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LADDA HEM SJÄLVA PROGRAMMET:

<ftp://ftp.moeller.net/EASY/EASY-SOFT_DEMO/Index.html>

Eller sök på internet efter filen: ES-V694Demo.exe

**EASY 512 är kontrollern.**

**Det är inte fullkomligt säkert att det program som i denna folder anges som ”används sedan 2014” är exakt det som används men det som skiljer är i så fall bara tider på timers och att ett extra relä sluts när M2 går igång, för mätning via Raspberry Pi.**

Formulärets överkant

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Klockner Moeller EASY512 & EASY719: Programming instructions for the mini PLC.

**Klockner Moeller EASY 512 & 719 PLCs  
Programming Tutorial**

**Programming the Klockner Moeller EASY mini-PLC**

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| http://controlparts.com/klockner.moeller/easy.programming/front.jpg | This is a front view of the Moeller EASY programmable controller.  There are 4 pushbuttons, DEL, ALT, ESC and OK, which are used to program and operate the unit.  The large round cursor disk is used to move around menus or circuit diagrams and is operated by pressing near the top, bottom right or left edge.  The OK button is used to select menu functions highlighted by the cursor. |

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|  | See our [PLCs catalog](http://controlparts.com/klockner.moeller/easy512-plcs.htm).  Click here for: [technical specifications.](http://www.moeller.net/en/industry/switchgear/switch_control/easy/index.jsp)  Click here for our [related downloads](http://controlparts.com/download.htm).  Click here to [Email the Author](http://controlparts.com/contact.asp) Please include your company's name and location.  [**See our main page for Klockner Moeller and Siemens parts**](http://controlparts.com/) |

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|  | Table of Contents:  [Programming Screens](http://controlparts.com/klockner.moeller/easy.programming/#pscreen)   * Status Screen * Main Menu * Program Menu * Circuit Diagram   [Basic Programming Steps](http://controlparts.com/klockner.moeller/easy.programming/#bprog)   * Entering your program * Setting Parameters   [Available Functions](http://controlparts.com/klockner.moeller/easy.programming/#afunc)   * Negation * Output Relays * Output Relay Contacts * Marker relays * Counter Relays * Timers * Clock Controllers * Analog Comparators * P-Buttons * "If" Jumps * Text Display Variables   [System Settings](http://controlparts.com/klockner.moeller/easy.programming/#settings)   * System Screen * Password Protection * Menu Language * Debounce * Activating P-Buttons * Startup Mode * Retention   [Memory Modules](http://controlparts.com/klockner.moeller/easy.programming/#mmods)   * Archive or Copy a Program   [Expansion Units](http://controlparts.com/klockner.moeller/easy.programming/#xunits)   * Join 2 units for increased capacity   [Physical Wiring](http://controlparts.com/klockner.moeller/easy.programming/#wiring)   * Connecting Inputs, Outputs and Power Supply   [Specifications](http://controlparts.com/klockner.moeller/easy.programming/#specs)   * Ratings & Technical Information |

