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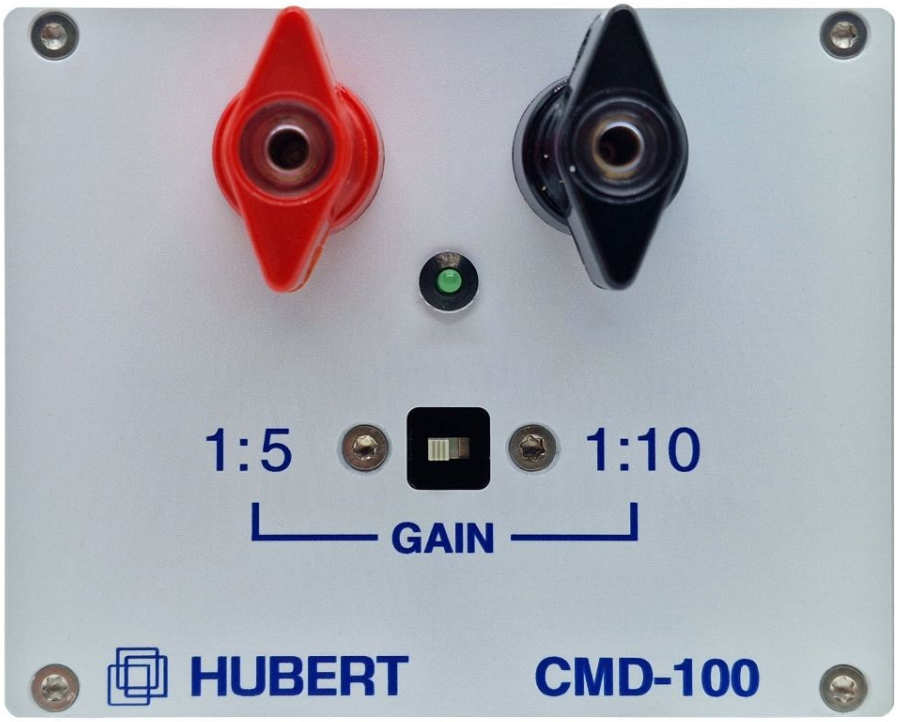
# Datasheet




# CMD-100

Current Measuring Device

MADE IN GERMANY

# 1 Product Description

The CMD-100 is a measuring instrument intended for current and voltage measurements in general laboratory and testing applications, as well as for use in combination with Hubert series A1110 amplifiers.

Its galvanically isolated current measurement enables the connection of a source and load via power terminals, supporting currents up to ±130 A peak. The measurement gain can be switched between two values, allowing flexible adaptation of the measurement range.

For voltage measurement, the device provides an additional external connection. By separating the power and measurement terminals, current and voltage measurement points can be selected independently from one another within the test setup. Voltage measurement is done differentially. The measured signal can be accessed via BNC sockets with a fixed gain, alongside the current measurement signal. The monitor outputs share a common reference potential, which is isolated from protective earth (PE).

An integrated mains power supply eliminates the need for an external power source.

# 2 Performance

- Maximum current: ± 63 Apeak
- Maximum voltage: ± 100 Vpeak
- Precision: ± 1 %
- Gain I-Mon: 1 V / 10 A (1 V / 5 A)
- Gain U-Mon: 1 V / 10 V

# 3 Features

- Galvanically isolated current measurement
- Switchable measurement gain for I-Mon
- Differential voltage measurement U-Mon with fixed gain
- BNC outputs for current and voltage measurement signals
- Internal power supply

