News Release

CyboSoft Introduces Model-Free Adaptive (MFA) Control Solution for AI Data Center Liquid Cooling Systems

November 3, 2026 – CyboSoft (Rancho Cordova, California), the developer of Model-Free Adaptive (MFA) control technology and products, announced the introduction of an MFA Control Solution for Coolant Distribution Units (CDUs) used in AI data center liquid cooling systems. The solution can improve cooling stability, enhance control performance, reduce energy consumption, and increase overall cooling system reliability under rapidly changing AI computing loads.

CyboSoft CEO Dr. George Cheng stated, "AI data center cooling systems face major challenges in maintaining stable coolant temperature and pressure under rapidly changing GPU workloads. Conventional PID controllers can struggle with nonlinearities, time delays, and interacting control loops. CyboSoft's Model-Free Adaptive (MFA) control solution can address these challenges. With proven industrial experience in multi-stream pressure, flow, and temperature control, CyboSoft is bringing MFA technology to next-generation AI data center cooling control systems."

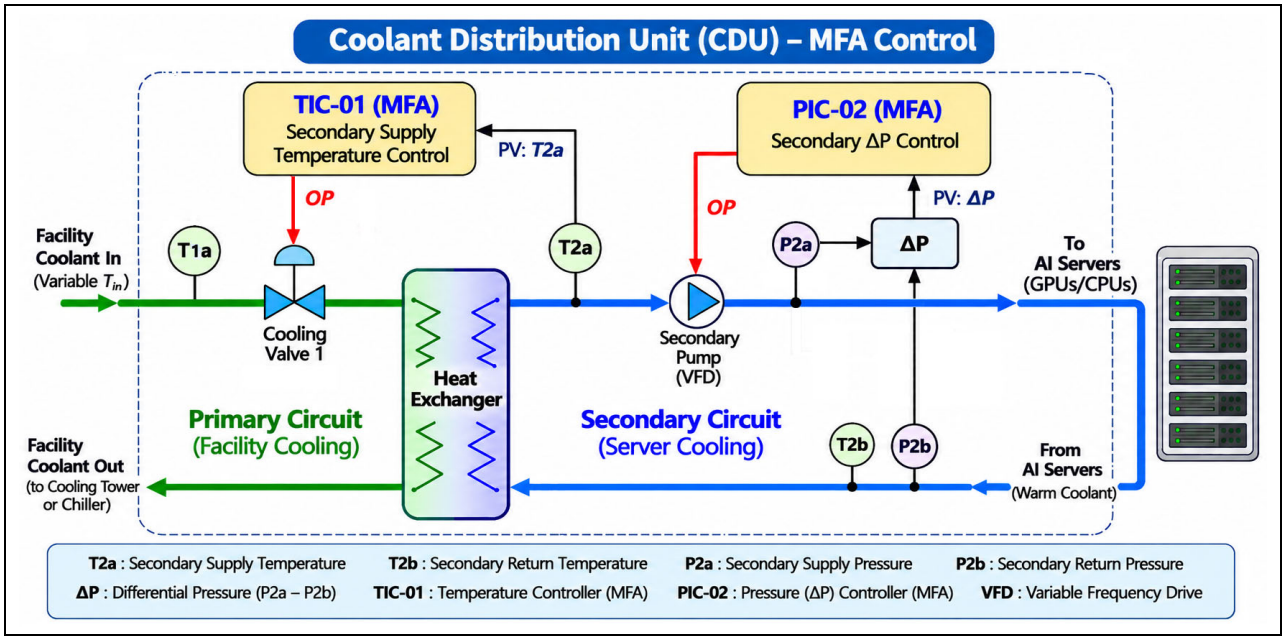
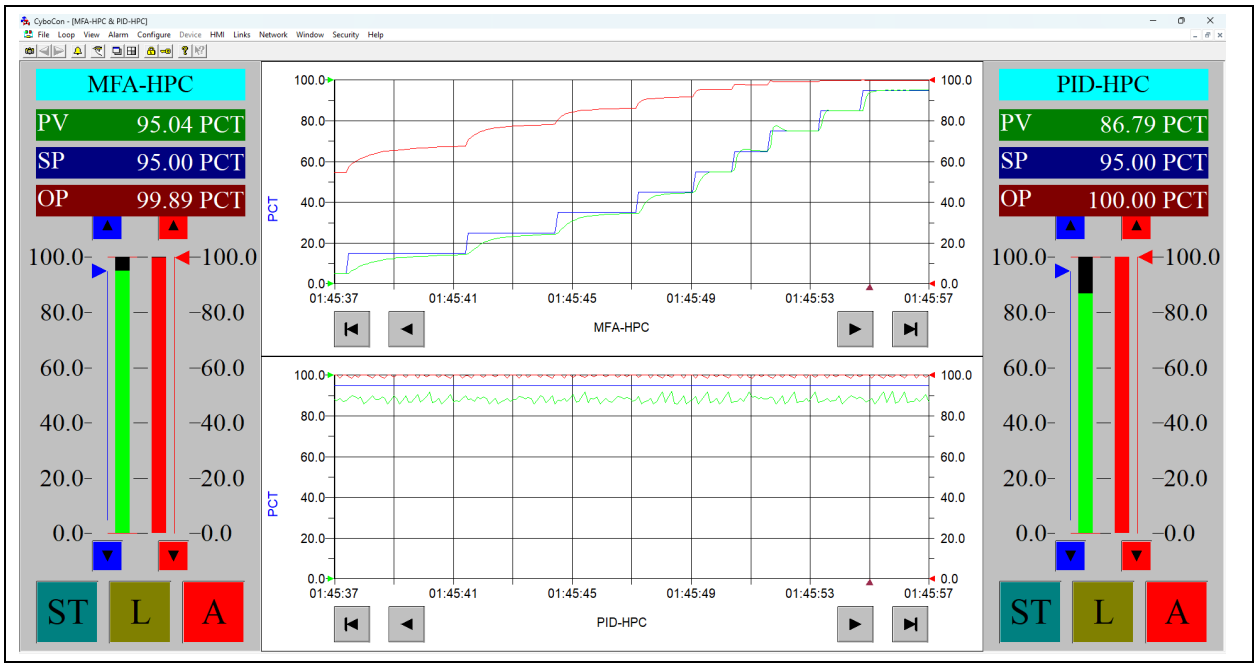


