



# IronHorse ACN Series Accessories

## Accessories Available for ACN Drives

ACN Drives Available Software and Accessories	
Accessory	Reference
<b>Ethernet Module: <a href="#">ACN-ETH</a></b>	<a href="#">ACN Extension I/O and Ethernet Module on page tN4X-15</a>
<b>Extension I/O: <a href="#">ACN-EIO</a></b>	
<b>Remote Keypad: <a href="#">ACN-LCD</a></b>	<a href="#">Remote Keypad on page tN4X-16</a>
<b>Remote Keypad Mount Kit w/Cable: <a href="#">ACN-3MRC</a></b>	
<b>Remote Keypad NEMA4X Mount Kit w/Cable: <a href="#">ACN-LCDKM</a></b>	
<b>Fuses/Circuit Breakers</b>	<a href="#">Fuses/Circuit Breakers on page tN4X-17</a>
<b>EMI Filters</b>	<a href="#">High Performance EMI Input Filters on page tN4X-18</a>
<b>Braking Resistors</b>	<a href="#">Braking Resistors on page tN4X-20</a>
<b>Line Reactors/Voltage Time Filters</b>	<a href="#">Line Reactors/Voltage Time Filters on page tN4X-19</a>
<b>VFD Suite</b>	<a href="#">VFD Suite on page tN4X-21</a>
<b>USB to RJ45 Port Cable: <a href="#">ACN-232C</a></b>	<a href="#">Communication Cable on page tN4X-21</a>

## ACN Extension I/O and Ethernet Module

The ACN-EIO Extension IO option card provides additional discrete and analog IO points for any ACN(ND) series drives. The ACN-ETH is an option module for connecting any ACN series drive to an ethernet network. The module supports both the EtherNet/IP and Modbus TCP protocols.

ACN Extension I/O and Ethernet Module		
Part Number	Price	Description
<b><a href="#">ACN-EIO</a></b>	\$182.00	IronHorse ACN series relay/analog combo module, Analog Input: 2-channel, current/voltage, Analog Output: 1-channel, current/voltage, Discrete Input: 3-point, sinking/sourcing, Discrete Output: 2-point, relay, (2) Form C (SPDT) relays.
<b><a href="#">ACN-ETH</a></b>	\$101.00	IronHorse ACN series communication module, EtherNet/IP and Modbus TCP, 1 port, buffered, (1) Ethernet (RJ45) and (1) RS-232 (RJ45) port(s). For use with IronHorse ACN series drives. Mounting hardware included.



**[ACN-EIO](#)**



**[ACN-ETH](#)**



# IronHorse ACN Series Accessories

## Remote Keypad

The Remote LCD keypad provides advanced functionality for use with the ACN series drives. The unit provides enhanced text descriptions of each parameter and enhanced failure status monitoring. The unit allows backup and download of drive parameters.

ACN Remote Keypad			
Part Number	Price	Description	Drawing Links
<a href="#"><u>ACN-LCD</u></a>	\$55.00	IronHorse ACN series remote keypad, for use with IronHorse ACN series drives.	<a href="#"><u>PDF</u></a>
<a href="#"><u>ACN-3MRC</u></a>	\$21.00	IronHorse ACN series keypad mount, for use with ACN-LCD remote keypad. (1) 9.8ft/3m Ethernet patch cable included.	<a href="#"><u>PDF</u></a>
<a href="#"><u>ACN-LCDKM</u></a>	\$97.00	IronHorse ACN series keypad mount, NEMA 4X. For use with ACN-LCD remote keypad. (1) 9.8ft/3m Ethernet patch cable included.	<a href="#"><u>PDF</u></a>



[ACN-3MRC](#)



[ACN-LCD](#)



[ACN-LCDKM](#)



# IronHorse ACN Series Accessories

## Fuses/Circuit Breakers

Protection devices are essential to prevent damage to your ACN drive and application equipment. Please use the fuse specification chart below to select fuses that are applicable to your ACN drive. Only use UL-certified 600V fuses which comply with your local regulations.

