PC-BASED SOFT-LOGIC CONTROLLERS

ADAM-5510EKW/TCP shown smaller than actual size.

ADAM-5000 Series

2 YEAR WARRANTY

- **Modular I/O Design Provides Optimum Flexibility**
- **Controllers Available with 4 or 8 I/O Modules Slots for up to 128 I/O Points**
- **I/O Modules for Analog Signals, RTDs, Thermocouples, Discrete I/O, Counters and Frequency**
- **RS485 and Ethernet Communications Available**
- **Industrial DIN Rail Mount Design**

**Basic system consists of 1 controller, 1 module, and software. See ordering examples on the next page.*

The ADAM-5510KW series is designed to monitor and control processes through multi-channel I/O modules. Each system is capable of handling up to 4 or 8 I/O modules for channel capacities up to 128 I/O points. Depending on the type and number of I/O points a system can be configured to meet your optimum application requirements.

Configurable I/O

The ADAM-5000 series analog input modules can be configured to accept several ranges of voltage input, current input, thermocouple input or RTD input. Counter/frequency modules can also be configured to up/down, bi-directional and frequency modes. By storing the configuration in a nonvolatile EEPROM, the system is able to retain set parameters even in the event of a power failure.

3-Way Isolation

Electric noise and transients can enter your system through an I/O module, the power supply connection or a communication connection. The ADAM-5000 series has been designed to effectively prevent noise from all possible sources with:

- 3000 Vdc isolation from ADAM-5000 I/O modules
- Isolation for input signals on communication ports
- Isolation for the communication port's power supply

This 3-way isolation design prevents ground loops and reduces the risk of electric noise affecting your system.

Programmability

The ADAM-5510KW feature 5 standard IEC61131-3 programming languages so PLC users can develop control strategies in their familiar programming languages. The strong MULTIPROG software and stable ProConOS make the ADAM-5510KW the best choice for PC-based Soft-logic controllers in the market.

ProConOS, (Programmable Controller Operating System), has over 250,000+ installations, and is a pre-emptive, multi-tasking run-time software providing deterministic operation down to one millisecond and runs applications developed with MULTIPROG, a fully-featured IEC 61131-3 development environment. Also bundled with the ADAM-5510KW is ProConOS run-time software creating a complete SoftLogic Solution.

RS232/RS485 Modbus Communications

The main unit of ADAM-5510KW contains a 1.5 MB flash memory and 640 KB SRAM which includes battery backup RAM up to 32 KB. In addition, 4 COM ports enrich the communication capacity of ADAM-5510EKW and ADAM-5510KW to integrate with remote I/O or other 3rd party devices based on the Modbus/RTU protocol.

For advanced system integration, the ADAM-5510EKW and ADAM-5510KW are built with a Modbus/RTU Server.

Optional Ethernet

The ADAM-5510EKW/TCP is an Ethernet-enabled SoftLogic Controller. In addition to the features of ADAM-5510KW and ADAM-5510EKW, the ADAM-5510EKW/TCP has Ethernet features including Modbus/TCP Server, Modbus/TCP Client and Multiprog via Ethernet functions. Therefore, users can easily and quickly complete their programming based on Ethernet architecture.

For advanced system integration, the ADAM-5510EKW/TCP supports not only Modbus/RTU Master and Slave functions via serial ports, but also the Modbus/TCP Client to retrieve data from remote I/O, and Modbus/TCP Server to send data back to the HMI/SCADA Software via Ethernet port. Furthermore, the ADAM-5510EKW/TCP allows users to remotely maintain multiple ADAM-5510EKW/TCP controllers by running Multiprog programming software via Ethernet.

ADAM-5510KW, shown smaller than actual size.