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|  | **The Programming Screens** |
| http://controlparts.com/klockner.moeller/easy.programming/screen1.gif  Figure 1 | **Status Screen:** this shows the condition of the inputs (I) and the outputs (Q). In this case, inputs 3 & 5 are activated and output relay 2 is closed.  "RUN" indicates the unit is currently running the program.  On models that have the clock, the "WE" on the right indicates "wednesday" and below that is the time of day in 24 hour format.  Press the OK button, for the Main Menu. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/screen2.gif  Figure 2 | **Main Menu:** You may move up and down using the cursor arrows on the large disk, your present selection is blinking.  Selecting "PROGRAM" takes you to the program menu.  "RUN" is the start button to begin processing, and means the unit is currently in stop mode. If you see a "STOP" button, the unit is in run mode, and pressing it will stop processing.  "PARAMETER" is used to set-up various counters, timers, etc.  On models with the clock, you will also have the "SET CLOCK" option.  Use the OK button to make your selection. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/screen3.gif  Figure 3 | **Program Menu:** To begin programming or to view the circuit diagram, select PROGRAM and press the OK button.  Or, to delete your existing program, select "DELETE PROG" and press the OK button. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog1.gif  Figure 4 | **Circuit Diagram:** This screen begins as a blank, and you type in your desired program. This simple program has only one function: If input 1 (I1) is activated then output relay 1 (Q1) is activated.  After you have entered your program, simply hit the ESC button until the Main Menu appears, then select RUN and hit OK. |
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|  | **Basic Programming** |
| http://controlparts.com/klockner.moeller/easy.programming/blank.gif  Figure 5 | **Circuit Diagram:** Power the unit up, then press the OK button 3 times and you will arrive at the blank screen where you will enter your program.  We will now write a simple program, which will activate output Q1 when input I1 OR I2 are activated, and will activate output Q2 when both inputs I1 AND I2 are activated. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog2.gif  Figure 6 | Begin with the blank screen and your blinking cursor is in the upper left corner. Note that the screen is 4 columns wide, which allows for 3 contacts plus one coil on the right.  Press OK, and I1 will appear, indicating Input 1.  Now use the cursor arrow to move all the way to the right and press OK again and the symbol {Q1 will appear, indicating Output 1. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog3.gif  Figure 7 | Now use the cursor disk to move to the left, to the 2nd position, right next to the I1 symbol.  Press the ALT button and the line drawing tool appears. Use the cursor again to move the line drawing tool to the right, twice. Now press the ALT button again, to turn the line drawing tool off.  The input I1 and the output relay Q1 are now "wired" together. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog4.gif  Figure 8 | Now use the cursor to move to the 2nd row, all the way to the left. Here, press the OK button, and I1 appears.  But we wanted I2 here, so use the cursor to move one character to the right, to the "1". Here use the up cursor to change the "1" to a "2" and you will have "I2". Press OK to select it.  You are now at the 2nd column so press ALT for the line drawing tool, and "wire" input 2 as shown, then press ALT again to turn the line tool off. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog5.gif  Figure 9 | Now move down to the 3rd line, and press OK twice to enter I1. Note you may use the same input symbol repeatedly.  In the next column you press OK and I1 appears, pressing OK again moves you to the "1" of the "I1" and use the UP cursor to change it to "I2" and press OK to select it. Notice the "wires" appear automatically.  Move to the far right column and press OK and {Q1 appears, which you will change to {Q2. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/screen2.gif  Figure 10 | Fill in any missing "wires" and you're done!  Press ESC a few times to reach the Main Menu, and select RUN and press OK and your program is running. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog6.gif  Figure 11 | **Programming Parameters:** Here is a program using a timer. Timers need parameters set for on-delay or off-delay, time, etc.  Enter the symbols shown at left. When you put in the TT1 timer coil, a {Q1 will appear, use the UP cursor to change it to TT1.  When you enter the T1 contact, an I1 will appear, again use the UP cursor to change it to T1, and when you press OK to select it, the parameter display will appear.  Note, timers are set-up at the contact, not at the coil. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/param-t.gif  Figure 12 | **Parameter Display:** Shown here is a typical parameter display. In the case of a timer, the top left symbol indicates type (on-delay, off-delay, etc), in this case the X means "on-delay". Below that the "S" indicates "seconds". The number at the top (01.14) is the actual time that has elapsed and the number below it (07.00) is the preset time.  You can move around the parameter display using only the right and left cursor. Use the up and down cursors to change individual values.  More specific information appears in the next section below. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog7.gif  Figure 13 | **Illegal:** If you have more than 4 symbols to place on one line, you could do it the way shown, but THIS WON'T WORK!  "Power" flows only to the right. Instead, use 3 symbols and a "marker relay" coil, then place a contact from the marker relay at the beginning of the next line, then continue on.  See the section on "marker relays" for the correct method. |

