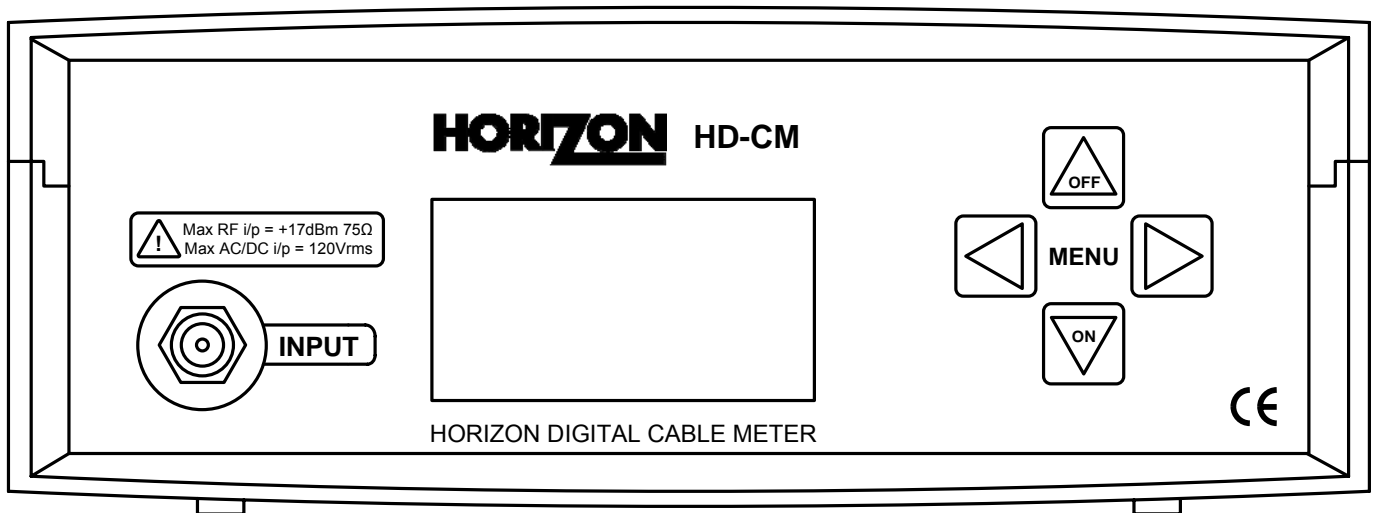


HD-CM Cable Meter



User Guide

Horizon Global Electronics Ltd.
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Issue No. KM131/0.1
Horizon Part Number: KM131

Contents

Thank you for choosing to purchase the Horizon Global Electronics HD-CM.
This user guide will enable you to get the most from the features of this product.

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Please read through the instructions carefully before using your new hardware to familiarise yourself with all of the features available.

Overview

The all-new HD-CM is the latest offering from Horizon Global Electronics to satisfy the need to measure and confirm installation of the increasing popularity of Cable Media installations. The HD-CM offers an easy to use, fast, accurate and affordable solution to precise downstream measurement and fault diagnosis.

As needed with this type of system for the ground engineer, the Meter is fast on start up and recognition of feed information with its Rapid Scan of downstream centre frequencies, with an easy to read screen, Logging Report and Slope comparison.

Fully compliant to ITU-T J.83 standards for DVB-C applications covering Annex A, B & C, as well as multi-lingual support, this Meter is sufficient for the majority of Global Cable use, to include up to 120 AC or DC Volt input protection and measurement system.

The HD-CM comes as a complete kit with mains charger, car charger and USB cable for data transfer, holding up to 20 channel plans, selectable input reference points and 500 data logging entries.

The HD-CM can also be easily re-programmed from the Horizon Global Electronics website www.horizonhge.com with your choice of cable plans, or restore the default plan for your region.



Safety

Safety instructions



This symbol is intended to alert users of possible hazard or damage in operating this unit.

- Do NOT expose this meter to rain or moisture!
- Clean only with a soft dry cloth.
- Read the instructions fully before operating your unit for the first time.
- Do not disassemble your unit or interfere with the internal components; this will void your warranty and there is a possibility of electric shock.