Drive	Drive Voltage	HP (CT)	Fuse Amps (Class H or RK5)	Suggested ADC Class RK5 Fuses	Circuit Breaker	
					Size	Model*
<a href="#">ACN(ND)-20P5</a>	200-240	0.5	10	ECSR10	5	UTE10033C
<a href="#">ACN(ND)-21P0</a>	200-240	1	10	ECSR10	10	
<a href="#">ACN(ND)-22P0</a>	200-240	2	15	ECSR15	15	
<a href="#">ACN(ND)-23P0</a>	200-240	3	20	ECSR20	20	
<a href="#">ACN(ND)-25P0</a>	200-240	5	50	ECSR50	30	
<a href="#">ACN(ND)-27P5</a>	200-240	7.5	50	ECSR50	50	UTE10053C
<a href="#">ACN(ND)-2010</a>	200-240	10	63	ECSR60	60	UTE10063C
<a href="#">ACN(ND)-2015</a>	200-240	15	80	ECSR80	100	UTE100103C
<a href="#">ACN(ND)-2020</a>	200-240	20	100	ECSR100	125	
<a href="#">ACN(ND)-40P5</a>	380-480	0.5	10	ECSR10	3	
<a href="#">ACN(ND)-41P0</a>	380-480	1	10	ECSR10	5	UTE10033C
<a href="#">ACN(ND)-42P0</a>	380-480	2	10	ECSR10	10	
<a href="#">ACN(ND)-43P0</a>	380-480	3	15	ECSR15	10	
<a href="#">ACN(ND)-45P0</a>	380-480	5	32	ECSR30	20	
<a href="#">ACN(ND)-47P5</a>	380-480	7.5	32	ECSR30	30	
<a href="#">ACN(ND)-4010</a>	380-480	10	35	ECSR35	30	
<a href="#">ACN(ND)-4015</a>	380-480	15	50	ECSR50	50	
<a href="#">ACN(ND)-4020</a>	380-480	20	63	ECSR60	60	UTE10063C
<a href="#">ACN(ND)-4025</a>	380-480	25	70	ECSR70	75	UTE100103C
<a href="#">ACN(ND)-4030</a>	380-480	30	100	ECSR100	100	

\* Manufactured by LS Electric. Not available at [AutomationDirect.com](http://AutomationDirect.com)



**CAUTION: ONLY USE 600V CLASS H OR RK5, UL LISTED INPUT FUSES AND UL LISTED CIRCUIT BREAKERS. SEE THE TABLE ABOVE FOR THE CURRENT RATINGS FOR FUSES AND CIRCUIT BREAKERS.**

**MAXIMUM ALLOWED PROSPECTIVE SHORT-CIRCUIT CURRENT AT THE INPUT POWER CONNECTION IS DEFINED IN IEC 60439-1 AS 100 KA. DEPENDING ON THE SELECTED MCCB, THE ACN SERIES IS SUITABLE FOR USE IN CIRCUITS CAPABLE OF DELIVERING A MAXIMUM OF 100 KA RMS SYMMETRICAL AMPERES AT THE DRIVE'S MAXIMUM RATED VOLTAGE. THE FOLLOWING TABLE SHOWS THE RECOMMENDED MCCB FOR RMS SYMMETRICAL AMPERES.**



# IronHorse ACN Series Accessories

## High Performance EMI Input Filters

The optional accessories below are available for use with the ACN drive. Selection of these accessories is application specific and may improve drive performance. Additional information regarding filter installation and operation is available in the AutomationDirect white paper, "Applied EMI/RFI Techniques."