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|  | **Available Functions** |
| http://controlparts.com/klockner.moeller/easy.programming/prog8.gif  Figure 14 | **Negation:** Relay circuits often require "closed contacts" and this is done with negation. Simply move to any contact on your diagramm and press OK to select it. Then press ALT, and a small line will appear above the symbol. This is now a "normally closed" contact. This works for any type of contact, timers, counters, clocks, etc.  In the picture here the output relay Q1 will be energized whenever input I1 is NOT activated. And output relay Q2 will be energized whenever On-Delay Timer T1 is not yet timed out. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog9.gif  Figure 15 | **Output Relays:** A "normal" output relay is shown here as {Q1. Output Q1 is energized when I1 is activated, and drops out if I1 is deactivated.  **Latching output relay:** remains energized indefinitely once it has been "set", until it is "reset". Two separate coils are used. I2 operates the "set" coil and latches the Q2 in. I3 operates the "reset" coil and causes Q2 to drop out.  **Impulse or Alternating Relay:** This is shown as http://controlparts.com/klockner.moeller/easy.programming/zig.gifQ3. A pulse will latch the relay in, then a later pulse will reset it back out. This can make a very handy alternator circuit.  To create these, move to the right column, and press OK to create a normal {Q1 output relay. Move one digit to the left and use the UP cursor to change to one of the other types.  **Caution:** any relay coil may appear only once in a circuit diagram. You may not use the latching coil AND the normal coil of the same relay in the same circuit diagram. This caution applies to all types of relays, counters, timers, etc. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog10.gif  Figure 16 | **Output Relay (Q) Contacts:** Q-Relays have auxiliary contacts which can be used in any of the 3 left columns.  In this example, I1 runs Q1 and I2 runs Q2, but neither of the outputs will activate if the other is already activated. This has an application in a reversing contactor for example. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog7.gif   http://controlparts.com/klockner.moeller/easy.programming/prog11.gif  Figure 17 | **Marker Relays:** These are handy internal relays which can be used as memory or to extend a row if more than 3 contacts are needed such as in the ILLEGAL example shown at the left.     The lower picture shows the correct method, using marker relay M1.   Note that marker relays can be of various types: Normal, Latching, Impulse/Alternating, similar to the Q types shown above. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog12.gif   http://controlparts.com/klockner.moeller/easy.programming/param-c.gif  Figure 18 | **Counter Relays:** These are used to count pulses, usually from inputs. A total is kept, visible on the parameter screen, and when a preset total is reached, the counter's contacts will switch over. Counters can count in either direction, plus or minus.  Shown here in the circuit diagram, I1 pulses the CC1 counter coil and the count is incremented by 1 for each pulse.  If I2 activates the direction coil DC1, then pulses from I1 will count down  I3 can be used to reset the counter back to zero.  As the preset amount is reached, contact C1 activates output relay Q1  On the parameter display, the left number (9999) is the preset amount, and the right number (1234) is the running total. The maximum preset is 9999, and maximum count is 9999.  The operating speed of the counters is dependant on the complexity of the program. With a simple program they can count up to 100 pulses per second (100 Hz). |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog14.gif   http://controlparts.com/klockner.moeller/easy.programming/param-t.gif  Figure 19 | **Timers:** Shown here is a simple on-delay timer circuit and parameter display.  Input I1 activates the TT1 timer "trigger" coil, and the time count begins.  Input I2 activates the "reset" timer coil which will rest the time count back down to zero, if desired.  When the preset time is elapsed, then timer contact T1 will activate output relay Q1  The "X" in the upper-left corner of the parameter display indicates the type of timer, in this case "on-delay". The "S" indicates the time-units, in this case "Seconds". The number at the top (01.14) indicates the timer has been running 1.14 seconds, and the number below it (07.00) is the preset time. When the preset time is reached then the timer switches.  Here are the various types of timers with their parameter symbols:  **On-Delay,**"**X,**"**:** When the TT1 "trigger" coil is activated, the time count begins and the timer's contacts close when the preset time is reached and then remain closed until power is removed from the trigger coil TT1. A momentary activation of the reset coil RT1 will stop the timer dead and the elapsed time will remain at zero. After the reset coil RT1 is deactivated, the timer remains dead until the trigger coil TT1 is momentarily deactivated and then reactivated.  **Off-Delay,**"http://controlparts.com/klockner.moeller/easy.programming/off.gif"**:** When the TT1 "trigger" coil is activated, the timer's contacts switch on immediately. When the trigger coil TT1 is deactivated then the time count begins and when the time reaches the preset then the timer's contacts switch off. If the trigger coil is reactivated while the time is running, the time resets to zero and the time count starts again when the trigger is deactivated again. A momentary activation of the reset coil RT1 will stop the timer. An obvious application for this would be a "minimum-run" function perhaps for a pumping system, or perhaps to have a cooling fan continue running after a motor has stopped.  **Single-Pulse,**"http://controlparts.com/klockner.moeller/easy.programming/ohm.gif"**:** A single-pulse timer is the same as an off-delay timer except that the trigger coil TT1 need not remain activated for the time count to proceed. A momentary pulse to the TT1 coil will cause the time to start running, and the contacts switch on immediately, then switch off after the time is elapsed. The time count begins the moment the coil is activated, even if the coil remains activated. Another pulse to the TT1 coil while the time is already running will restart the time count and continue running. A momentary activation of the reset coil RT1 will stop the timer.  **Flasher,**"http://controlparts.com/klockner.moeller/easy.programming/upi.gif"**:** The flasher timer is like the "turn signal" relay on your automobile, it blinks on and off while the trigger coil TT1 is activated. The timer can be stopped by activating the reset coil RT1, however it will resume blinking if the reset coil is deactivated. One obvious application for this would be a to control a flashing warning light.  **Random On-Delay,**"**?X**"**:** This is identical to the normal on-delay "X" function except that the time will be a random number between zero and the preset time.  **Random Off-Delay,**"**?http://controlparts.com/klockner.moeller/easy.programming/off.gif**"**:** This is identical to the normal off-delay "http://controlparts.com/klockner.moeller/easy.programming/off.gif" function except that the time will be a random number between zero and the preset time. |
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| http://controlparts.com/klockner.moeller/easy.programming/prog15.gif   http://controlparts.com/klockner.moeller/easy.programming/param-d1.gif   http://controlparts.com/klockner.moeller/easy.programming/param-d2.gif  Figure 20 | **Clock Controllers**"http://controlparts.com/klockner.moeller/easy.programming/clock.gif"**:** Models equipped with a clock can be used to control lighting and other functions on a regular time-of-day and day-of-the-week schedule. There are 4 separate clocks and each clock can have 4 programmed on/off cycles. Each of these on/off cycles can be specified for a different day of the week or groups of days. The clocks are not aware of the year or date, but they do track the day of the week. As the clocks run continually, there is no "activation coil", one merely inserts the clock contact "http://controlparts.com/klockner.moeller/easy.programming/clock.gif" in the diagram as needed.  In this circuit diagram Clock 1 contact "http://controlparts.com/klockner.moeller/easy.programming/clock.gif1" controls output relay Q1  Note there are 2 parameter screens shown, though 4 are possible. You tell them apart by the A, B, C or D near the lower right corner. Those 4 letters are known as "channels".  In this case, Channel A turns clock "http://controlparts.com/klockner.moeller/easy.programming/clock.gif1" on from 9 AM until 5 PM on weekdays, and Channel B turns clock "http://controlparts.com/klockner.moeller/easy.programming/clock.gif1" on from 11:30 AM until 5 PM on the weekends.  Another application might be to control lights in a home while the owner is away on vacation. Combined with the "Random On-Delay" and "Random Off-Delay" timers shown in the previous section, the lights will come on not at the exact same times each day but rather at somewhat variable times, thereby more closely simulating an occupied house. |
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| http://controlparts.com/klockner.moeller/easy.programming/prog16.gif  Figure 21   http://controlparts.com/klockner.moeller/easy.programming/param-a1.gif  Figure 22  http://controlparts.com/klockner.moeller/easy.programming/param-a2.gif  Figure 23 | **Analog Comparators:** The DC models are able to accept 2 analog 0-10 volt sensors. These are always connected to inputs I7 and I8. Analog Comparator Relays are available to process the information.  The circuit diagram in Figure 21 shows comparator A1 will "set" output relay Q1, and comparator A2 will "reset" Q1. The contacts can be used like any other contact, however if the input voltage fluctuates slightly, it may be good to use latch relays so as to prevent chattering.  There are 6 specific analog comparators to work with:  **I7 >= I8:** This comparator activates when the voltage on I7 is greater than or equal to the voltage on I8. This is shown in Fig.22, where I7 is 8.4 volts and I8 is 6.1 volts, therefore the condition is met and comparator A1 is activated. Note the 2 numerical displays show the actual voltages present at the 2 inputs.  **I7 <= I8:** This comparator activates when the voltage on I7 is less than or equal to the voltage on I8.  **I7 >= setpoint:** This comparator is activated when the voltage on I7 is greater than or equal to a setpoint value. This is shown in Fig.23, where I7 is presently 8.4 volts and the setpoint is 9.3 volts, therefore the condition is not met and comparator A2 is not activated.  **I7 <= setpoint:** This comparator is activated when the voltage on I7 is less than or equal to a setpoint value.  **I8 >= setpoint:** This comparator is activated when the voltage on I8 is greater than or equal to a setpoint value.  **I8 <= setpoint:** This comparator is activated when the voltage on I8 is less than or equal to a setpoint value. |