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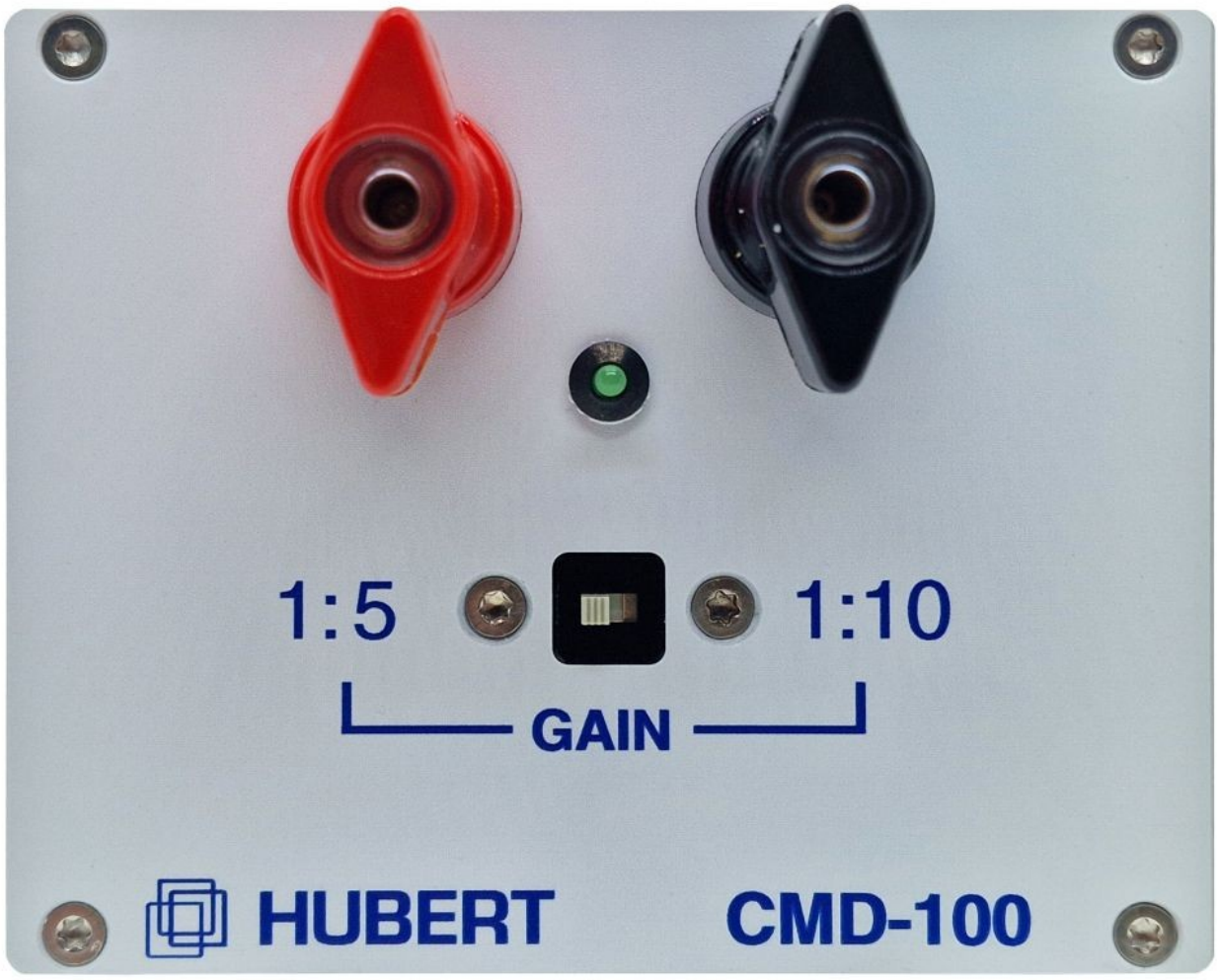
# 4 Product Images