“If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired”.



- Only use the provided mains lead as using other types may cause damage to your unit, which will void your warranty and may cause electric shock. Replacement accessories are available directly from Horizon Global Electronics Ltd.

Should repair or service be required contact us directly at Horizon Global Electronics Ltd by calling us on **+44 (0) 1279 417 005** or via our website **www.horizonhge.com**

Cable channel plans

You can change the pre-loaded cable plans which are currently in the memory of the HD-CM by going to the **www.horizonhge.com** web site.

Note: If you are a cable content provider you can submit your channel plans to us via the contact link on the **www.horizonhge.com** web so that we may make them available for download by your installation engineers.

Accessories

Your HD-CM is supplied with this Instruction Manual and these items below. Please check if you have all the following. If any items are missing please contact your supplier.

 Only manufacturer's replacement parts should be used, otherwise safety of the meter may be impaired

 DC Car Charger Lead
Fitted with 2 Amp Fuse



USB Lead



 AC Mains Charger Lead

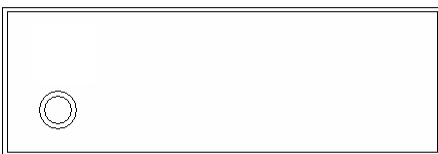


 Battery Pack



Note: A suitable AC charging lead will be supplied.

 Rain Cover
(should be fitted at all times)



Carry case



Quick start guide



The mains lead should match your region. If your mains charger lead is not correct for your region one can be obtained from Horizon Global Electronics Ltd or a local supplier/importer.

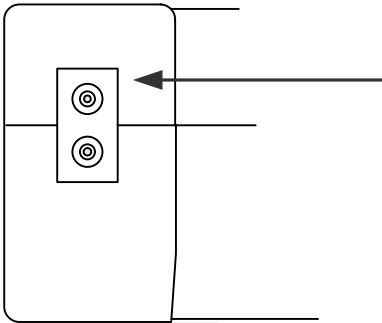
Note: The items shown above are subject to change without notice.

Please dispose of the packaging carefully and recycle where possible.

Battery Charging

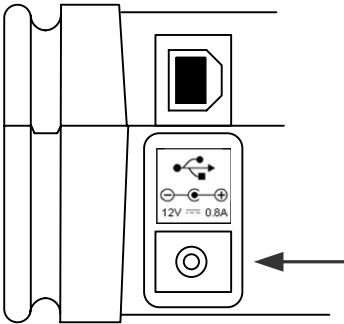
The meter will NOT be fully charged when you receive it. We recommend you charge it for an initial 8 hours before use. If your meter is not being used for a long period of time, we recommend disconnecting the battery.

You can also top up your battery from your vehicle with the in car DC Adapter supplied. You should top up the charge every 2 weeks. The battery pack is replaceable and additional battery packs are available from Horizon Global Electronics Ltd or your local supplier/importer.



Charging with the AC lead

On the bottom of the case there is a small velcro flap which covers the AC input for charging.