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| http://controlparts.com/klockner.moeller/easy.programming/prog17.gif  Figure 24  http://controlparts.com/klockner.moeller/easy.programming/screen4.gif  Figure 25 | **P-Buttons:** The 4 cursor buttons can be used as inputs. Here in Fig.24, the left cursor button P1 controls output relay {Q1.  The left cursor "**<**" is P1  The up cursor "**^**" is P2  The right cursor "**>**" is P3  The down cursor "**v**" is P4.  To use these P-Buttons, one must enter the system menu and use the "P ON" selection.  Fig.25 shows a "P" in the upper right corner, indicating that the P-Buttons are activated. See the section on System Menu, below. |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/prog18.gif  Figure 26 | **"if" Jumps:** The 700 series units have the ability to "jump" to another section of the program, thereby skipping certain portions.  Here in Fig.26, if I1 is not activated, then I2 would control output Q1. But, if I1 were activated, then Jump relay 1 (:1) would activate and the entire second line containing I2 would be skipped and the program would continue at the :1 "contact" marker.  In all cases, I3 would still control output Q3. |
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| http://controlparts.com/klockner.moeller/easy.programming/prog19.gif  Figure 27 | **Text-Display Variables:** The 700 series units are able to display text on the screen as desired, however this can only be entered via EASY-SOFT.  Up to 8 Text Variables ( D1 thru D8 ) can be defined, each of up to 12 characters. 4 lines can be displayed at any given time.  The text display in Fig.26 shows 4 text variables telling the operator how many pieces have been produced and how many are required for the job's completion, and the running condition of the machine.  Permissible displays include actual text as well as variables such as actual values and setpoints of timers, counters, and the time of day. Voltages from analog inputs I7 and I8 can be displayed as actual voltage or as a scaled number representing their function.  A text will be displayed whenever that Text Variable ( D1 thru D8 ) is activated. |
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|  | **System Settings** |
| http://controlparts.com/klockner.moeller/easy.programming/screen5.gif  Figure 28 | **The System Screen:** This is used to set system defaults and startup behavior. To reach this screen, go to the status display by pressing ESC several times, then press DEL and ALT at the same time. Note: This screen is not available if a password is set and "active", you must enter the password first and deactivate it. See below... |
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| http://controlparts.com/klockner.moeller/easy.programming/screen6.gif  Figure 29  http://controlparts.com/klockner.moeller/easy.programming/screen7.gif  Figure 30  http://controlparts.com/klockner.moeller/easy.programming/param-t.gif  Figure 31 | **Password Protection:** Setting a system password will prevent tampering with the program in the field and will prevent viewing of the program by unauthorized persons.  To set a password, enter the System Menu, select "PASSWORD", then select "CHANGE PW" and then enter a 4 digit number for your password. Then press"OK" and you may select "ACTIVATE".  If the password appears as "----" then no password is stored.  If the password appears as "XXXX" then a previous password had been set and is stored in memory.  The password may be any number from 0001 thru 9999. Setting a password of 0000 will completely delete a previous password.  If a password is set but not activated, then the password is stored in memory but is not used.  If a password is set, you cannot view the program. Use the Program menu selection from the Main Menu to enter your password.  An active password prevents:     Changing or viewing the program.     Copying the program.     Changing System paramters.     Changing unprotected relay function parameters.  Figure 31 shows a typical parameter screen, in this case a timer. Note the "+" in the lower right corner. This means that the parameter screen for this particular timer is available even when a password is active, and one may change the time values but not the function or type. If a "-" is shown instead of a "+" then the parameters are not viewable or changeable at all.  If a machine operator might need to change a parameter but you wish to prevent accidental changes, then set the parameter displays to "+" and activate a password.  If you forget your password, there is no "back door" into the unit: Enter an incorrect password 3 times, and the program will be deleted and the password removed and you may then put in a new program. |