CONTROLLER SPECIFICATIONS

CONTROL SYSTEM

CPU: 16-bit microprocessor
I/O Capacity: 8 slots (5510EKW-A and 5510EKW/TCP); 4 slots (5510KW)
LED Indicators: Power, CPU, communication

MEMORY

Flash Disk: 512 KB
Flash Memory: 768 KB
Flash ROM: 256 KB
RAM: 640 KB SRAM
Operating System: ROM-DOS
Real-Time Clock: Yes
Watchdog Timer: Yes

COMMUNICATIONS (Ethernet, ADAM-5510EKW/TCP only)

Medium: Cat. 5 cable with RJ-45 connectors
Transmission Speed: 100 Mbps (10/100Base-T)

COMMUNICATIONS (Serial, All Models)

Max. Nodes: 32 (in RS485 daisy-chain network)
Medium: RS485 (2-wire)
Protocols: Modbus/RTU, Modbus/TCP
Transmission Speed: 9600, 19200 and 38400 bps

PROTECTION

Power Input: 3000 Vdc
Communication Line: 2500 Vdc (COM2 only)

ISOLATION

Power Reversal: Yes

PROTECTION

Power Input: 3000 Vdc
Power Consumption: 4 W @ 24 Vdc (not including I/O modules)
Unregulated 10 to 30 V
Power Input: Unregulated 10 to 30 Vdc

GENERAL

Certifications: CE, FCC class A (ADAM-5510 and ADAM-5510EKW-A only)
Connectors:
1 x DB9-M for RS232/485 (COM1)
1 x Screw terminal for RS485 (COM2)
1 x DB9-F for RS232/Programming (COM3)
1 x DB9-M for RS232/485 (COM4)
1 x Screw-terminal for power input
1 x RJ-45 for LAN (ADAM-5510EKW/TCP only)

Dimensions:
4-Slot: 231 x 110 x 75 mm
8-Slot: 355 x 110 x 75 mm
Enclosure: ABS + PC
Mounting: DIN 35 rail, stack, wall
Environment
Humidity: 5 to 95%, non-condensing
Operating Temperature:
-10 to 70° C (14 to 158° F)
Storage Temperature:
-25 to 85° C (-13 to 185° F)

To Order

MODEL NO.	DESCRIPTION
ADAM-5510KW	4-slot SoftLogic controller
ADAM-5510EKW	8-slot PC-based SoftLogic controller
ADAM-5510EKW/TCP	8-slot Ethernet-based SoftLogic controller

Comes with complete user manual on CD

System Ordering Examples

Example 1

Quantity 1 ADAM-5510KW	*4-slot softlogic contoller*
Quantity 1 ADAM-5051S	*16-channel isolated digital input module*
Quantity 1 ADAM-5080	*4-channel counter/frequency module*
Quantity 1 ADAM-5069	*8-channel power relay output module*
Quantity 1 MPROG-BAS33	*KW Multiprog basic development software*
Quantity 1 PWR-242	*Power supply*
Quantity 1 1703093000	*Serial cable*

Example 2

Quantity 1 ADAM-5510EKW/TCP	*8-slot ethernet based softlogic controller*
Quantity 2 ADAM-5018	*7-channel thermocouple input module*
Quantity 2 ADAM-5017H	*8-channel hi speed analog input module*
Quantity 1 ADAM- 5013	*3-channel RTD module*
Quantity 1 ADAM-5024	*4-channel analog output module*
Quantity 1 ADAM-5050	*16-channel universal digital I/O module*
Quantity 1 MPROG-ADV33	*KW Multiprog advanced development software*
Quantity 1 1997000220	*Blank I/O module*
Quantity 1 PWR-242	*Power supply*
Quantity 1 1703093000	*Serial cable*

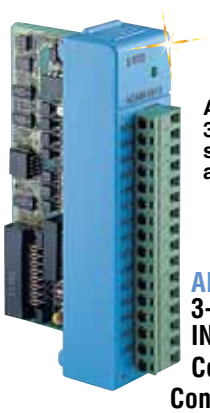
Accessories

MODEL NO.	DESCRIPTION
PWR-242	DIN rail mount power supply, 24vdc, 2.1A
1997000220	ADAM-5000 blank I/O module
1703093000	RS232 communication cable

ADAM-5018, 7-channel thermocouple input shown smaller than actual size.