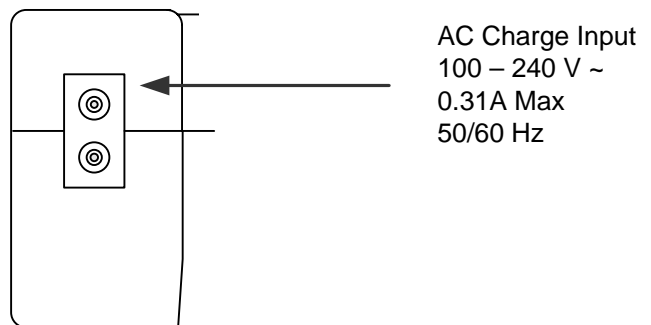
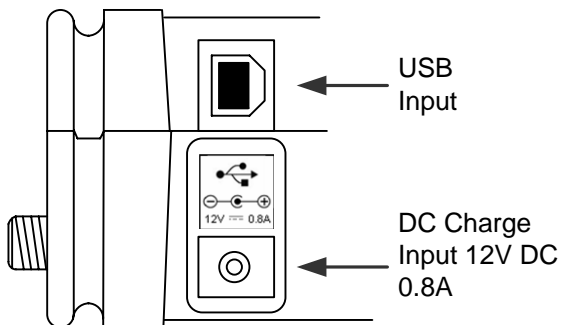
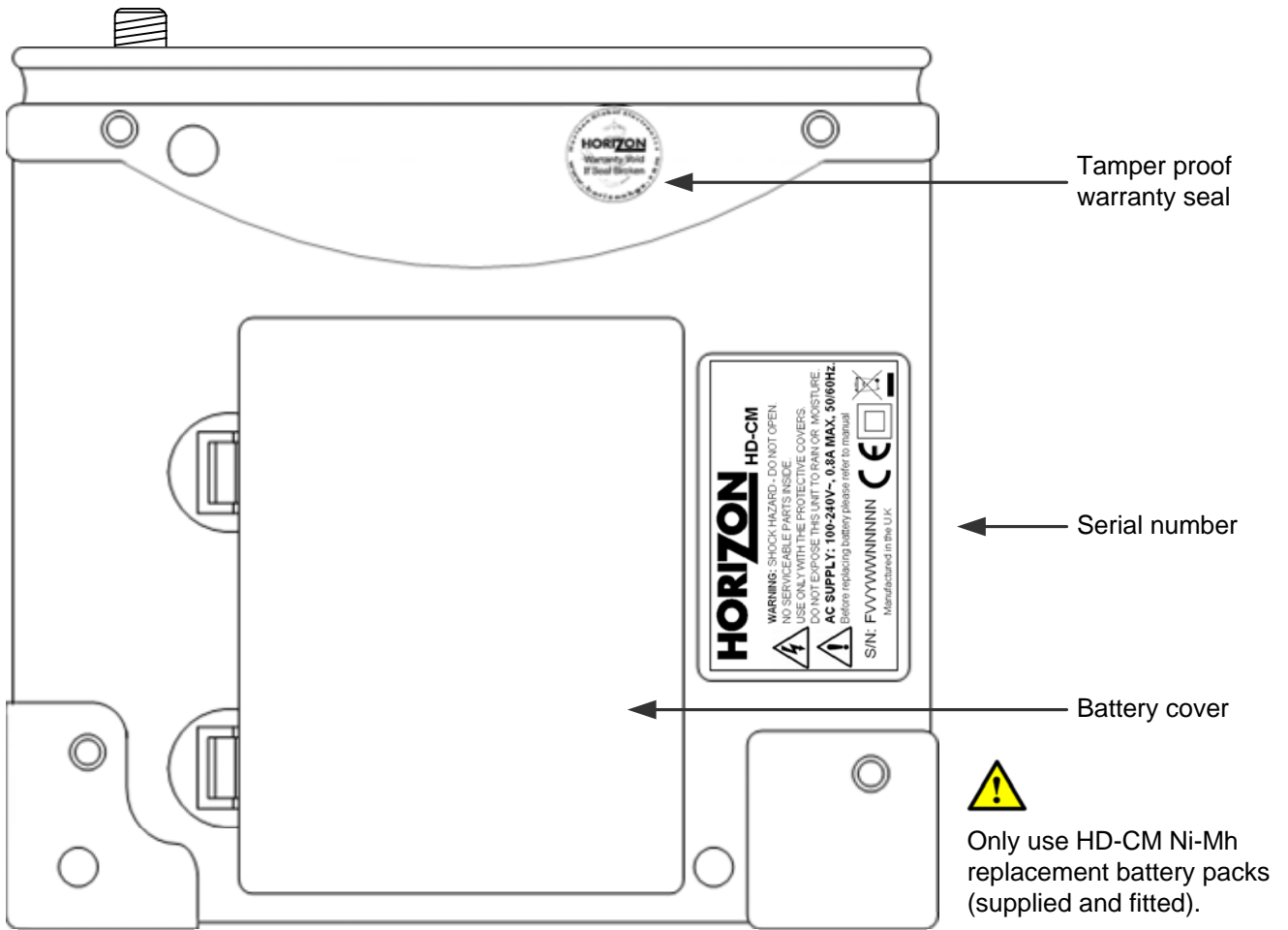
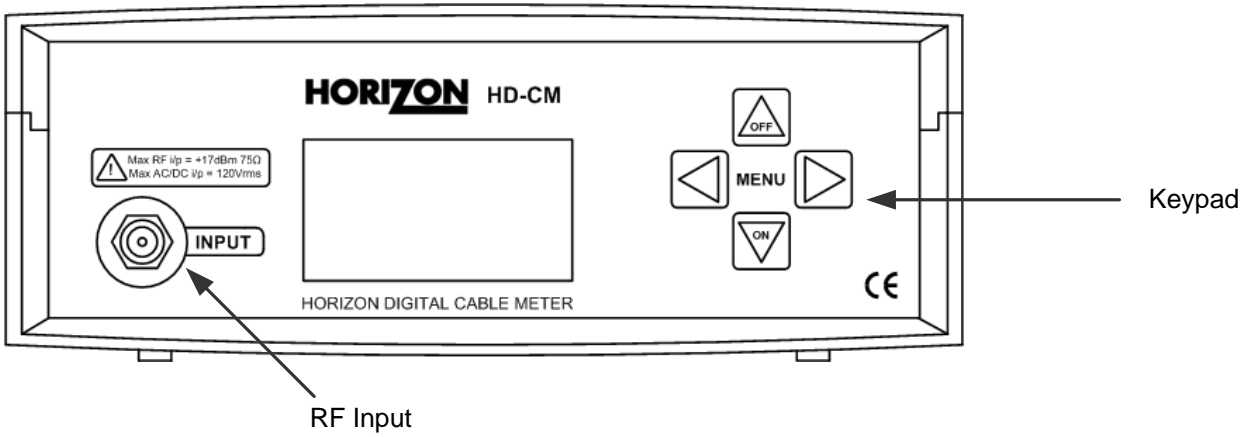
Charging from a vehicle

