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Product / Process Change Notification
Issue Date: February 26, 2023

Quantinuum H-Series Product Change Notification

Title of Change:	**System Model H1 Emulator Noise Parameters Update**
Date of Change:	February 27th, 2023
Contact Information:	QCSupport@quantinuum.com
Products Impacted:	System Model H1 Emulators
Changes to Product Data Sheet:	**NO ☐ YES ☒**
Changes to Subscription Contract:	**NO ☒ YES ☐**
Changes to Interface:	**All ☒ Quantinuum API ☐ Microsoft ☐**
Description and Purpose:	The purpose of this notification is to: 1) Notify customers that the noise parameters used in the System Model H1 Emulators are being updated. See additional information below for more details.
Reason / Motivation for Change:	System Model H1 Emulator Noise Parameters are being updated to clarify their usage
Action Required by Customers:	None

Additional Information:

1) **Notification that H1 Emulator Noise Parameters being updated.**

Effective February 27, The System Model H1 emulators (targets: H1-1E, H1-2E) noise parameters will be updated. The below noise parameters are being updated or added:

- p1_emission will become p1_emission_ratio
- p2_emission will become p2_emission_ratio
- coherent_dephasing_rate will become quadratic_dephasing_rate
- incoherent_dephasing_rate will become linear_dephasing_rate
- coherent_to_incoherent_factor has been added to the API

For detailed information on the noise model, see the *Quantinuum System Model H1 Emulator Product Data Sheet* or the *Quantinuum Application Programming Interface (API)* on the user portal. Microsoft Azure Quantum users will be able to find detailed information on the noise model on Microsoft *Quantinuum Provider page (update coming at the latest next week)*.

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Instructions for using the parameters in the System Model H1 emulator noise models are found in the *Quantinuum Application Programming Interface (API) Specification* document on the user portal and in the *Using the Emulator.ipynb* and *Using the Emulator via pytket.ipynb* notebooks on the user portal. Code examples for Microsoft Azure Quantum users can also be found on the Microsoft *Quantinuum Provider page: https://learn.microsoft.com/en-us/azure/quantum/provider-quantinuum.*

In summary, the impact to customers is as follows:

- The System Model H1 emulator noise parameter names have been updated. Please ensure newly submitted circuits to the System Model H1 emulator use these updated parameter names.
- The default settings for the System Model H1 emulator will continue to emulate the System Model H1 quantum computers.

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