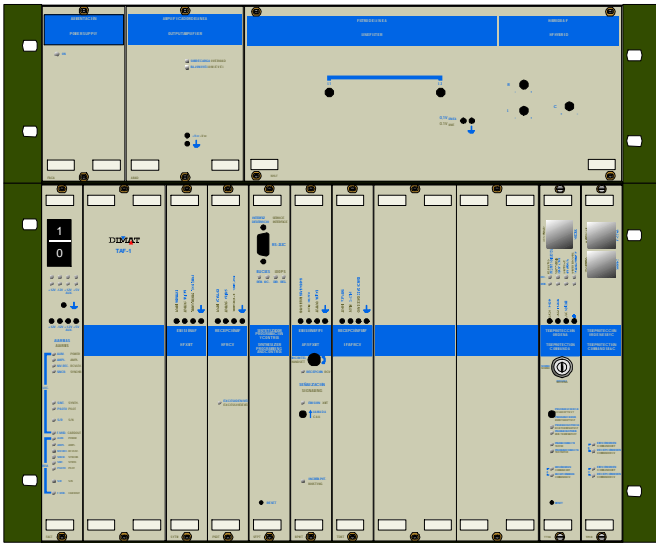


# HIGH FREQUENCY TELEPROTECTION SYSTEM TYPE

# TAF-1



## GENERAL

The High Frequency Teleprotection System type TAF-1 is capable to transmit up to three simultaneous and independent commands over high voltage lines, by using a standard 4 kHz channel, 2 kHz for the transmission and 2 kHz for the reception.

The TAF-1 terminal uses microprocessor-based technology, digital signal processing and high-performance filtering by means of active components and switched-capacity devices.

The equipment can be used in teleprotection systems for blocking, direct tripping and permissive tripping schemes, as well as for telesignalling applications.

The TAF-1 is fully programmable, through an RS-232C interface, by means of a Compatible Personal Computer (PC). From the PC it is also possible to supervise the alarms and events of the teleprotection link.

The TAF-1 meets the International Recommendation IEC 834-1 regarding the teleprotection systems.

### Main characteristics

- High security and dependability.
- Transmission of up to three independent and simultaneous teleprotection commands through a standard 2+2 kHz channel.
- Each command independently programmable for direct, permissive or blocking trip, or for telesignalling.
- Programming and supervision from a PC through RS-232C interface.
- Two versions available:
  - TAF-120 (20W P.E.P.)
  - TAF-140 (40W P.E.P.)



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## TECHNICAL CHARACTERISTICS

### GENERAL

Gross bandwidth	4 kHz (2 kHz transmission and kHz reception).
Modulation	Single side band with suppressed carrier.
Frequency stability	±1 ppm.
Automatic gain control (AGC)	> 55 dB with 10% pilot modulation.
Programming and supervision interface	RS-232C.

### TELEPROTECTION

Operating principle	Transmission of a guard tone in quiescent conditions that is replaced by a command tone when a command or combination of them needs to be transmitted.
Capacity	Up to three independent and simultaneous commands.
Guard and command frequencies	Located in the 300 ÷ 2000 Hz band.
Command inputs	2 circuits for each command.
Nominal activation voltage	Selectable among 24, 48, 110 and 220 V <sub>DC</sub> .
Command outputs	Solid-state relay with voltage-free contacts and current limitation.
Test devices	Manual test in local loop, automatic test in remote loop and audio-frequency test loops.

### HIGH FREQUENCY

Frequency range	36 ÷ 508 KHz, programmable in 1 Hz steps.
Nominal impedance	Selectable among 50, 75, 125 y 140 Ω. Others on demand.
Return loss	Better than 11 dB.
Nominal output power	TAF-120: 20 W PEP. TAF-140: 40 W PEP.
Spurious emission	In accordance with IEC 495 cls. 5.2.4 and figure 7 and A.2.
Receiver sensitivity	Minimum pilot level for AGC threshold: -30 dBm.

### OPERATING CONDITIONS

Temperature and humidity	From -5 °C to +45 °C and relative humidity no greater than 95%, in accordance with IEC 721-3-3 class 3K5 (Climatogram 3K5).
Maximum temperature	+55 °C during a period no greater than 24 hours (IEC 495 cls.3.1).
Power supply	24, 48 ó 110 V <sub>DC</sub> (±20%), others on demand.
Maximum consumption	TAF-120: 160 W TAF-140: 210 W
Insulation, voltage withstanding and electromagnetic compatibility	In accordance with IEC 495 tables 2 and 3: IEC 255-4 class II and III, IEC 255-5, IEC 255-22-1 class II and III, IEC 801-3, IEC 801-4 level 3