The vehicle 12V DC charge port is on the right side of the unit. Plug the car charger lead into the bottom socket and the other end to the vehicle's "aux" socket. Please note that on certain vehicles the aux socket is switched off unless the vehicle is running. Do not charge from a vehicle with a higher battery voltage or positive ground!

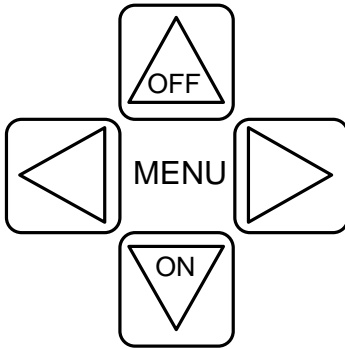
For in-vehicle charging only use the lead supplied. The use of another lead may damage the meter and will void the warranty. The HD-CM can remain connected to either power source in "**Trickle**" charge state for an extended period of time.

Note: The meter will not operate while the unit is being charged.

Your HD-CM



Setup menu



The HD-CM keypad. All of your meter functions are accessed from here.

To access the setup menu on your HD-CM while your meter is off press the **OFF** button once.

Use the up and down keys to scroll through the available options and the left or right keys to change the value highlighted. Here we can turn the **Backlight** or **Clicking** On or Off and adjust the display Brightness 0 (Minimum) to 15 (Maximum).

By pressing the down key we can scroll down for more options.

Exit	
Backlight	On
Clicking	On
Brightness	10
Use ◀ ▶ to exit	

Here we can adjust the display contrast from 0 (almost transparent) to 63 (totally dark) and set a sleep time for the meter (in minutes) for the meter to automatically shut down. This can be set to **Always on** if you do not wish to have an auto shutdown to a maximum of 30 minutes)

Contrast	30
Sleep	6M
Squelch	34 dBμV
English	
Use ◀ ▶ to alter	

The **Squelch** function is for setting a level under which signals are ignored during scanning. This is to prevent accidental identification of cable services.