## 4.1 Front Side

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## 4.2 Rear Side


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# 5 Technical Data

## 5.1 Specifications

| Parameters | Specification | Conditions / Moments |
|---|---|---|
| Maximum Input Level | | |
| Current | ± 130 $A_{Peak}$, 65 $A_{RMS}$ | Isolated power connection, galvanically isolated |
| Voltage (U-Input) | ± 100 $V_{Peak}$ | Differential voltage measurement, not galvanically isolated |
| | | |
| Output impedance | | |
| I-Mon & U-Mon | 50 Ω | |
| | | |
| Bandwidth | | Small Signal Bandwidth |
| I-Monitor | 2 MHz | A1230, 50 Ω Load<br>1 $A_{pp}$ Sinus Reference<br>-3 dB |
| U-Monitor | 2.3 MHz | A1230, 50 Ω Load<br>10 $V_{pp}$ Sinus Reference<br>-3 dB |
| | | |
| Power Bandwidth | | |
| I-Monitor | 150 kHz | Frequency response of current transformer according to data sheet<br>-3 dB bei 70 $A_{rms}$ & 150 kHz |
| | | |
| Noise | | |
| I-Monitor | < 0.250 $mV_{RMS}$ (1:10)<br>< 0.565 $mV_{RMS}$ (1:5) | 10 Hz – 500 kHz |
| U-Monitor | < 0.020 $mV_{RMS}$ | 10 Hz – 500 kHz<br>U-Input shorted |
| | | |
| Dynamics | | |
| I-Monitor | < 92 dB | 10 Hz – 500 kHz, rel. to 10 V |
| U-Monitor | < 114 dB | 10 Hz – 500 kHz, rel. to 10 V |
| | | |
| Offset measurement output | | |
| I-Monitor | ± 1 mV | |
| U-Monitor | ± 1 mV | |
| | | |

