CyboSoft®
GENERAL CYBERNATION GROUP

Model-Free Adaptive Control
Groundbreaking AI since 1997

Comparison of Control Methods

	PID	MBC	MFA
General Purpose	✓	✗	✓
Adaptive	✗	✓	✓
No Process Model	✓	✗	✓
No Identification	✓	✗	✓
No Controller Design	✓	✗	✓
No Manual Tuning	✗	✓	✓
Controls Complex Systems	✗	✓	✓
Easy to Use and Maintain	✗	✗	✓

Application Suitability

Process variation

MFA IN CONTROL

PID

Model Based Control

Black Box   Grey Box   White Box

Amount of process knowledge

MFA is suitable for Grey box problems, where the process has uncertainties including load, fuel, and dynamic changes.
PID – one algorithm for all, MBC – one algorithm fits one system, MFA – one algorithm solves one control problem.

MFA Control Toolset for LabVIEW®

• Embedded Model-Free Adaptive (MFA) controller VI's in LabVIEW for simulation and real-time control.

• Suitable for high-speed control of equipment that has varying operating conditions.

• Runs in PC, PXI, cRIO, and cFP.

• Tens of thousands of MFA VI's in operation (ex: drilling control, rapid thermal processing).
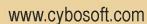
CyboCon MFA Control Software

Runs in Windows interfacing to PLC/DCS through OPC or Modbus. Delivers MFA Control Solutions for:

• Industrial Flares,

• Exothermal Reactors,

• Alumina Refineries,

• Bio-Reactors,

• Wafer Furnaces, etc.

MFA at a Glance

• SISO MFA to replace PID.

• MIMO MFA to control multivariable processes.

• Nonlinear MFA to control extremely nonlinear processes.

• Anti-delay MFA to control processes with large time delays.

• Robust MFA to force the process variable to stay in defined bounds.

• Feedforward MFA to deal with measurable disturbances.

• MFA pH controller to control pH processes.

• Anti-delay MFA pH controller for pH process with large time delays.

• Time-varying MFA controller for processes with large process time constant and delay time changes.

• MFA XRT to control exothermal reactors.