ADAM-5018
7-CHANNEL THERMOCOUPLE INPUT MODULE

Certifications: CE, FM
Connectors: 1 x plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 0.63 W (max)
Thermocouple Input:
Accuracy: ±0.1% or better
Bandwidth: 13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
Channels: 7 differential
Input Impedance: 2 MΩ
Input Range: ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V, ±20 mA
Input Type: mV, V, mA, thermocouple
Resolution: 16-bit
Sampling Rate: 10 samples/sec (total)
T/C Type and Temperature Range:
J: 0 to 760° C
K: 0 to 1370° C
T: -100 to 400° C
E: 0 to 1000° C
R: 500 to 1750° C
S: 500 to 1750° C
B: 500 to 1800° C
Protection: Up to ±35 V
Isolation Voltage: 3000 Vdc



ADAM-5013, 3-channel RTD input, shown smaller than actual size.

ADAM-5013
3-CHANNEL RTD INPUT MODULE

Certifications: CE
Connectors: 1 x plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 1.1 W (max)
RTD Input:
Accuracy: ±0.1% or better
Bandwidth: 13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
Channels: 3
Input Connections: 2, 3 or 4 wire
Input Impedance: 2 MΩ
Input Type: PT100 or Ni RTD
Resolution: 16-bit
RTD Types and Temperature Ranges:
IEC RTD 100: Ω
Pt -100 to 100°C α= 0.00385
Pt 0 to 100°C α= 0.00385
Pt 0 to 200°C α= 0.00385
Pt 0 to 600°C α= 0.00385
JIS RTD 100:Ω
Pt -100 to 100°C α= 0.00392
Pt 0 to 100°C α= 0.00392
Pt 0 to 200°C α= 0.00392
Pt 0 to 600°C α= 0.00392
Ni RTD:
Ni -80 to 100°C
Ni 0 to 100°C
Sampling Rate: 10 samples/sec (total)
Isolation Voltage: 3000 Vdc

ADAM-5017, 8-channel analog input shown smaller than actual size.

ADAM-5017
8-CHANNEL ANALOG INPUT MODULE

Channels: 8 differential
Effective Resolution: 16-bit
Input Type: mV, V, mA
Input Range: ±150 mV, ±500 mV, V, ±5 V, ±10 V; ±20
Sampling Rate: 10 samples/sec (total)
Input Impedance: 2 MΩ
Bandwidth:
13.1 Hz @ 50 Hz,
15.72 Hz @ 60 Hz
Accuracy: ±0.1% or better
Power Consumption: 1 W (typical); 1.25 W (max)
Analog Signal Range: ±15 V max
Note: *The voltage difference between any two pins must not exceed ±15 V*
Isolation Voltage: 3000 Vdc
Protection: Up to ±35 V

ADAM-5017H, 8-channel high speed analog input, shown smaller than actual size.

ADAM-5017H
8-CHANNEL HI SPEED ANALOG INPUT MODULE

Channels: 8 differential
Effective Resolution: 12-bit plus sign bit
Input Type: mV, V, mA
Input Range: ±250 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0 to +500 mV, 0 to +1 V, 0 to +5 V, 0 to +10 V, 0 to 20 mA, 4 to 20 mA
Isolation Voltage: 3000 Vdc
Sampling Rate Depends on base unit
ADAM-5510KW: Up to 100 samples/sec
Input Impedance: 20 MΩ (voltage inputs) 125Ω (current inputs)
Bandwidth: 1 kHz
Signal Input Bandwidth: 1 kHz for both voltage and current inputs
Accuracy: ±0.1% or better; CMR @ 50/60 Hz 92 dB min
Power Consumption: 1.75 W (typical); 2.2 W (max)
Distinct Range: Settings allowed on each channel
Note*: The voltage difference between any 2 pins must not exceed ±15 V*

To Order

MODEL NO.	DESCRIPTION
ADAM-5018	7-channel thermocouple input module
ADAM-5013	3-channel RTD input module
ADAM-5017	8-channel analog input module
ADAM-5017H	8-channel hi speed analog input module

ADAM-5024, 4-channel analog output, shown smaller than actual size.