Drive	Drive Voltage	HP (CT)	Roxburgh Filters Chassis Type 1ph *1	Roxburgh High Performance Filters *2	Roxburgh Max Performance Filters *3
<a href="#"><u>ACN(ND)-20P5</u></a>	200-240	0.5	RES90F03	KMF306A	MIF310
<a href="#"><u>ACN(ND)-21P0</u></a>	200-240	1	RES90F10	KMF310A	MIF310
<a href="#"><u>ACN(ND)-22P0</u></a>	200-240	2	RES90F16	KMF318A	MIF316
<a href="#"><u>ACN(ND)-23P0</u></a>	200-240	3	RES90F16	KMF318A	MIF316
<a href="#"><u>ACN(ND)-25P0</u></a>	200-240	5	RES90S20	KMF325A	MIF323
<a href="#"><u>ACN(ND)-27P5</u></a>	200-240	7.5	–	KMF336A	MIF350
<a href="#"><u>ACN(ND)-2010</u></a>	200-240	10	–	KMF350A	MIF350
<a href="#"><u>ACN(ND)-2015</u></a>	200-240	15	–	KMF370A	MIF375
<a href="#"><u>ACN(ND)-2020</u></a>	200-240	20	–	KMF3100A	MIF3100
<a href="#"><u>ACN(ND)-40P5</u></a>	380-480	0.5	–	KMF306A	MIF310
<a href="#"><u>ACN(ND)-41P0</u></a>	380-480	1	–	KMF306A	MIF310
<a href="#"><u>ACN(ND)-42P0</u></a>	380-480	2	–	KMF306A	MIF310
<a href="#"><u>ACN(ND)-43P0</u></a>	380-480	3	–	KMF310A	MIF310
<a href="#"><u>ACN(ND)-45P0</u></a>	380-480	5	–	KMF318A	MIF316
<a href="#"><u>ACN(ND)-47P5</u></a>	380-480	7.5	–	KMF318A	MIF323
<a href="#"><u>ACN(ND)-4010</u></a>	380-480	10	–	KMF336A	MIF330B
<a href="#"><u>ACN(ND)-4015</u></a>	380-480	15	–	KMF336A	MIF350
<a href="#"><u>ACN(ND)-4020</u></a>	380-480	20	–	KMF350A	MIF350
<a href="#"><u>ACN(ND)-4025</u></a>	380-480	25	–	KMF350A	MIF350
<a href="#"><u>ACN(ND)-4030</u></a>	380-480	30	–	KMF370A	MIF375

\*1 -EMI rating for motor cable length: C2 to 75Ft, C1 to 30ft

\*2 -EMI rating for motor cable length: C2 to 150Ft, C1 to 75ft

\*3 -EMI rating for motor cable length: C2 to 300Ft, C1 to 150ft



# IronHorse ACN Series Accessories

## Line Reactors/Voltage Time Filters

Installing an AC Line Reactor on the input side of an AC motor drive can increase line impedance, improve the power factor, reduce input current, increase system capacity, and reduce interference generated from the motor drive.

Installing a load reactor or voltage time filter on the drive's output side can increase the high-frequency impedance to reduce the dV/dT and terminal voltage to protect the motor. Use output filters if the motor cable length exceeds 100ft