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| http://controlparts.com/klockner.moeller/easy.programming/screen5.gif  Figure 32 | **Setting the Menu Language:** The various menus can be displayed in any of these languages: English, German, French, Spanish or Italian. The 700 series units also have these additional languages: Portuguese, Dutch, Swedish, Polish and Turkish.  On the System Menu, select "GB D F E I" and then select the language desired:     **GB** (Great Britain) = English     **D** (Deutsch) = German     **F** = French     **E** (Espanol) = Spanish     **I** = Italian |
|  | |
| http://controlparts.com/klockner.moeller/easy.programming/screen10.gif  Figure 33 | **Debounce:** Inputs are sometimes subject to "contact bounce" from pushbuttons or other input devices, which may cause a momentary "chatter" in some circuits. Setting the Debounce will cause an input to delay activation until a "steady" signal is received. This delay is approximately 20 milliseconds.  To activate this feature, enter the System Menu, then select "SYSTEM" and the screen shown in Figure 33 will appear. Press "DEBOUNCE ON" to activate. |
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| http://controlparts.com/klockner.moeller/easy.programming/screen10.gif  Figure 34 | **Activating P-Buttons:** The cursor arrow buttons on the unit can be programmed into the circuit for use as inputs, but they must be activated before their function will be available.  To activate this feature, enter the System Menu, then select "SYSTEM" and the screen shown in Figure 34 will appear. Press "P ON" to activate. |
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| http://controlparts.com/klockner.moeller/easy.programming/screen10.gif  Figure 35 | **Startup Mode:** The unit can be set to begin running immediately upon power-up, or alternatively to power-up in the "stop" mode, requiring a manual start from the Main Menu.  To activate this feature, enter the System Menu, then select "SYSTEM" and the screen shown in Figure 35 will appear. Press "MODE: RUN" to set the unit to start the program running immediately on power-up, or press "MODE: STOP" to set the program to NOT start on power-up.  The default is "RUN" and the programmer will likely want to connect a start button to an input to start the machine actually running. |
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| http://controlparts.com/klockner.moeller/easy.programming/screen10.gif  Figure 36 | **Retention:** The units can be set to "retain" or "remember" the value of various functions thru a power-down and resume running exactly where they left off when powered-up again.  To activate this feature, enter the System Menu, then select "SYSTEM" and the screen shown in Figure 36 will appear. Press "RETENTION ON" to enable this feature.  EASY 512-DC units can remember Marker Relays M13, M14, M15, M16, Timer T8 and Counter C8.  EASY 512-AC models do NOT offer this feature.  All 700 series units can remember Marker Relays M13, M14, M15, M16, Timer T7, T8 and Counters C5, C6, C7 and C8 and all 8 Text Relays  This feature is useful where a machine must remember it's exact place in a continuing process |
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|  | **Memory Modules (Cards)** |
| http://controlparts.com/klockner.moeller/easy.programming/screen8.gif  Figure 37  http://controlparts.com/klockner.moeller/easy.programming/screen9.gif  Figure 38 | **Notes:** A small memory "Card" is available which is used to store the program much in the way one would use a Floppy Disk. The 512 units use the EASY-M-8K and the 700 series units use the EASY-M-16K Memory Card. This card is a small memory chip that plugs into a little door on the lower right face of the unit, just above the output relay terminals.  The Card may be plugged in when the unit is powered up. The unit must be powered up to use it's functions.  The unit will automatically detect the presence of a Card, and the Program Menu will then have an additional choice: CARD. This is shown in Figure 40. Select CARD and press OK and you will see the Card Menu.  The Card Menu shown in Figure 41 has 3 options:     DEVICE->CARD copies a program from the unit to the card.     CARD->DEVICE copies a program from the card into the unit.     DELETE CARD will erase the card completely.  Units that lack the buttons and LCD Screen will automatically load the program from the card to the unit each time the unit is powered up.  The Memory Card provides a convenient way to update a program and send the Card to an untrained person in the field for installation. This way the programmer need not travel to the job-site to make program changes.  The Memory Card is also a convenient way to archive a copy of the program in case of damage to the unit. |
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|  | **Expansion Units** |
