

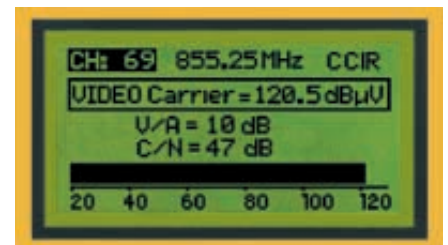


The **PROMAX-8+** is the new Cable TV analyser developed by PROMAX. In addition to the characteristics of its predecessors as important and highly valued as the small size and weight and reliability, it now has new functions and a graphic display with rear illumination for working in conditions with a low level of lighting.

Low weight and small dimensions are fundamental in an instrument that is to be handheld. It is important the graphic capacity sufficient for the full interpretation of the measurements. The **PROMAX-8+** allows both aspects to be enjoyed in one instrument

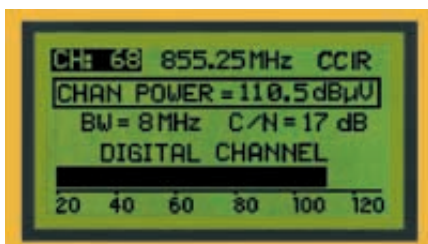
The rotary selector-button is the key component in the selection of any function. It combines the best features of a rotary selector and a push button in one single control, allowing the selected function to be confirmed with a single finger and the entire instrument to be managed with one hand

The **PROMAX-8+** allows the user to define the mode necessary to make the measurements with simple practical configuration menus; besides it incorporates an interface for PC and direct printing control.



- \* ANALOGUE CHANNELS
- \* DIGITAL CHANNELS
- \* SCAN
- \* C/N, CSO, CTB TRANSIENT DETECTOR
- \* SPECTRUM ANALYSER
- \* MAXIMUM AND MINIMUM HOLD
- \* INTEGRATED POWER
- \* TILT
- \* DATA LOGGER
- \* PRINTING
- \* PC CONNECTION

The **PROMAX-8+** displays, with each of the measurements all the information required for the evaluation of the quality of signal under test. It has a GRAPHIC BAR for the interpretation,



adjustment and convenient optimization of any cable television system, microwave link or terrestrial aerial.

It is also possible to tune the audio carrier, allowing the demodulation and listen to the sound with a built-in loudspeaker.

The equipment can be configured for measurements on digital channels, giving us the value of the digital CHANNEL POWER as a figure and also on the graphic bar.

### Digital channel power

To correctly measure the power of a digital channel, independently of the type of modulation (QAM, QPSK, COFDM) or application (Digital Television, CATV modems), we cannot assume that the digital channel has uniform spectral distribution within its bandwidth as, in practice, it is distorted by undesired effects such as

impedance matching, incorrect frequency response, etc.

In order for the measurement to consider all these factors and give a precise result, the **PROMAX 8+** uses what is called the integrated method. This consists of taking a large number of samples at different frequencies within the bandwidth of the digital channel and adding them together in a technically sound and approved manner.

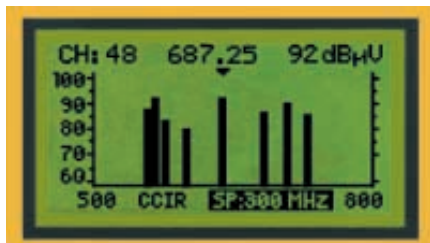
### Carrier to Noise (C/N)

To evaluate the signal quality, the Carrier / Noise Ratio is an important parameter both in analogue and digital transmission. In the menu this C/N ratio is displayed together with Signal Level or Channel Power, Audio Level and Video / Audio Ratio.

## Scan

In this mode we can see all the channels of the selected channel plan graphically represented with their associated signal levels. A MARKER can be located on any of the channels presented on the screen in order to know their frequency or their signal level.

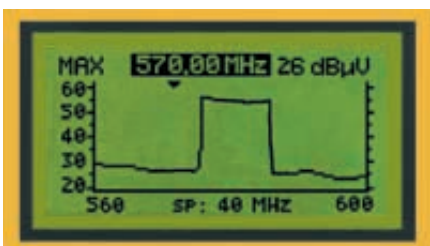
The SPAN and the REFERENCE LEVEL can be changed in order to adapt the presentation to the fusers test requirements.



## Spectrum Analyser

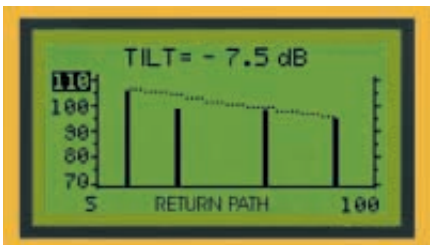
This function allows user to obtain a real display of the SPECTRUM tuneable to any point of the frequency band and with the possibility to modify the REFERENCE LEVEL and the SPAN, the latter from 1 to 100 MHz.

