

CCP Preamplifiers

HDP_CCP...

INTRODUCTION

HDP_CCP microphone preamplifiers are designed for high-precision sound pressure level (SPL) measurements in multichannel acquisition systems, production quality control, automotive NVH testing, household appliance testing, and laboratory applications. Manufactured in stainless steel and compatible with all ½" prepolarized microphones compliant with IEC 61094, HDP_CCP preamplifiers deliver high reliability and measurement accuracy while keeping overall system costs under control.

The CCP system (equivalent to IEPE, ICP, CCLD) is a two-wire interface that combines power supply and signal transmission over a single standard coaxial cable, typically terminated with BNC connectors. When powered by a constant-current source, the CCP preamplifier establishes a nominal constant voltage level of approximately 12 V (bias voltage). The microphone signal is superimposed on this bias, producing a corresponding voltage fluctuation. The internal circuitry—powered by the constant current—converts the high-impedance signal generated by the microphone capsule into a low-impedance output, improving robustness and reducing susceptibility to cable-borne noise and interference.

HDP_CCP preamplifiers are compatible with CCP/IEPE front-ends providing constant-current supply in the 2 mA to 20 mA range. A BNC-terminated coaxial cable is typically used both to power the preamplifier and to transmit the amplified microphone signal.

The availability of versions with nominal gain of 0 dB, 5 dB, or 10 dB allows the microphone set dynamic range to be tailored to application requirements.

FEATURES

High accuracy at accessible cost

High linearity and a wide dynamic range enable laboratory-grade SPL measurements at a cost suitable for production and field use.

Flexible system integration

CCP powering (2–20 mA) ensures compatibility with most CCP/IEPE/ICP/CCLD systems and simplifies integration with other constant-current sensors.

Simple, low-cost cabling

Two-wire operation allows the use of cost-effective BNC coaxial cables, even over long distances.

Models for every application

Selectable gain, sensitivity, and acoustic range options allow the microphone set to be optimized for each application.

Individually calibrated sets

Microphone sets based on CCP preamplifiers can be individually calibrated by measuring acoustic pressure sensitivity and frequency response.



HIGH ACCURACY, AFFORDABLE COST

Laboratory-grade sound pressure measurements without the cost of a premium system.



FLEXIBLE CCP / IEPE INTEGRATION

Standard CCP constant-current powering (2–20 mA) for straightforward connection to modern multichannel



SIMPLE TWO-WIRE CABLING

Use of cost-effective BNC coaxial cables, with the signal transmitted on the same line as the power supply.



WIDE MODEL RANGE FOR ANY TEST

Multiple gain options, sensitivities, and acoustic range optimizations to match

Preamplifiers technical specifications

	HDP_CCP	HDP_CCP/5	HDP_CCP/10	HDP_CCP_UC	HDP_CCP_UC/5	HDP_CCP_UC/10
Nominal diameter	½"	½"	½"	½"	½"	½"
Freq. response (±2dB) (Hz)	1 ÷ 70k			1 ÷ 50k		
Output connector	BNC					
Power supply (mA)	2 ÷ 20 (typ. 4 mA)					
Input referred Noise A-weighted (µV)	< 9	< 6	< 5	< 10	< 7	< 6
Max output voltage (Vpp)	16					
Gain with 22pF capacitive adapter (dB)	0	4	10	3	6	13
Operating temperature	-20...+75 °C (storage temperature -40...+85 °C)					
Compatible Senseca microphones	MC21E / MC22E / MC800 / MC801 / MC802			UC52		

Microphones technical specifications

	MC21E	MC800	MC801	UC52	MC22E	MC802
Nominal diameter	½"	½"	½"	½"	½"	¼"
Capsule Response	Free field				Diffuse field	Pressure
Sensitivity (mV/Pa)	50	50	25	22.5	50	0.56
Dynamic range (3% THD) (dB)	147	148	140	150	144	>175
Inherent noise (dBA)	15	<18	<22	18	<15	<60
Capacitance (pF)	12	18	18	19	11	7
Temp. Coeff. (dB/°C)	0.009	-0.01	<0.01	-0.008	0.009	0.015
Frequency range (±2dB) (Hz)	3.15 ÷ 20K		10 ÷ 12.5K	20 ÷ 8K	3.15 ÷ 12.5K	10 ÷ 20K
Polarization voltage	0 V	0 V	0 V	0 V	0 V	0 V
IEC 61094 compliance	WS2F			-	WS2D	WS4P
IEC 17025 calibration	Option (Accredited calibration services available on request)					



MC800
200 V polarized condenser microphones – standard 1/2" diameter



MC801
200 V polarized condenser microphones – standard 1/2" diameter



MC802
¼" pressure-field measurement microphones



MC21E - MC22E
Pre-polarized condenser microphones – standard 1/2" diameter"



UC52
Pre-polarized condenser microphones – standard 1/2" diameter

vs1.0