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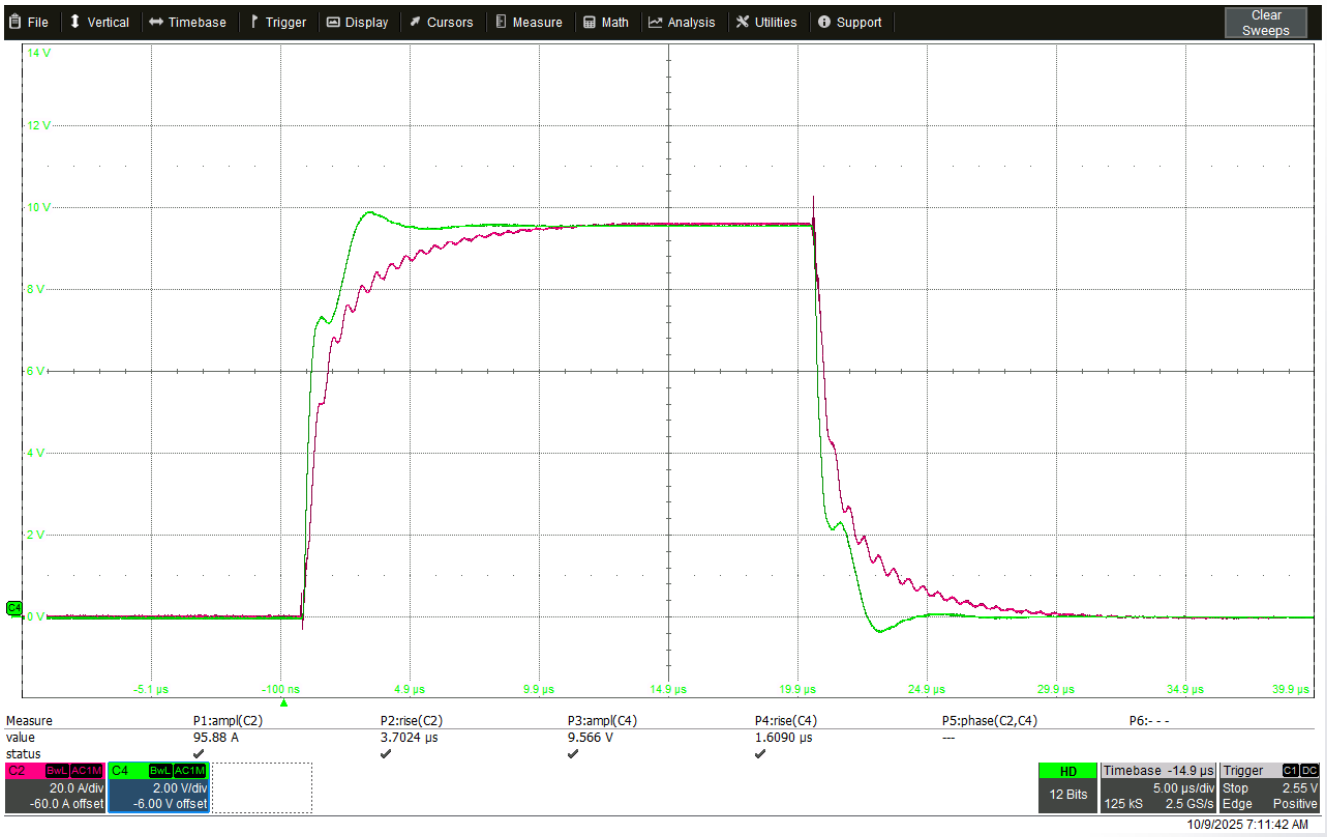
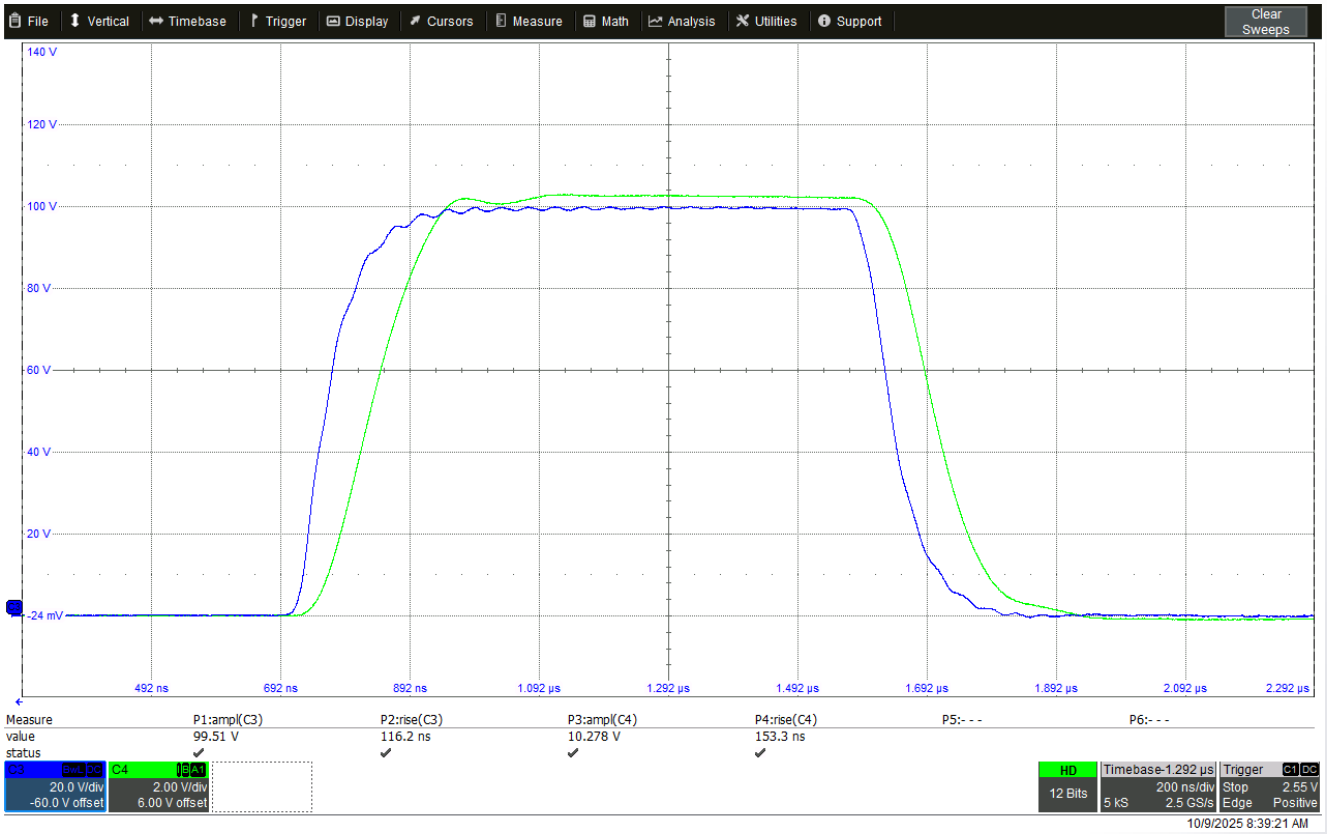
| Parameters | Specification | Conditions / Moments |
|---|---|---|
| Measurement | | |
| I-Monitor | | |
| | ±1 V ≙ 5 A | front panel slide switch in left position (1:5) |
| | ±1 V ≙ 10 A | front panel slide switch in right position (1:10) |
| | | |
| U-Monitor | ±1 V ≙ 10 V | fixed |
| | | |
| Accuracy of measurement output | | |
| U-Mon & I-Mon | ± 1 % | |
| | | |
| Conduction Resistance | 3 mΩ | Forward and return path at 1 A DC |
| | | |
| Temperature-Derating I-Mon | | Maximum permissible RMS current as a function of frequency and temperature, to prevent damage to the internal current transducer |
| I-Monitor | 100 A (100 kHz)<br>10 A (1 MHz) | 45°C Current Sensor Temperature |
| | 100 A (10 kHz)<br>10 A (100 kHz) | 65°C Current Sensor Temperature |
| | 100 A (1 kHz)<br>10 A (10 kHz) | 85°C Current Sensor Temperature |
| | | |
| Physical Characteristics | | |
| AC Power | 230 $V_{AC}$ / 50...60 Hz | |
| Operating Temperature | 10 °C to 40 °C | |
| Humidity | 80 % or less | |
| Cooling | Passiv | |
| Dimensions (HxWxD) | 105 x 95 x 355 mm | |
| Weight | ~2 kg | |