It is provided with a HOLD function to maintain maximums and minimums, this is of great value for identifying interfering signals, for example, in the return band.



## Tilt

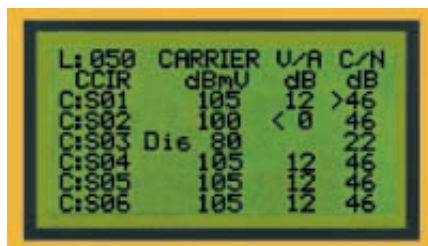
The Tilt function provides a graphic and numeric representation of the absolute level of any 4 defined pilot channels and the difference between them. An interesting application is found in the return path where the PROMAX-8+ together with the RP-100, Pilot Generator, will permit to evaluate the frequency response in graphical and comfortable mode.



## Data Logger

In this mode of operation the PROMAX-8+ can acquire the measurements that are required and can memorize them for a subsequent review, for printing or transfer to a PC.

Carrier levels, digital channel powers, V/A or C/N ratios can be saved in the PROMAX-8+ without the need for any external device. The channels to be analysed by the data logger can be selected from the

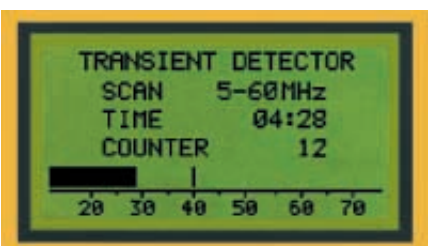


channel plan by means of the configuration.

## Transient detector

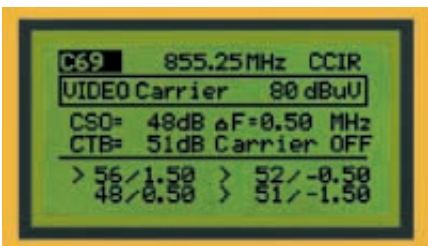
One of the most common problems we come across in the return band is the excess of interfering signals, mostly pulses of short duration, which are caused by superimposed return signals from subscriber terminals. The subscribers use these signals for video on demand, on-line shopping and Internet return.

The duration and nature of these signals hinders measurement with a spectrum analyser. The function of transient detector in the PROMAX-8+ enables us to count how many of these pulses have exceeded a limit level predefined by the user.



## Intermodulation (CTB/CSO)

The Composite Triple Beat (CTB) and Composite Second Order (CSO) are an indication of the level of interference in the television channel generated by intermodulation of signals from other channels. Usually, other channels from the same system. Over certain level CTB and / or CSO the interference becomes visible on the television signal.



## Language

Selection of the language for the messages on the display is available.

## Input connector

The input connector is a frequent point of breakdown in field instruments. Therefore we have designed a replaceable F/F adapter.



## Computer connection

The PROMAX-8+ is provided with an RS232C connector for a computer. Using the RM-008+ Programming Kit and a compatible PC, we can program the measuring units, different channel plans, the number of programmes and other measuring conditions, as well as being able to process the data contained in the DATA LOGGER.



## Robustness

Both units were designed according to the recommendations of IEC standard on mechanical robustness. Their construction with a mixture of ABS and Polycarbonate provides them both with resistance and elasticity. The PROMAX-8+ is supplied with a rubber shock-absorption protector (DC-284) to ensure maximum protection.

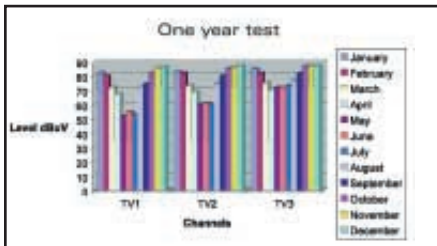


## Outbox data processing

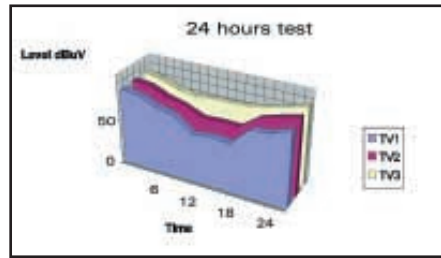
RM-008 software package is a perfect complement to the **PROMAX-8+**. Three different menus on the PC computer screen allows to configure any parameter in the **PROMAX-8+**, to send individual commands and set Data Logger information.