The current default language pack is **English** but other languages will be included or made available for download on future releases.

English
RF dBm
Defaults
0.3Aa-0002
▲ For more

The **RF** option will enable you to select **dBuV** or **dBm** as a preferred method of measurement display.

The **Default** option puts the Setup menu back to factory state; any stored channel plans will remain unaffected.

The last option available **0.3Aa-0002** is for Horizon Global Electronics use only and will have no effect on the meters operation.

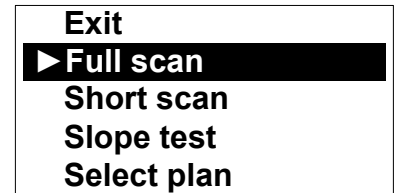
Data logging

The log as function enables you to store the values in an incremental table within your meter for upload to your PC later, so that your installation results can be documented in a CSV format. Further instructions and the logging software are available from the www.horizonhge.com web site.

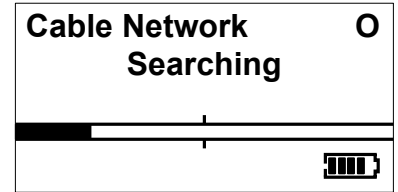
Exit
Scan type
Voltmeter
▶ Log as 00000

Using your HD-CM

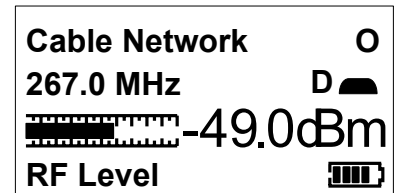
Switch on your meter by pressing the on button and you will be presented with the options menu; from here you can select **Full scan** (whole channel plan) or **Short scan** (a number of pre-determined frequencies) and a **Slope test**. There is also the option to select other cable plan formats and any downloaded operator plans by choosing **Select plan**.



On Selecting Full Scan the selected plan will be scanned. Once a service has been found the scan will stop and the carrier type and measurement information will be presented.

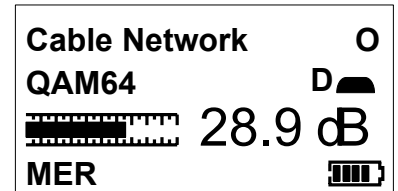


In these examples Virgin Cable has been selected and in this instance a digital service has been found at 555MHz indicated by the **D** digital carrier symbol. **The RF level** is also shown (dBm is shown here). Pressing the **On** key now will acquire the carrier parameters.

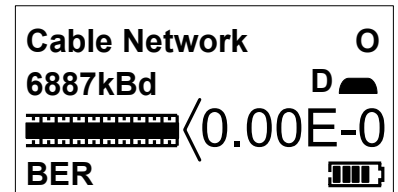


Once the acquisition process is complete additional information is available.

QAM constellation type and symbol rate will cycle on the display along with Frequency in MHz. **MER** is shown in dB.

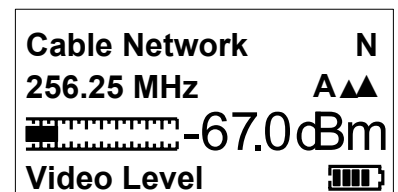


Pressing the **On** button again will enable you to see the BER as a numerical value along side the bar graph which shows and inverse BER representation where maximum deflection indicates the minimum of errors. This may take a few seconds to settle.

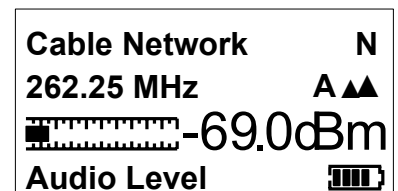


Pressing the left or right arrow key will tune down or up the range of frequencies available within the plan selected.

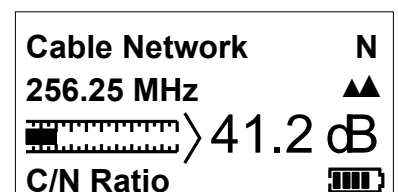
If analogue services have been identified the Video Level will be displayed (in this example as dBm) along with the analogue carrier symbol **A ▲▲**.



