ESKE SYSTEM USER MANUAL

Version 2.01

2020-05-10

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Introduction

The ESKE System is a general-purpose power distribution industrial control panel which can provide and control DC power to multiple devices in a variety of industrial applications.

The ESKE system features an Automation Direct CLICK Ethernet series PLC inside. This PLC can be programmed using the free CLICK Programming Software.

Interfacing connectors include (x2) Cat6a RJ45 inline coupling connectors for Ethernet TCP/IP interfacing. These ports allow for interfacing with the CLICK Ethernet PLC and the STRIDE 5-port industrial smart ethernet switch. These ports can be used to allow the ESKE system to be linked in series with other systems creating a smart distributed network.

The ESKE system features a 600W 24VDC power supply. This allows the ESKE system to supply a total of 24A over 8 different channels (3A/point). The ESKE system features individually fused channels for short-circuit protection. Power input to the ESKE system is switch selectable from 230VAC (6.4A max) or 115VAC (10.5A max).

The ESKE system features (x9) IP68 metal cable clamps (glands) for fast and secure installation.

The ESKE system comes in different versions. These versions provide appropriate channel fusing customization at 3A/Point, 2A/Point, and 1A/Point.

For inquiries or technical support please contact us directly at info@valkyriecontrols.com

Technical Specifications

The ESKE System’s technical specifications may vary from version to version. The ESKE System’s specifications are listed in the following table. The following specifications are for the range of -15 °C to 45 °C unless otherwise noted.

Table 1. ESKE System's Technical Specifications

Digital Outputs	(x8) Fused 24VDC Powered Outputs rated for 3A/Point (max) (configurable)
Ethernet Connectivity	(x2) RJ45 GbE (Cat6a)
Power Input	93-132VAC/ 187-264VAC 115VAC Nominal/ 230VAC Nominal; 47 – 63Hz; Switch Selectable
PLC Configuration	(x1) Automation Direct CLICK Koyo Ethernet Standard PLC; C0-11DRE-D (x2) 4-Point Relay Output Module; C0-04TRS
Operating Temperature	+32 to 104 °F (0 to 40 °C)
Storage Temperature	+5 to 113 °F (-15 to 45 °C)
Physical Dimensions	20’’ x 20’’ x 6’’
I/O Interface	Weidmuller Terminal Blocks (Metal Gland Access)
Power Supply	RHINO DC Power Supply; PS24-600D

Hardware List

(x1) Automation Direct CLICK Koyo Ethernet Standard PLC; C0-11DRE-D

(x2) 4-Point Relay Output Module; C0-04TRS

(x1) Automation Direct Stride Industrial Ethernet Switch; SE-SW5U

(x1) RHINO switching power supply, 24 VDC (adjustable) Output; PS24-600D

(x2) CONEC Series Cat6a RJ45 Inline Coupler; 17-150134

(x1) Stego Filter Fan Plus FPI enclosure fan assembly, 13 CFM; 018702-30

(x1) Hubbell-Wiegmann Ultimate series enclosure, NEMA 4/12/13, 20'' x 20'' x 6'' (HxWxD), wall mount, carbon steel

(x9) HARTING CBL CLAMP M20 6-12MM BRASS IP68; 19000005082

PLC Module Configuration & Interfacing

The following tables and associated figures describe the PLC module configuration for the ESKE System. The module slot order & module wiring details are described in this section.

The following table describes the PLC module configuration of the ESKE System:

Table 2. ESKE System - PLC Module Configuration Summary

Chassis 1			
Chassis	**# of Slots Used**	**Channel Count** (Chassis I/O)	**Associated Terminal Strip**
C0-11DRE-D	8	14	None
Chassis 1 Modules			
Module	**Slot #**	**Channel Count**	**Associated Terminal Strip**
C0-04TRS	1	4	TB2A
C0-04TRS	2	4	TB2A

