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## 1.1 Compact


A Compact PLC has the processor, power supply and I/O all contained within one unit. Traditionally these were called Unitary (or Fixed) PLCs. They were small, cheap and had no facility for future expansion, so they were only suitable for tasks that would not change in the future. They were generally used for simple control tasks, usually mounted next to the machine / process they were controlling. Today's Compact PLCs are more powerful, and have some scope for expansion. Modern Compact PLCs still have a processor, power supply and I/O all contained within one unit. Extra I/O, communications, A/D, D/A or other specialised control would be performed via expansion units connected to the main unit. The most basic Compact PLCs may only accept one or two expansion units, while high end units can have a dozen or more additional units attached.



Figure 1: FX3U PLC (centre) with Special Adaptors (left) and Special Function Blocks (right)

2.2.2 The FX3U and Special Adapters – Specification

Table 5: L-Series CPU and Special Adapters descriptions

<p><b>Power Supply Specifications</b></p> <p>Power supply</p> <p>Inrush current at ON</p> <p>Allowable momentary power failure time</p> <p>24V DC service power supply</p>	<p><b>FX3U</b></p> <p><b>AC Powered Models (FX3U-[M]/ES/ESS)</b></p> <p>100–240 V AC (+10 % / -15 %), 50/60 Hz</p> <p>30 A / &lt;5 ms (at 100 V AC); 65 A / &lt;5 ms (at 200 V AC)</p> <p>10 ms</p> <p>FX3U-16/32MR/ES: 400 mA / FX3U-48/64/80/128MR/ES: 600 mA</p>	<p>All-in-one CPU, power supply and digital I/O. Dual system-bus promotes versatility. Expansion Boards and Special Adapters add functionality: communication, networking, analog, and positioning systems.</p>  <p>Figure 6: The FX3U CPU</p>
<p><b>Output Specifications</b></p> <p>Switching voltage (max.)</p> <p>Max. output current</p> <p>Max. switching current</p> <p>Response time</p>	<p><b>Transistor Models</b></p> <p>5–30 V DC</p> <p>0.5</p> <p>0.8</p> <p>12W</p> <p>&lt; 0.2 (&lt; 5µs for Y0–Y2)</p>	
 <p>FX3U-485ADP</p> <p>Figure 7: Modbus module</p>	<p>The FX3U-485ADP MB module enables communication between the PLC and other (RS-485 enabled) devices. RS485 comms can be configured as one-to-many, daisy chain, parallel or peer-to-peer. This module also permits Modbus (RTU and ASCII).</p> <p>The FX3G-CNV-ADP adapter allows special adapters (ADP) to be connected to the FX3U base unit.</p>	 <p>FX3G-CNV-ADP</p> <p>Figure 8: Adapter</p>



FX3U-4AD-ADP	
4 CH	
0 to 10V DC,	4 to 20mA
2.5mV	10µA
12 bit	11 bit
±0.5% (20 to 30°C), ±1.0% (0 to 55°C)	
200µs *7	

Figure 9: Analogue I/P



FX3U-4DA-ADP	
4 CH	
0 to 10V DC (5k to 1MΩ)	4 to 20mA (500Ω or less)
2.5mV	4µA
12 bit	
±0.5% (20 to 30°C), ±1.0% (0 to 55°C)	
200µs *7	

Figure 10: Analogue O/P



FX3U-4AD-PT-ADP
4 CH Input
3-wire platinum resistance thermometer sensor(s) Pt100
-50 to +250°C / -58 to +482°F
0.1°C / 0.18°F
-500 to +2500(°C) / -5800 to +4820(°F)
±0.5% (20 to 30°C), ±1.0% (0 to 55°C)

Figure 11: Temperature control

The FX3U-4AD-ADP has four analogue input channels. Each channel can be configured for voltage or current.

The FX3U-4DA-ADP has four analogue output channels. Each channel can be configured for voltage or current.

The FX3U-4AD-PT-ADP has four analogue inputs for PT100

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