Pressing the **On** button will show the Audio Level.



Pressing the **On** button again will show the **Carrier to Noise** value in dB.

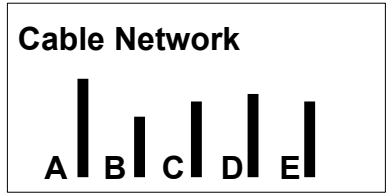


Pressing the left or right arrow key will tune down or up the range of frequencies available within the plan selected.

Slope test

The Slope Test function will enable you to compare RF levels of up to 5 pre-determined spot frequencies for the plan that you have selected. These levels are shown in a histogram format and each frequency is labelled A,B,C,D and E. These values can also be logged.

On pressing the down key the slope calculation will take place. The selected spot frequency (in this example A) has a level of -58 dBm and is now referred to as a 0 dB level; the other measurements shown (B,C,D and E) are relative to that zero reference level. By using the up and down keys to select B,C,D or E the highlighted selection then becomes the 0dB reference level.



A	-58 dBm ref	0dB
B		-17.8dB
C		-3.8dB
D		-3.3dB
E		-2.9dB

Voltmeter

The Volt Meter function found in the sub menu will detect and measure the voltage present at the RF input of your HD-CM meter and display this in large characters in the centre of the display. Up to 120 Volts AC or DC can be measured.

After you have made a voltage measurement you can exit the voltage display by pressing the **OFF** button to return to the sub menu.

On the right is an example of how an **AC** voltage would be displayed.

If the maximum voltage input is exceeded the meter will shutdown to protect itself.

On the right is an example of how an **DC** voltage would be displayed.

Exit
Scan type
▶ Voltmeter
Log as 00000

90V AC

50V DC

Specifications

128x64 pixel backlit monochrome screen

Field-replaceable F barrel for RF In

Variable bandwidth to 8MHz

Frequency range 51MHz to 858MHz, analogue and digital channels

Rapid scan over full band

Selectable limited plan for speed of installation

Signal squelch adjustable from -75dBm to -55dBm

Input levels from -75dBm to +17dBm

Clear indication of digital and analogue channels

Digital RF level indication by bargraph and in dBm or dBuV

MER value by bargraph and in dB

BER value by bargraph and in scientific notation

Display of QAM value and symbol rate for digital carriers

Support for QAM rates up to 256

Symbol rates from 0.87 to 6.9 Mbaud

Analogue Video level by bargraph and in dBm or dBuV

Analogue Video signal C/N ratio by bargraph and in dB

Analogue Audio level by bargraph and in dBm or dBuV

Selectable Slope channels for equalization (up to 5 frequencies)

High capacity Ni-MH 3300mAh battery for 9 hours of operation from a single charge

Agile channel plan format, downloadable plans

Voltmeter facility, measures AC voltage and frequency or DC voltage on the cable (to 110V)

Results logging for quality verification (500 entries, uploadable to PC)

USB-2 B-type socket for PC connection

LIMITED WARRANTY

Horizon will, at our option, repair or replace any HORIZON HD-CM found to be defective in manufacture within the warranty period (1 year).

The warranty period is determined by the date of HD-CM purchase. Keep your receipt as proof of purchase. Otherwise the warranty is determined by date of manufacture.

This warranty does not apply to damage caused by accident, misuse, or tampering with the unit or seals. This does not affect your statutory rights.

DECLARATION OF CONFORMITY

Manufacturer: Horizon Global Electronics Ltd

Address: Unit 3, West Side, Flex Meadow, Harlow, Essex, CM19 5SR

Declares that the Horizon HD-CM complies with the following directives and standards.

Safety EN610 10-1:2001

EMC 61326:1997

All Horizon products are ROHS compliant.

Technical Department
Horizon Global Electronics

January 2009



CONTACT DETAILS

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Producer ID for the purposes of WEEE regulations: WEE/BB0191UV