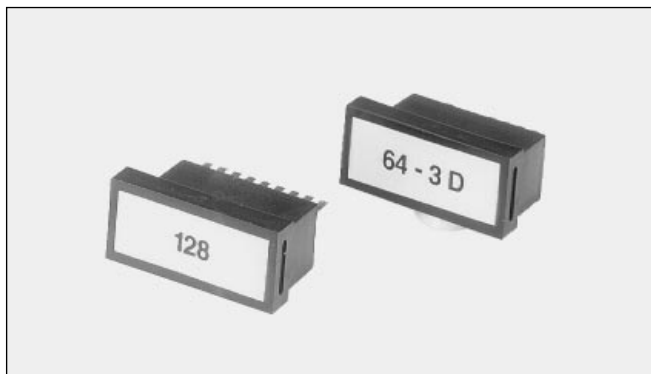


# Accessories

## Type FMK ..., Code Modules for Channel Generators



- 8 to 128 channels
- 1, 2 or 3 sequences
- Applicable for all channel generators (except Master Channel Generator)

### Product Description

Code modules for channel generators to determine the number of channels to be generated in a Dupline® sys-

tem. 2 or 3 sequence evaluation for systems in extremely noisy environment.

### Ordering Key

**FMK 64-2**

Type: Dupline®

No. of channels

No. of sequences

### Type Selection

No. of channels	Channel groups generated	Ordering no. 1 sequence	Ordering no. 2 sequences	Ordering no. 3 sequences
8	A	FMK 8	-	-
16	A to B	FMK 16	FMK 16-2	FMK 16-3
32	A to D	FMK 32	FMK 32-2	FMK 32-3
64	A to H	FMK 64	FMK 64-2	FMK 64-3
128	A to P	FMK 128	FMK 128-2	FMK 128-3

### Mode of Operation

Selection of a code module for the channel generator depends on the number of individual signals to be transmitted via the Dupline®.

The number of channels also defines the reaction speed of a Dupline® system. The smaller the number of channels generated, the higher the transmission speed and, consequently, the shorter the reaction time.

The number of sequences defines the consecutive number of identical status information that must be received from transmitters before the channel generator changes the status signal for the receivers.

**Note:** The majority of receivers require, in addition to the aforesaid, two consecutive sequences of identical status signal before they change the output status.

The number of sequences on the code module, again, influences the reaction speed of a Dupline® system. The higher the number of sequences, the longer the reaction time.

In the majority of Dupline® systems the standard code modules for 1 sequence can be used. Only environments with extreme electromagnetic noise require the use of FMK ..-2 or FMK ..-3 in order to reduce the risk of wrong data transmission.

**Note:** Analog modules must not be used in Dupline® systems with 2 or 3 sequence code modules for the channel generator.

The code modules for channel generators are freely exchangeable. It is, therefore, recommended to select the lowest possible number of channels to be generated in order to obtain the fastest transmission speed. For system enlargement a higher number of channels can be selected at any time without changing any existing channel allocation of receiver and transmitter modules.

The code module must not be removed from a channel generator during operation.

If, accidentally, a code module is not plugged into a channel generator, the signal transmission stops, while a voltage is maintained in the Dupline®. When the code module is re-inserted, the signal transmission is reestablished within approx. 3 s.

## Mode of Operation (cont.)

### Reaction Time

The reaction time is defined as worst case time needed for the channel generator from the point where a transmitter input signal changes until this signal change is visible for the receivers on the Dupline<sup>®</sup> (all values  $\pm 1\%$ ):

### Note

- The total time from signal appearance on the transmitter input to signal appearance on the receiver output is found by adding the response times of transmitter and receiver.
- As a rule of thumb an input signal must be present at a transmitter input for at least the reaction time + 1 sequence to provide a proper output at the receiver side.

### Transmission Speed

Type no. 1 sequence	Reaction time	Type no. 2 sequences	Reaction time	Type no. 3 sequences	Reaction time
FMK 8	15.63 ms	FMK 16-2	46.88 ms	FMK 16-3	70.32 ms
FMK 16	23.44 ms	FMK 32-2	78.12 ms	FMK 32-3	117.18 ms
FMK 32	39.06 ms	FMK 64-2	140.62 ms	FMK 64-3	210.93 ms
FMK 64	70.31 ms	FMK 128-2	265.60 ms	FMK 128-3	398.40 ms
FMK 128	132.80 ms				