ADAM-5024

4-CHANNEL ANALOG OUTPUT MODULE

Certifications: CE, FM
Connectors: 1 x Plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 2.9 W (max)
Analog Output Accuracy: ±0.1% of FSR for current output; ±0.2% of FSR for voltage output
Channels: 4
Current Load Resistor: 0 to 500 (source)
Output: Type mA, V
Output Range: 0 to 20 mA, 4 to 20 mA, 0 to 10 V
Programmable: 0.125 to 128.0 mA/sec
Output Slope: 0.0625 to 64.0 V/sec
Resolution: 12-bit
Resolution: ±0.015% of FSR
Span Temperature: ±25 PPM/°C
Coefficient:
- **Zero Drift Voltage:** ±30 µV/ ° C
- **Current:** ±0.2 µV/ ° C

Protection:
- **Isolation Voltage:** 3000 Vdc

ADAM-5050, shown smaller than actual size.

ADAM-5050

16-CHANNEL UNIVERSAL DIGITAL I/O MODULE

Certifications: CE, FM
Connectors: 1 x Plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 1.2 W (max)
Digital I/O
Channels: 16
Channel I/O Type: Bit-wise selectable by DIP switch Digital Input
Dry Contact:
- **Logic Level 0:** Close to GND
- **Logic level 1:** Open

Wet Contact:
- **Logic level 0:** 2 V max
- **Logic level 1:** 4 to 30 V

Digital Output: Open collector to 30 V, 100 mA and 450 mW max load
Power Dissipation: 300 mW for each channel

ADAM-5051S, 16-channel isolated digital input module, shown smaller than actual size.

ADAM-5051S

16-CHANNEL ISOLATED DIGITAL INPUT MODULE (ROHS)

Certifications: CE
Connectors: 1 x Plug-in screw terminal (# 14 to 28 AWG)
LED Indicators:
- **On:** Active
- **Off:** Inactive

Power Consumption: 0.8 W (max)
Digital Input
Channels: 16
Input Voltage: 50 Vmax
Logic Level:
- **Logic level 0:** 3 V max
- **Logic level 1:** 10 to 50 V

Protection:
- **Optical Isolation:** 2500 Vdc
- **Overvoltage Protection:** 70 Vdc

ADAM-5052, 8-channel isolated digital input module, shown smaller than actual size.

ADAM-5052

8-CHANNEL ISOLATED DIGITAL INPUT MODULE (ROHS)

Certifications: CE, FM
Connectors: 1 x Plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 0.27 W (max)
Digital Input
Channels: 8
Input Resistance: 3 KΩ/0.5 W
Logic Level:
- **Logic level 0:** 1 Vmax
- **Logic level 1:** 3.5 to 30 V

Protection:
- **Isolation Voltage:** 5000 VRMS

To Order

MODEL NO.	DESCRIPTION
ADAM-5024	4-channel analog output module
ADAM-5050	16-channel universal digital I/O module
ADAM-5051S	16-channel isolated digital input module (RoHS)
ADAM-5052	8-channel isolated digital input module (RoHS)

ADAM-5060, shown smaller than actual size.

ADAM-5060
6 CHANNEL RELAY OUTPUT MODULE (ROHS)

Certifications: CE; FM (ADAM-5060 only)
Connectors: 1 x plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 1.8 W (max)
Relay Output:
- **Breakdown Voltage:** 500 Vac (50/60 Hz)

Channels: 2 x form A , 4 x form C
Contact Rating:
- **AC:** 125 V @ 0.6 A; 250 V @ 0.3 A
- **DC:** 30 V @ 2 A; 110 V @ 0.6 A

Insulation Resistance: 1 GΩ min @ 500 Vdc
Relay Off Time: (typical) 2 ms
Relay On Time: (typical) 3 ms
Total Switching Time: 10 ms

ADAM-5069, shown smaller than actual size.