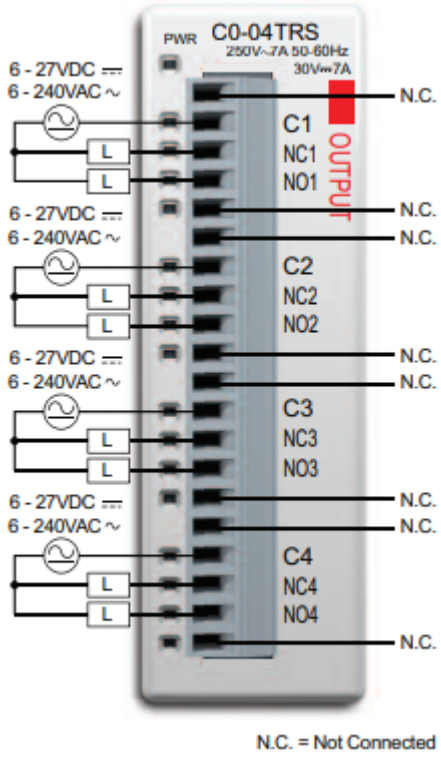
C0-04TRS Module Specifications

4-Point Relay Output Module:

The CO-04TRS is a 4-pt 6-240 VAC/6-27 VDC Isolated relay output module, 4 Form C (SPDT) relays, 4 isolated commons, 7 A/point, removable terminal block included (replacement ADC p/n C0-16TB).

The following figure shows the wiring pinout & specifications for the Automation Direct C0-04TRS module:

Figure 1. Wiring Diagram & Specifications for C0-04TRS Module



Output Specifications	
Outputs per module	4
Operating voltage range	6-27 VDC / 6-240 VAC
Output voltage range	5-30 VDC / 5-264 VAC
Output type	Relay, form C (SPDT)
AC frequency	47-63 Hz
Maximum current	7 A/point, 7 A/common
Minimum load current	100 mA @ 5 VDC
Maximum leakage current	0.1 mA @ 264 VAC
Maximum inrush current	12 A
OFF to ON response	< 15 ms
ON to OFF response	< 15 ms
Status indicators	Logic side (4 points, red LED); Power indicator (green LED)
Commons	4 (1 point/common) isolated
Bus power required (24 VDC)	Maximum 100 mA (all outputs ON)
Protection circuit	None
Terminal block replacement	ADC p/n C0-16TB
Weight	44.4 oz (125g)

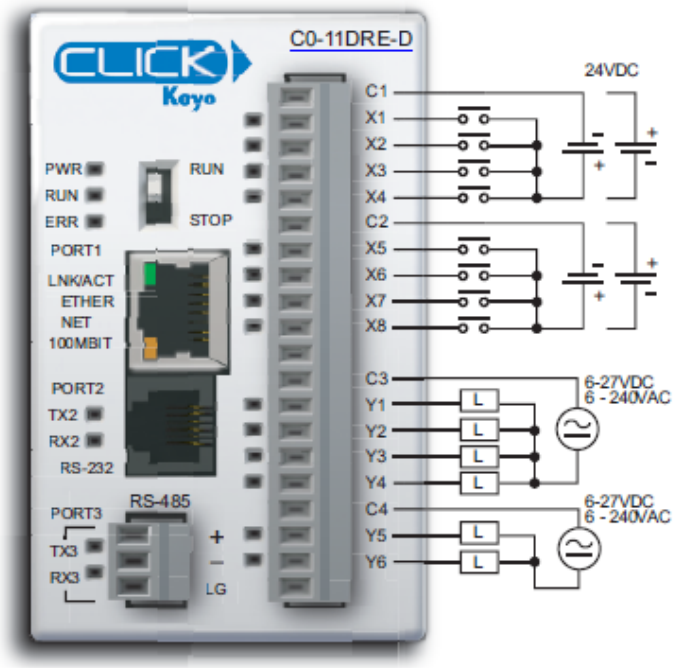
For additional information & specifications on the C0-04TRS module see *C0-04TRS 4-Point Relay Output.pdf*

C0-11DRE-D Chassis Specifications

8 DC Input / 6 Relay Output CLICK Ethernet Standard PLC:

The following figure shows the wiring pinout & specifications for the Automation Direct C0-11DRE-D PLC:

