

# M90-19-B1A

10 digital inputs, 1 analog input, high-speed counter/shaft encoder input, 6 relay outputs, RS232

<b>Power supply</b>	24VDC
Permissible range	20.4 to 28.8VDC
Maximum current consumption	140mA @ 24VDC
Typical power consumption	3.2W @ 24VDC
<b>Digital inputs</b>	10 pnp (source) inputs
Nominal input voltage	24 VDC
Input voltage	< 5 VDC for Logic '0' > 15 VDC for Logic '1'
Input current	3 mA @ 24 VDC
Input impedance	8.4kΩ
Response time '0' to '1'	(except Input #8 and Input #9) 5 mS
'1' to '0'	10 mS
Galvanic isolation	None
Input cable length	Up to 100 meters, unshielded
<b>High-speed counter</b>	<ul style="list-style-type: none"> <li>● Input#9 can be used as either a digital input or as a counter</li> <li>● Input#8 can be used as either a digital input or as a counter reset</li> <li>● Input #8 and #9 can also be used as a shaft encoder</li> </ul>
Resolution	16-bit
Input frequency	Input#9 : 5kHz maximum
Minimum pulse width	Input#9 : 80μs
<b>Analog input</b>	10-bit, multi-range input:
	0-5V 0-10V 0-20mA, 4-20mA
Conversion method	Successive approximation
Input impedance	>100KΩ at voltage 250Ω at current
Galvanic isolation	None
Resolution (except at 4-20mA)	10-bit (1024 units)
Resolution at 4-20mA	204 to 1024 (820 units)
Conversion time	Synchronized to scan time
Absolute max. rating	± 15V
Full scale error	± 2 LSB
Linearity error	± 2 LSB

<b>Digital outputs</b>	6 relay outputs, 230VAC / 24VDC
Output type	SPST-NO relay
Type of relay	Takamisawa JY-24H-K, or NAIS (Matsushita) JQ1AP-24V or OMRON G6B-1148-24VDC
Isolation	by relay
Output current	5A max. (resistive load) 1A max. (inductive load)
Max. frequency	10Hz
Contact protection	External precautions required
<b>Display</b>	STN, LCD display
Illumination	LED yellow-green backlight
Display size	1 line, characters long
Character size	5 x 7 matrix, 3.07 x 5.73mm
<b>Keypad</b>	Sealed membrane
Number of keys	15
<b>PLC program</b>	2048 words
Bits/Coils	256
Integers/Registers	256
Timers	64
Execution time	12μsec. for bit operations
HMI displays	80 user-designed displays
HMI variables	50 HMI variables are available to conditionally display and modify text, numbers, dates, times & timer values. The user can also create a list of up to 120 variable text displays, totaling up to 2K.
<b>RS232 serial port</b>	
Programming	Download user program
Network option	Via RS485/RS232 converter
<b>Miscellaneous</b>	
Clock (RTC)	Date and time-year 2000 compliant, with typical 7 year battery back-up
Weight	280g (9.8 oz.)
Temperature	Operational 0 to +50°C Storage -20 to +60°C
Mounting method	DIN-rail mounted (IP20) Panel mounted (IP65)