ADAM-5069-AE
8 CHANNEL POWER RELAY OUTPUT MODULE (ROHS)

Certifications: CE, FCC class A
Connectors: 1 x plug-in screw terminal (# 14 to 22 AWG)
LED Indicator:
- **On:** Active
- **Off:** Non-active

Power Consumption: 2.2 W (max)
Relay Output:
- **Breakdown Voltage:** 750 Vac (50/60 Hz)

Channels: 8 x form A
Contact Rating:
- **AC:** 250 V @ 5 A
- **DC:** 30 V @ 5 A

Insulation Resistance: 1 GΩ@ 500 Vdc
Relay On Time: 5 ms
Relay Off Time: 5.6 ms

ADAM-5056S, shown smaller than actual size.

ADAM-5056SO/S
16-CHANNEL SOURCE/SINK TYPE ISOLATED DIGITAL OUTPUT MODULE (ROHS)

Certifications: CE
Connectors: 1 x plug-in screw terminal (# 14 to 28 AWG)
LED Indicator:
- **On:** Active
- **Off:** Inactive

Power Consumption: 0.6 W (max)
Digital Output
Channels: 16
Digital Output: Open collector to 40V, 200 mA max load
  ADAM-5056SO-AE: Source output
  ADAM-5056S-AE: Sink output
Optical Isolation: 2500 Vdc
Overvoltage Protection: 70 Vdc

ADAM-5080
4-CHANNELCOUNTER/ FREQUENCY MODULE

Certifications: CE, FM
Connectors: 1 x plug-in screw terminal (# 14 to 22 AWG)
Power Consumption: 1.5 W (max)
Counter/Frequency
Counter Aux. Function: Initial preset, hi-low alarm setting, alarm, digital output mapping, overflag
Channels: 4
Input Frequency: 0.3 to 1000 Hz max (frequency mode); 5000 Hz max (counter mode) TTL only
Input Level: Isolated or TTL level
Isolation Input Level:
- **Logic Level 0:** 1 Vmax
- **Logic Level 1:** 3.5 to 30 V

Isolation Voltage: 1000 VRMS
Maximum Count: 4, 294, 967, 295 (32 bits)
Minimum Input Current: 2 mA (isolated)

ADAM-5080, 4-channel counter/ frequency module, shown smaller than actual size.

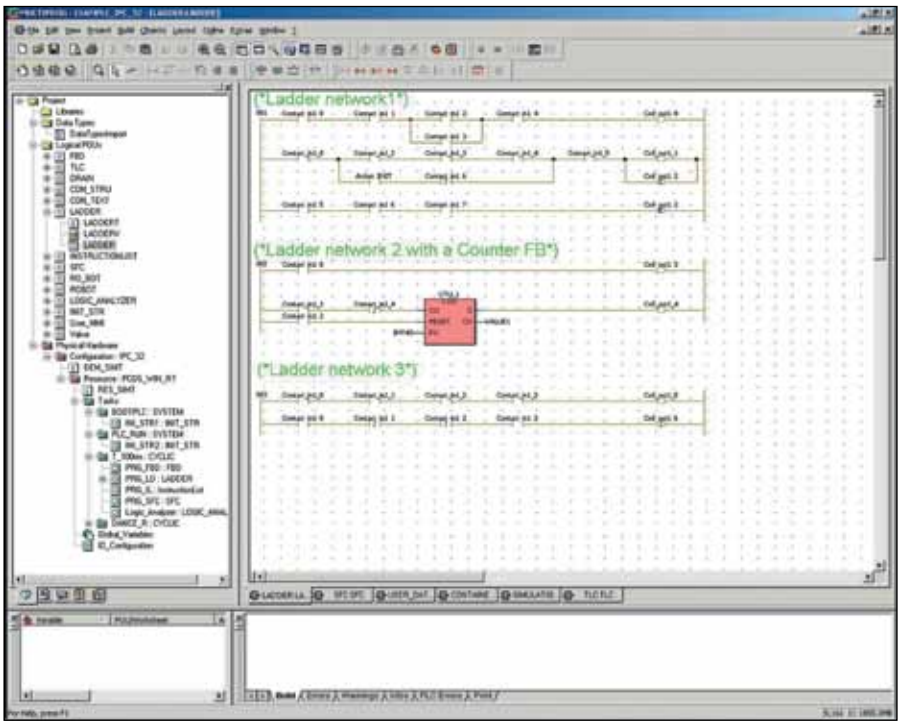
Minimum Pulse Width: 500 ms (frequency mode); 100 ms (counter mode)
Modes Counter: (up/down, bi-direction) frequency
Programmable Digital Filter:
1 to 65000 µsec (noise filter function)
TTL Input Level:
- **Logic level 0:** 0 to 0.8 V
- **Logic level 1:** 2.3 to 5 V

