 | 1 mA                                 |
| Operating time for signal "1"                 | ≤ 1 pulse train + 10 ms              | ≤ 1 pulse train + 10 ms              | ≤ 1 pulse train + 10 ms              |
| Operating time for signal "0"                 | ≤ 1 pulse train + 10 ms              | ≤ 1 pulse train + 10 ms              | ≤ 1 pulse train + 10 ms              |
| Contact resistance                            | ≤ 100 Ω                              | ≤ 100 Ω                              | ≤ 100 Ω                              |
| Cable length                                  | ≤ 3 m                                | ≤ 3 m                                | ≤ 3 m                                |
| Dielectric voltage                            | ≥ 200 VAC (rms)                      | ≥ 200 VAC (rms)                      | ≥ 200 VAC (rms)                      |
| Input- Dupline                                |                                      |                                      |                                      |

## Supply Specifications

|                                                |                                   |
|------------------------------------------------|-----------------------------------|
| <b>Power supply</b>                            | 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 - Signal input                          | $\geq$ 2 kVAC (rms)               |
| Supply - Enable input                          | $\geq$ 2 kVAC (rms)               |

## General Specifications

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| <b>Power ON delay</b>                            | Undefined, $\leq$ 1 s          |
| <b>Environment</b>                               |                                |
| 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) |
| <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><br>(see "Technical Information") | D-Housing                      |
| <b>Weight</b>                                    | 200 g                          |
| <b>Approvals</b>                                 | UL                             |

## Mode of Operation

Transmitters with current signal input. The current signal is converted into a binary value represented as the binary status of an entire channel group (8 bit). This binary value may be reconverted into current or voltage signals through receivers with analogue outputs (type FAD 15..) or displayed in a scaled 7-segment display via D 6369 6475.

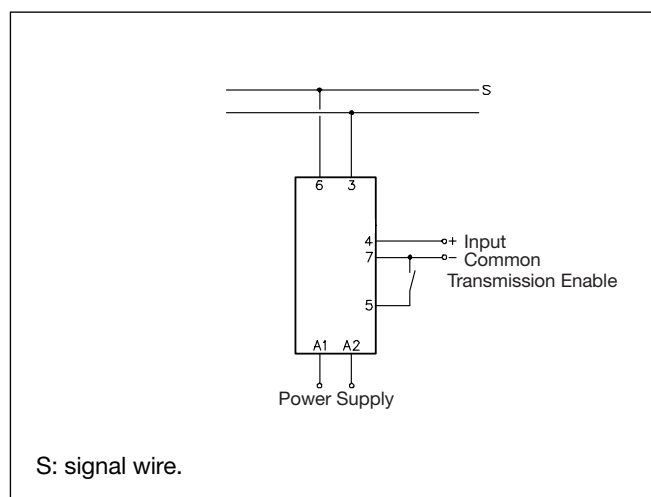
A signal change of 0.392% of full scale influences the least significant bit, which is the highest channel of the selected group (F8 if FMK F is plugged in). A signal change of 49.8% of full scale influences the most significant bit

or the lowest channel of the selected group (F1 in the above example).

No value is transmitted unless the transmission enable input is activated (pins 5 and 7 connected). This input may also be used to transmit up to 255 individual values on one channel group by using Dupline receivers with demultiplex output type D 1230 5111.

**Note:** Analog transmitters must not be used in systems where channel generators with 2 or 3 sequences are installed.

## 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".

## Operation Diagram