Figure 2. Wiring Diagram & Specifications for C0-11DRE-D PLC



Built-in I/O Specifications - Inputs	
Inputs per Module	8 (Sink/Source)
Operating Voltage Range	24VDC
Input Voltage Range	21.6–26.4 VDC
Input Current	Typ 6.5 mA @ 24VDC
Maximum Input Current	7.0 mA @ 26.4 VDC
Input Impedance	3.9 kq @ 24VDC
Maximum Input Frequency	X1-X8: 100kHz
ON Voltage Level	> 19VDC
OFF Voltage Level	< 2VDC
Minimum ON Current	4.5 mA
Maximum OFF Current	0.5 mA
OFF to ON Response	Typ 3µs Max 5µs
ON to OFF Response	Typ 1µs Max 3µs
Status Indicators	Logic Side (8 points, green LED)
Commons	2 (4 points/common) Isolated
Built-in I/O Specifications - Outputs	
Outputs per Module	6
Operating Voltage Range	6-240 VAC (47-63 Hz), 6-27 VDC
Output Voltage Range	5-264 VAC (47-63 Hz), 5-30 VDC
Output Type	Relay, form A (SPST)
Maximum Current	1 A/point; C3: 4 A/common, C4: 2 A/common
Minimum Load Current	5mA @ 5VDC
Maximum Inrush Current	3A for 10ms
OFF to ON Response	< 15ms
ON to OFF Response	< 15ms
Status Indicators	Logic Side (6 points, red LED)
Commons	2 (4 points/com & 2 points/com) Isolated

For additional information & specifications on the C0-11DRE-D PLC see *C0-11DRE-D 8 DC Input / 6 Relay Output PLC.pdf*

Terminal Block Wiring Diagram

The ESKE System's outputs are directly connected to labelled Weidmuller terminal blocks. To connect a field device to the ESKE system follow the channel pinouts specified in the following table:

Table 3. ESKE System Channel Pinout

ESKE System Channel Pinout			
Slot #	**Channel #**	**Pinouts**	**Associated Terminal Blocks**
1	1	24VDC 0VDC GROUND	TB2A-1 TB2A-4 TB2A-5
1	2	24VDC 0VDC GROUND	TB2A-6 TB2A-9 TB2A-10
1	3	24VDC 0VDC GROUND	TB2A-11 TB2A-14 TB2A-15
1	4	24VDC 0VDC GROUND	TB2A-16 TB2A-19 TB2A-20
2	1	24VDC 0VDC GROUND	TB2A-21 TB2A-24 TB2A-25
2	2	24VDC 0VDC GROUND	TB2A-26 TB2A-29 TB2A-30
2	3	24VDC 0VDC GROUND	TB2A-31 TB2A-34 TB2A-35
2	4	24VDC 0VDC GROUND	TB2A-36 TB2A-39 TB2A-40

AC Power Input Termination

The ESKE System's AC Input should be directly connected to the following labelled Weidmuller breaker and terminal blocks. To terminate power to the ESKE system follow the power pinouts specified in the following tables:

Table 4. ESKE 115VAC Power Termination Pinout

ESKE AC Termination Pinout	
AC Input Pinouts	**Associated Terminal Blocks**
93-132VAC 0VAC GROUND	TB3A-1 TB3A-2 TB3A-3

Table 5. ESKE 230VAC Power Termination Pinout

ESKE AC Termination Pinout	
AC Input Pinouts	**Associated Terminal Blocks**
93-132VAC 0VAC GROUND	TB3A-1 TB3A-2 TB3A-3

To switch between 115VAC and 230VAC inputs use the selectable switch located on front of the RHINO DC Power supply.

Additional Technical Documentation

Additional technical documentation for hardware components used in the ESKE System can be found and downloaded from the following table:

Table 6. ESKE System - Additional Technical Documentation

Hardware	OEM Part #	Technical Document
Automation Direct CLICK Koyo Ethernet Standard PLC	C0-11DRE-D	View Datasheet
4-Point Relay Output Module	C0-04TRS	View Datasheet
Automation Direct Stride Industrial Ethernet Switch	SE-SW5U	View Datasheet
CONEC Series Cat6a RJ45 Inline Coupler	17-150134	View Datasheet
RHINO switching power supply, 24 VDC (adjustable) Output; PS24-600D	PS24-600D	View Datasheet
Stego Filter Fan Plus FPI enclosure fan assembly	018702-30	View Datasheet
HARTING CBL CLAMP M20 6-12MM BRASS IP68	19000005082	View Datasheet

Valkyrie Warranty & Support

The ESKE System comes with a 1-year replacement warranty that covers any defective hardware as specified by the original OEM. All control panels including the ESKE system undergo an extensive quality control & assurance process. All panels are UL508A certified (Standard). CSA General purpose certification is available upon request.

Our Engineers are available to answer any technical or troubleshooting questions regarding products, installation and future design updates. Contact us directly at info@valkyriecontrols.com or through LinkedIn at www.linkedin.com/in/valkyrie-controls.

You can learn more about our other pre-engineered systems or request a free industrial panel design at www.valkyriecontrols.com