This program has three main function:

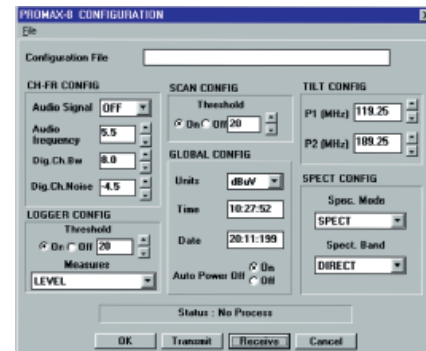
a) Datalogger: Allows to open stored Data Loggers in the **PROMAX-8+** (up to a maximum of 55) or transfer a Data Logger acquisition from the **PROMAX-8+** to the PC.



b) Config: Allows to transmit, receive, save and modify all the Configuration Parameters of the **PROMAX-8+**. The different parameters are grouped into six areas according to the operating mode they affect (Channel-Frequency, Data Logger, Scan, Tilt, Spectrum analyser, Global). This menu



also enables the modification of the Channel Plan Groups. A Channel Plan Group is a set of Channel Plans we can store in a **PROMAX-8+**, i.e. standard factory channel plan Group is made up of the following channel plans: CCIR, CCIRUK, EIA,



FCC, OIRL and STD2L. The channel plan group maximum size is 10 channel plans composed of 140 channels each. The config menu permits the selection of the communication path, the communication port and to exit the program.

c) Upgrade: Allows to upgrade the **PROMAX-8+** internal control software to newer versions.

Minimum requirement to use the program



correctly are needed. An IBM-compatible computer 486 or higher with 10 Mbytes available on the hard disk (variable, depending on the files of data available), mouse (not essential, but highly recommended) and serial port COM1 or COM2 available.

RM-008+ software runs under Window 95/98 .

SPECIFICATIONS	PROMAX-8+	CSO-CTB Intermodulation (Analogue channels)	
<b>Tuning</b> Tuning range Tuning mode Channel plan Frequency Indication	From 5 to 862 MHz By channels or by frequency Selectable For fine tuning. 10 kHz resolution Graphic display with backlight	CSO Measuring frequency CTO	Ratio of the peak level of the video carrier to the peak of the distortion products of second order beat. Measured at four frequencies user definable. From -2.50 to -0.50 MHz and from 0.50 to 2.50 MHz (Default values -1.5, -0.5, +0.5 y + 1.5 MHz). Ratio of the peak level of the video carrier to the peak of the distortion products of third order beat. Measured at the carrier frequency or, approximately mode, in a channel previously defined by the user.
<b>Level measurement</b> Measurement range Reading IF Bandwidth Input impedance Audible indication Accuracy Analogue Channels Digital Channels	From 25 to 120 dB $\mu$ V (from -35 dBmV to 60 dBmV) Digital in dB $\mu$ V, dBmV o dBm and analogue by Graphic display with backlight. 1dB Resolution 230 kHz $\pm$ 50 kHz 75 $\Omega$ A tone varies with the signal level $\pm$ 2 dB (from 0 to 40 $^{\circ}$ C) Negative video modulation) $\pm$ 3 dB (from 0 to 40 $^{\circ}$ C) For 8MHz channel bandwidth	<b>Data logger function</b> Max. number of loggers Number of channels/logger Measurements Analogue channels Digital channels	55 140 Level, C/N and V/A Channel power
<b>Video/Audio</b> Measurement Range Audio subcarrier frequency Variable Accuracy	Audio and Video level carrier ratio From 0 to 40 dB 4-9 MHz $\pm$ 2 dB (from 0 to 40 $^{\circ}$ C) for FM carrier	<b>Sound</b> Demodulation Output	AM / FM Internal speaker / External headphone
<b>Carrier / Noise</b> Measurement Measurement range Analogue channels Digital channels Accuracy	Carrier to Noise level ratio measured within required channel 38 - 48 dB (for input level between 60 and 70 dB $\mu$ V) > 48 dB for input level > 70 dB $\mu$ V > 40 dB for input level > 60 dBmV $\pm$ 2 dB (45-862 MHz) $\pm$ 3 dB (5-45 MHz)	<b>Transient detector</b> Detection threshold Detection range Detection range	From 20 to 60 dB $\mu$ V in steps of 1 dB From 5 to 100 MHz maximum Number of detected transitory in the measuring time. Present detected level and maximum detected level in the time of the measurement
		<b>Power requirements</b> Battery Low battery Auto power off Battery charger	7,2 V Display indication Automatic power of after few minutes whitout operation By external fast charger
		<b>Mechanical features</b> Dimensions Weight	W. 70 (90 at display) x H..218 x D.50 mm 580 g. (battery included)