To Order

MODEL NO.	DESCRIPTION
ADAM-5056SO	16-channel source/sink type isolated digital output module (RoHS)
ADAM-5056S	16-channel sink type isolated digital output module (RoHS)
ADAM-5060	6-Channel relay output module (RoHS)
ADAM-5069	8-Channel power relay output module (RoHS)
ADAM-5080	4-channel counter/frequency module (RoHS)

KW MULTIPROG®
IEC-61131-3 DEVELOPMENT SOFTWARE FOR THE ADAM 5510

- **IEC 61131-3 Programming Languages**
- **Intuitive Programming With a Clear Project Structure**
- **Cross-Compiling: FBD, LD and IL Can be Cross-Compiled to Each Other**
- **Multi User Functionality Shortens Programming Time**
- **Management of Distributed Controls**
- **Network Variables: Easy and Powerful Configuration of Distributed Communication**
- **Powerful Debugging Tools: Online Changes, PLC Simulation, Overwriting and Forcing, Breakpoints, Watch Windows and Recipes, Logic Analyzer, and Cross Reference**



KW Multiprog development environment.

Minimum System Requirements

DEVICE	MINIMUM	RECOMMENDED
IBM compatible PC with Pentium Processor	200 MHz	350 MHz
System RAM	64 MB	128 MB
Hard Disk	60 MB free memory space	
VGA Monitor Color Settings Resolution	256 colors 800 x 600	True color 1024 x 768

To Order

MODEL NO.	DESCRIPTION
MPROG-ADV33	KW Multiprog Advanced Development Software (unlimited I/O)
MPROG-BAS33	KW Multiprog Basic Development Software (128 byte I/O limitation*)

** When calculating I/O count, 1 byte is used for every 8 channels of discrete I/O and 4 bytes are used for every 1 analog channel.*

Introduction

MULTIPROG® is a program development environment for the AD5510 series programmable automation controllers. MULTIPROG® supports all IEC 61131-3 programming languages. Depending on the task to be handled, your experience and company standards, you may choose one of the five standardized programming languages. The use of MULTIPROG® offers you many advantages. Our long-term experience in the automation industry guarantees you a sophisticated software product. The open architecture of MULTIPROG® provides a new direction in the creation of automation software. MULTIPROG® Automation Interface guarantees consistent data. Via the automation interface, MULTIPROG® opens its data for other tools. MULTIPROG® allows external creation and modification of its project data. Furthermore, specific attributes can be added. As all essential data can be displayed in MULTIPROG®, frequent switching between different tools during PLC programming and commissioning is no longer necessary. Observers guarantee data consistence with other tools, thus the engineering effort for the programming of PLCs is reduced.

IEC 61131-3 Programming Languages (all supported)

Instruction List (IL)

Structured Text (ST)

Function Block Diagram (FBD)

Ladder Diagram (LD)

Sequential Function Chart (SFC)

All programming languages can be mixed within one project