Figure 1 shows a typical Coolant Distribution Unit (CDU) with two coolant circuits separated by a heat exchanger. The primary circuit transfers heat to the facility cooling system, while the secondary circuit circulates coolant through AI servers to remove heat generated by GPUs and CPUs. CDU systems face significant control challenges due to rapidly changing AI workloads, nonlinear heat-transfer characteristics, time delays, interactions among temperature, pressure, and flow, and disturbances caused by varying coolant demands. Conventional PID controllers can experience performance degradation and

oscillations under these changing operating conditions. As illustrated in Figure 1, MFA can effectively control the secondary coolant supply temperature by manipulating the primary cooling valve, while MFA differential-pressure control adjusts the secondary pump speed to maintain stable coolant circulation. With its adaptive and robust control capabilities, the MFA control system can improve cooling stability, disturbance rejection, and operational reliability under varying AI server workloads.

CyboSoft offers a family of MFA controllers, including Nonlinear MFA, Anti-delay MFA, and Multi-Input-Multi-Output (MIMO) MFA Controllers. Figure 2 shows that Nonlinear MFA (top) effectively controls a highly nonlinear process as its setpoint changes from 5% to 95%, despite a 40-times change in process gain. In contrast, PID control (bottom) oscillates severely. This demonstrates MFA's ability to handle nonlinear process dynamics, a valuable capability for CDU control applications.



The MFA Control Solution can run on an industrial PC using CyboCon software or MFA Control Toolset for LabVIEW software, integrate with existing DCS/PLC systems via OPC or Modbus TCP. MFA controllers can also be embedded directly into equipment control systems.

About CyboSoft

CyboSoft is a leading Physical AI company specializing in intelligent control of industrial processes, buildings, and equipment. Its patented Model-Free Adaptive (MFA) technology enables real-time adaptive control of physical systems without requiring mathematical process models. CyboSoft received the 2007 Frost & Sullivan “North America Technology Leadership Award” in Industrial Automation. For more information or to request a MFA Control Demo, please contact: CyboSoft, e-mail: Jenny Jordan, jjordan@cybosoft.com. Website: www.cybosoft.com.