## 5.2 I-Mon: Transient Response



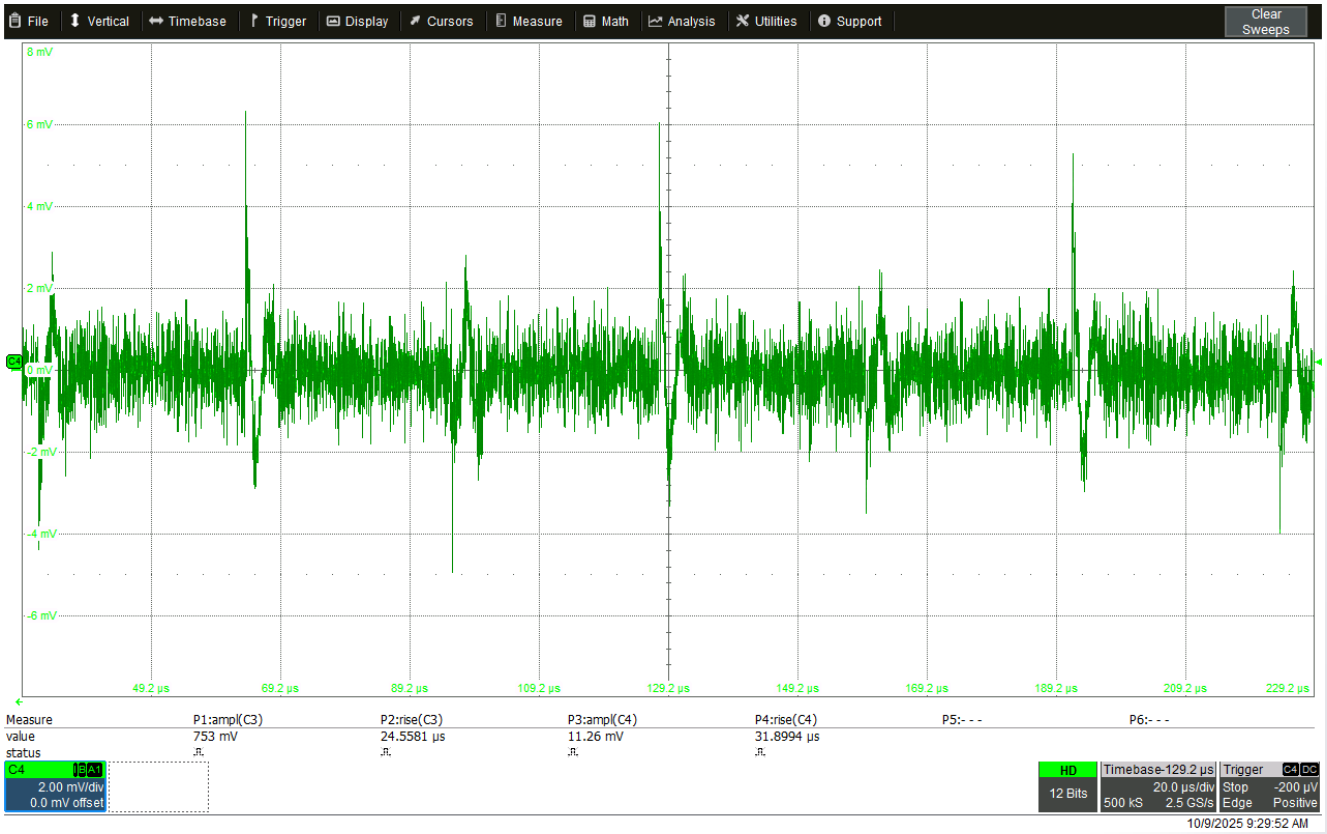

**I-Mon Transient Response**, DUT: CMD-100: CH2: Reference Current (Shunt), CH4: I-Mon, $t_{PW}$=20 µs, Gain=0.1 V/A, Load: 1 Ω, Source: FIS 100-200 (Power Switch), $U_{IN}$=100 V

## 5.3 U-Mon: Transient Response



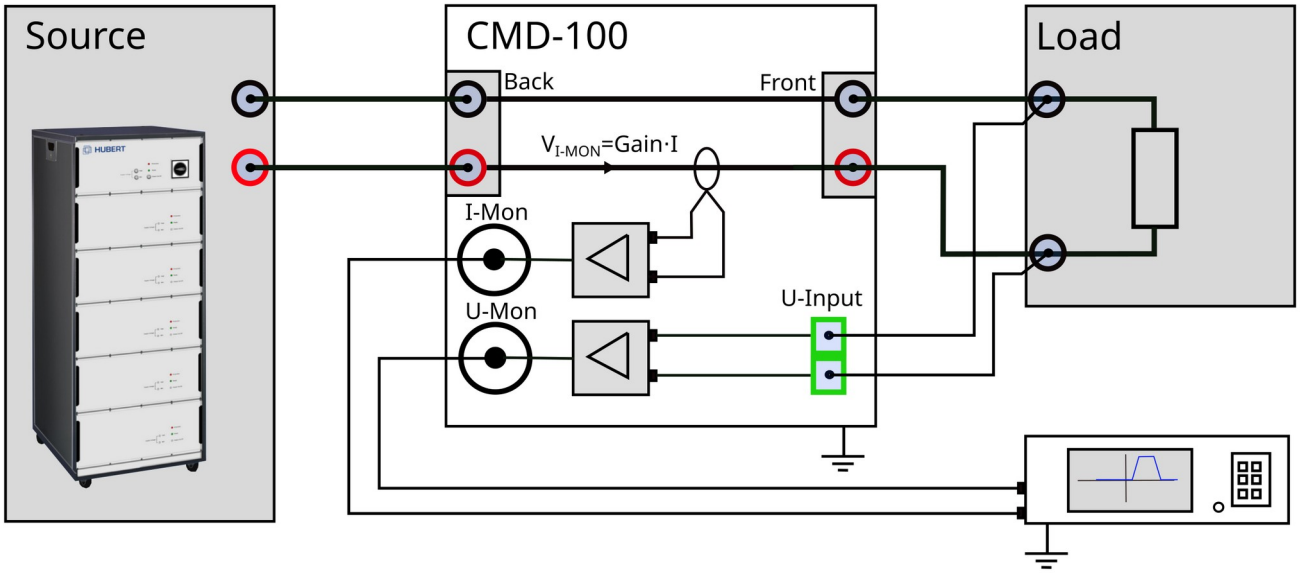

**U-Mon Transient Response**, CMD-100: CH3: Reference Voltage (Load), CH4: U-Mon (Load), $t_{PW}$=1 µs, Gain=0.1 V/V, Load: 1 kΩ, Source: FIS 100-200 (Power Switch), $U_{IN}$=100 V

## 5.4 Noise: I-Mon




**I-Mon Noise** , CMD-100: CH4: I-Mon, Gain=0.1 A/V, no current

## 5.5 Block Diagram

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# 6 Contact

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# 7 Document History

| Version | Date | Changelog |
|---|---|---|
| 1 | November 2025 | First publication |