Line/Load Reactors & AC Output Filters											
Drive	Voltage	HP	Input (Amps)	Output FLA 3ph (Amps)	AC Input Line Reactor		AC Output Load Reactor		AC dVdT Output Filter		DC reactor values Induct./Current
					3ph	1ph	3ph	1ph	3ph	1ph	
<a href="#">ACN(ND)-20P5</a>	200-240	0.5	2.2	5	<a href="#">LR2-20P5</a>	<a href="#">LR2-20P2</a>	<a href="#">LR2-20P5</a>	<a href="#">LR2-20P2</a>	<a href="#">VTF-246-CFG</a>	<a href="#">VTF-46-DE</a>	4/8.67
<a href="#">ACN(ND)-21P0</a>		1	4.9	8	<a href="#">LR2-21P0</a>	<a href="#">LR2-21P0</a>	<a href="#">LR2-21P0</a>	<a href="#">LR2-20P5</a>	<a href="#">VTF-24-FH</a>	<a href="#">VTF-246-CFG</a>	
<a href="#">ACN(ND)-22P0</a>		2	8.4	11	<a href="#">LR-23P0</a>	<a href="#">LR-25P0</a>	<a href="#">LR2-22P0</a>	<a href="#">LR2-22P0</a>	<a href="#">VTF-246-GJJ</a>	<a href="#">VTF-24-FH</a>	3/13.05
<a href="#">ACN(ND)-23P0</a>		3	11.8	17	<a href="#">LR-23P0</a>	<a href="#">LR-23P0</a>	<a href="#">LR2-22P0</a>	<a href="#">LR2-22P0</a>	<a href="#">VTF-4-M</a>	<a href="#">VTF-246-GJJ</a>	1.33/18.45
<a href="#">ACN(ND)-25P0</a>		5	18.5	24	<a href="#">LR-25P0</a>	<a href="#">LR-2010</a>	<a href="#">LR-25P0</a>	<a href="#">LR2-22P0</a>	<a href="#">VTF-46-LM</a>	<a href="#">VTF-246-HKL</a>	1.33/26.35
<a href="#">ACN(ND)-27P5</a>		7.5	25.8	32	<a href="#">LR-2010</a>	<a href="#">LR-2015</a>	<a href="#">LR-27P5</a>	<a href="#">LR-25P0</a>	<a href="#">VTF-246-KMN</a>	<a href="#">VTF-24-JL</a>	1.60/32
<a href="#">ACN(ND)-2010</a>		10	34.9	46	<a href="#">LR-2015</a>	<a href="#">LR-2020</a>	<a href="#">LR-2010</a>	<a href="#">LR-25P0</a>	<a href="#">VTF-246-LPQ</a>	<a href="#">VTF-46-LM</a>	1.25/43
<a href="#">ACN(ND)-2015</a>		15	50.8	60	<a href="#">LR-2020</a>	<a href="#">LR-2030</a>	<a href="#">LR-2015</a>	<a href="#">LR-2010</a>	<a href="#">VTF-246-NRS</a>	<a href="#">VTF-46-NP</a>	0.95/61
<a href="#">ACN(ND)-2020</a>		20	66.7	1.3	<a href="#">LR-2025</a>	<a href="#">LR-2040</a>	<a href="#">LR-2020</a>	<a href="#">LR-2010</a>	<a href="#">VTF-246-PSU</a>	<a href="#">VTF-246-LPQ</a>	0.70/75
<a href="#">ACN(ND)-40P5</a>		380-480	0.5	1.1	2.5	<a href="#">LR2-40P5</a>				<a href="#">VTF-46-DE</a>	
<a href="#">ACN(ND)-41P0</a>	1		2.4	4	<a href="#">LR2-41P0</a>				<a href="#">VTF-246-CFG</a>		
<a href="#">ACN(ND)-42P0</a>	2		4.2	5.5	<a href="#">LR2-42P0</a>				<a href="#">VTF-246-DGH</a>		12/6.41
<a href="#">ACN(ND)-43P0</a>	3		5.9	9	<a href="#">LR2-43P0</a>				<a href="#">VTF-24-FH</a>		8/8.9
<a href="#">ACN(ND)-45P0</a>	5		9.8	12	<a href="#">LR2-45P0</a>				<a href="#">VTF-46-DE</a>		5.4/13.2
<a href="#">ACN(ND)-47P5</a>	7.5		12.9	16	<a href="#">LR2-47P5</a>				<a href="#">VTF-46-DE</a>		3.20/17
<a href="#">ACN(ND)-4010</a>	10		17.5	24	<a href="#">LR-4010</a>				<a href="#">VTF-24-JL</a>		2.50/25
<a href="#">ACN(ND)-4015</a>	15		26.5	30	<a href="#">LR-4015</a>				<a href="#">VTF-246-KMN</a>		1.90/32
<a href="#">ACN(ND)-4020</a>	20		33.4	39	<a href="#">LR-4020</a>				<a href="#">VTF-246-LPQ</a>		1.40/41
<a href="#">ACN(ND)-4025</a>	25		43.6	45	<a href="#">LR-4025</a>				<a href="#">VTF-246-MQR</a>		1.00/49
<a href="#">ACN(ND)-4030</a>	30		50.7	27	<a href="#">LR-4030</a>				<a href="#">VTF-246-MQR</a>		0.70/64



# IronHorse ACN Series Accessories

## Braking Resistors

Dynamic braking absorbs the motor regeneration energy when the motor is decelerated faster than it would if it was allowed to coast to a stop. The regeneration energy is dissipated by braking resistors. GS series brake resistors can be used with ACN drives. All drives have the braking function built-in and do not require a separate dynamic braking unit