| http://controlparts.com/klockner.moeller/easy.programming/screen11.gif  Figure 39  http://controlparts.com/klockner.moeller/easy.programming/screen12.gif  Figure 40 | **Expansion Units:** If the requirements exceed the 12 inputs and 6 outputs of the 700 series units, it is possible to select a Master and a Slave unit and connect them together, thereby making available 24 inputs and 12 outputs.  The Master and Slave units can be located side-by-side or remote from each other:  **Side-By-Side Connection:** Figure 39 shows a Master unit and a Slave unit mounted side by side, connected by a small plug-connector that is included with the Slave unit.  **Remote Connection:** Figure 40 shows a Master unit and a Remote Connection Unit (EASY-200-EASY) mounted side-by-side, connected by the included plug-connector. The Remote Connection Unit has terminals to connect wires to the remotely located Slave unit. The connection is made with 2 wires or a single twisted-pair and may have a maximum length of 30 meters, approximately 100 feet. In cases where severe interference is present, a shielded 2-wire cable should be used.  **Note:** Only models specifically designated as Master or Slave can be used for expansion. |
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|  | **Physical Wiring** |
| http://controlparts.com/klockner.moeller/easy.programming/wire-dci.gif  Figure 41 | **Connecting DC Inputs:** Figure 41 shows the connection for the incoming 24 Volt DC power and the DC operated Inputs. Shown is a pushbutton on Input I2 and a limit switch on Input I4. Wiring for 700 Series DC units is identical.  All Inputs (including I7 & I8) are activated when a +24V signal appears on the connection terminal.  Inputs I7 and I8 can also be activated by a variable voltage signal up to +10V DC if they are set up as "analog". Also note that the 700 Series units with 12 inputs also use I7 and I8 as their analog inputs. |
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| http://controlparts.com/klockner.moeller/easy.programming/wire-aci.gif  Figure 42 | **Connecting AC Inputs:** Figure 42 shows the connection for the incoming Line and Neutral power at 120-240 Volts AC and the AC operated Inputs. Shown is a pushbutton on Input I2 and a limit switch on Input I4. Wiring for 700 Series DC units is identical.  AC units do not offer analog inputs. |
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| http://controlparts.com/klockner.moeller/easy.programming/wire-ro.gif  Figure 43 | **Connecting Relay Outputs:** Figure 43 shows Relay Output Q2 connected to Load 1 and Relay Output Q3 connected to Load 2.  Note that the power (shown as L & N) to the relay outputs can be any voltage up to 250 Volts AC or DC, and they need not all be from the same source. you may mix L1, L2 and L3.  The Loads may be relay coils, small motors, lights, etc. |
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| http://controlparts.com/klockner.moeller/easy.programming/wire-to.gif  Figure 44 | **Connecting Transistor Outputs:** Figure 44 shows the 24 Volt DC power connections for the outputs, and shows Transistor Output 2 (Q2) connected to Load 1, and Transistor Output 3 (Q3) connected to Load 2.  The loads must all be 24 Volt DC operated, and you must observe polarity.  Wiring for 700 Series units with transistor outputs are identical. |
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| **A note on AC Inductive Proximity Switches:**  Certain "inexpensive" proximity switches need to be connected to a load at all times for them to function properly. This load serves to drain the charge from the sensor when it wants to indicate the "low" state. This type of sensor may have difficulty indicating its state to the EASY units, because the EASY units have an extremely small current draw.  Depending on the proximity switch, there are 3 possible solutions:  1) Use input 7 or 8, they draw a greater current and this may suffice.  2) Use a "pulldown" resistor of approximately 2k ohms and 5 watts, on any input. Connect this resistor between the EASY's input terminal and the N (neutral) terminal.  3) Use the Moeller EASY256-HCI accessory which provides an appropriate resistor/capacitor combination which increases the input current. Each EASY256-HCI unit will correct a total of 6 input circuits. | |
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|  | **Specifications** |
|  | Supply Voltage   * AC Units: 90-264 Volts 50/60 Hz * DC Units: 20.4-28.8 Volts DC * DA Units: 10.2-15.6 Volts DC * AB Units: 24 Volts 50/60 Hz   Power Consumption   * at 115 Volts AC 50/60 Hz = 40 mA. * at 230 Volts AC 50/60 Hz = 20 mA. * at 24 Volts DC = 80 mA. * Line Fuse should be minimum 1 Amp (slow-blow).   Relay Outputs   * Resistive Load = 8 amps @ 230 Volts AC 50/60 Hz * Inductive Load (relay coils & solenoids):   + 3 Amps @ 250 Volts AC (700 switches/hour)   + 1 Amp @ 24 Volts DC (500 switches/hour) * Filament Light Bulbs:   + 1000 Watts @ 230/240 Volts AC   + 500 Watts @ 24 Volts DC   Transistor Outputs   * Rated thermal current = 0.5 Amp @ 24 Volts DC * Group connection rating up to 2 Amps @ 24 Volts DC   Program Capacity   * 512 Series Units: 41 lines of ladder-logic code * 700 Series Units: 121 lines of ladder-logic code |
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