Brake Resistors							
Drive	Voltage	HP (CT)	KW (CT)	150% @ 5% Duty Cycle*		ADC Brake Resistor +	
				Optimal Brake Resistor Sizing			
				Watt	Ohm	Qty	ADC part Number
<a href="#">ACN(ND)-20P5</a>	230	0.5	0.4	100	300	1	<a href="#">GS-BR-300W250</a>
<a href="#">ACN(ND)-21P0</a>	230	1	0.75	150	150	1	<a href="#">GS-BR-400W150</a>
<a href="#">ACN(ND)-22P0</a>	230	2	1.5	300	60	1	<a href="#">GS-BR-300W070</a>
<a href="#">ACN(ND)-23P0</a>	230	3	2.2	400	50	1	<a href="#">GS-BR-1K5W043</a>
<a href="#">ACN(ND)-25P0</a>	230	5	4.0	600	33	2 series	<a href="#">GS-BR-1K2W015</a>
<a href="#">ACN(ND)-27P5</a>	230	7.5	5.5	800	20	1	<a href="#">GS-BR-1K0W020</a>
<a href="#">ACN(ND)-2010</a>	230	10	7.5	1200	15	1	<a href="#">GS-BR-1K2W015</a>
<a href="#">ACN(ND)-2015</a>	230	15	11	2400	10	1	<a href="#">GS-BR-1K5W012</a>
<a href="#">ACN(ND)-2020</a>	230	20	15	2400	8	2 parallel	<a href="#">GS-BR-1K2W015</a>
<a href="#">ACN(ND)-40P5</a>	460	0.5	0.4	100	1200	1	<a href="#">GS-BR-300W400</a>
<a href="#">ACN(ND)-41P0</a>	460	1	0.75	150	600	1	
<a href="#">ACN(ND)-42P0</a>	460	2	1.5	300	300	1	
<a href="#">ACN(ND)-43P0</a>	460	3	2.2	400	200	2 parallel	<a href="#">GS-BR-200W360</a>
<a href="#">ACN(ND)-45P0</a>	460	5	4.0	600	130	2 parallel	<a href="#">GS-BR-300W250</a>
<a href="#">ACN(ND)-47P5</a>	460	7.5	5.5	1000	85	1	<a href="#">GS-BR-1K0W075</a>
<a href="#">ACN(ND)-4010</a>	460	10	7.5	1200	60	1	<a href="#">GS-BR-1K5W043</a>
<a href="#">ACN(ND)-4015</a>	460	15	11	2000	40	1	
<a href="#">ACN(ND)-4020</a>	460	20	15	2400	30	2 parallel	
<a href="#">ACN(ND)-4025</a>	460	25	18.5	3600	20	2 parallel	
<a href="#">ACN(ND)-4030</a>	460	30	22	3600	20	2 parallel	

\*If the working rate is 10%, the rated capacity for braking resistance must be calculated at twice the standard.

+Resistor values are the closest available from ADC to the optimal values.



# IronHorse ACN Series Accessories

## VFD Suite

VFD Suite is the configuration software for the Automation Direct Ironhorse ACN variable frequency drive. It is designed to allow connection of a personal computer to the drives and perform a variety of functions:

- Create new drive configurations
- Upload/Download drive configurations
- Edit/Compare drive configurations
- Utilize Parameter Wizard for easy configuration
- Archive/Store multiple drive configurations on your PC
- Trend drive operation parameters
- Tune the drive PID loop
- View real time key operating parameters
- Start/Stop drive and switch directions, provided drive is set up for remote operation
- View drive faults
- Program Function blocks for simple control applications (18 steps maximum)

VFD Suite includes the ACN manual for complete instructions and parameter explanations. VFD Suite can be downloaded for free or from [Automationdirect.com](http://Automationdirect.com).

## System Requirements

Category	Requirement
<b>Windows</b>	Windows 8/10
<b>Processor</b>	1 GHz or higher
<b>RAM</b>	1 GB (32-bit) or 2 GB (64-bit)
<b>HDD</b>	16 GB (32-bit) or 20 GB (64-bit)
<b>Graphics</b>	Graphic card supporting MS DirectX 9



## Communication Cable



**ACN-232C**

Communication Cable		
Part Number	Price	Description
<b>ACN-232C</b>	\$81.00	IronHorse programming/communication cable, 3.2ft/1m cable length, RS-232 (RJ12 6P6C) to USB A.