



Hybrid Motor Starter and Motor Manager CONTACTRON

CONTACTRON Hybrid Motor Starters

– clever switching and smart wiring

Switch and reverse motors safely and reliably with CONTACTRON compact Hybrid Motor Starters.

Thanks to integrated fuses and the SmartWire-DT™ connection, wiring effort is also reduced – for power and control wiring.

reliable protection

With the integrated fuses, the Motor Starters meet type 2 coordination according to IEC/EN 60947-4-2. These devices can be mounted flexibly on standard DIN rails or on 60 mm busbars.



1. Forward running



3. Motor protection



2. Reverse running



4. Emergency stop

clever switching

CONTACTRON 4 in 1 combines all functions of a conventional reversing contactor circuit in a single device – for motors up to 4 kW, with a design width of just 22.5 mm.

smart wiring

The SmartWire-DT™ communication system makes the complex cabling of the control and signal levels simpler and clearer. Furthermore, you can connect the Hybrid Motor Starters with standard fieldbus systems.



Hybrid Motor Starters – up to four functions in a single device

The choice is yours: From the basic CONTACTRON direct starter up to the 4 in 1 reversing starter with motor protection and emergency stop.

Your advantages:

- Up to 75% less space required
- Up to 75% less wiring costs
- Service life ten times longer
- Safety included



Forward running

Easy control directly via 24 V PLC output cards or 230 V AC signal.



Reverse running

Optional: Reversing function including locking circuit and load wiring.



Motor protection

Convenient protection by means of the electronic motor protection relay with automatic and remote reset function.





Emergency stop

The integrated safety function enables use in safety-related applications.

SIL3
IEC 61508
PLe
ISO 13849-1
Cat.3
EN 954-1

Versions

Select the CONTACTRON Hybrid Motor Starter version that meets your application requirements. Due to that you receive exactly the functions you need for your cost-optimized motor control.

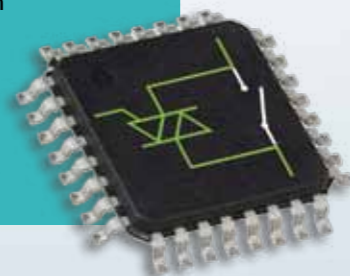
				
4 in 1	✓	✓	✓	✓
3 in 1	✓	✓	✓	✓
2 in 1	✓	✓	✓	
1 in 1	✓		✓	

CONTACTRON

Hybrid Motor Starter Technology

CONTACTRON Hybrid Motor Starter Technology is a microprocessor-controlled combination of wear-free solid-state technology and rugged relay technology.

This enables gentle switching, and thus considerably reduces the load on the relay contacts. This means that the Hybrid Motor Starters have a service life up to ten times longer than that of purely mechanical switching devices.



Designed by PHOENIX CONTACT

Hybrid Motor Starters plus short-circuit protection

The CONTACTRON Hybrid Motor Starters with integrated fuses meet type 2 coordination according to IEC/EN 60947-4-2.

This means: Protection for personnel, machines and systems – even in the event of a short circuit. For subsequent operation, the fuses are simply replaced and the switching device is again ready for operation.



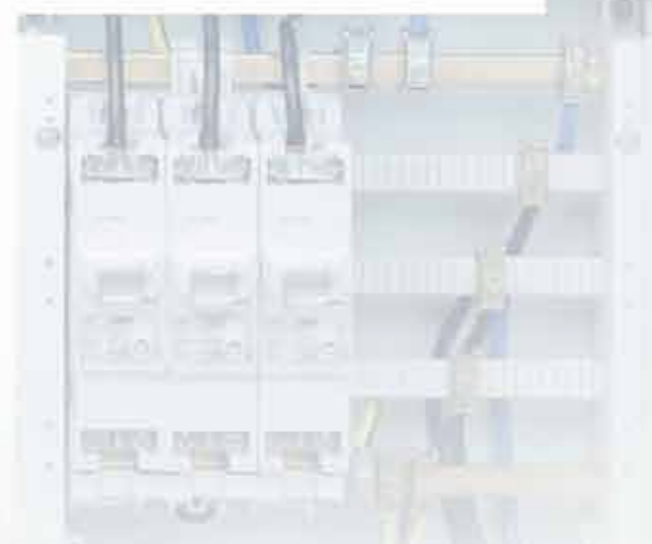
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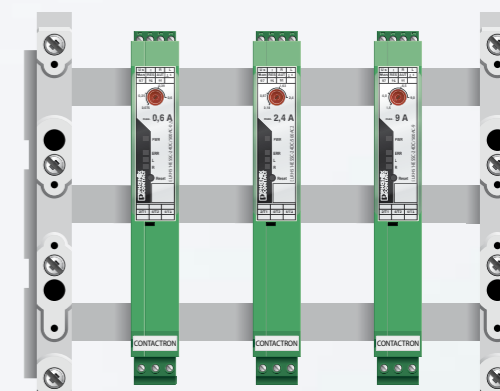
reliable protection

Your advantages:

- Fast restart
- Reduced wiring
- Increased system availability



Mounting on 60 mm busbar system



Mounting on a standard DIN rail



The Hybrid Motor Starters can be flexibly mounted on standard DIN rails or on busbar systems using the mounting adapter.

Safely disconnect motor feeders

The mounting adapter enables safe disconnection of motor feeders. By simply pulling the switching device off the assembly adapter the motor feeders can be safely disconnected from the mains voltage for maintenance and service purposes.

Hybrid Motor Starters plus SmartWire-DT™

Connecting CONTACTRON Hybrid Motor Starters to the SmartWire-DT™ communication system reduces time-consuming parallel wiring of the control and signal level to an absolute minimum.



smart wiring

Your advantages:

- Fast, clearly arranged wiring
- Easy connection to fieldbus systems via a gateway
- Short startup times and diagnostic options

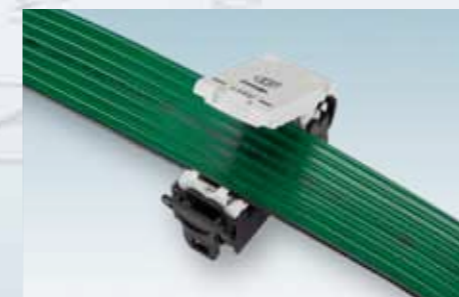
SmartWire-DT™ Technology

SmartWire-DT™ takes the efficient wiring concept of the CONTACTRON Hybrid Motor Starters a step further. SmartWire-DT™ handles the complex parallel cabling of up to 99 devices.

Supported by PHOENIX CONTACT

SmartWire-DT™ is a trademark of Eaton Corporation.

Easy connection to the SmartWire-DT™ communication system



1. Place eight-pole flat-ribbon conductor in the device plug and close.



2. Position device plug as desired and fix in place with slight pressure.



3. Bring the device plug and flat-ribbon conductor into contact using the plier.

Hybrid Motor Starters – clever combined

Combine the short-circuit proof CONTACTRON Hybrid Motor Starters with SmartWire-DT™ connection, and benefit from six functions in just one device.



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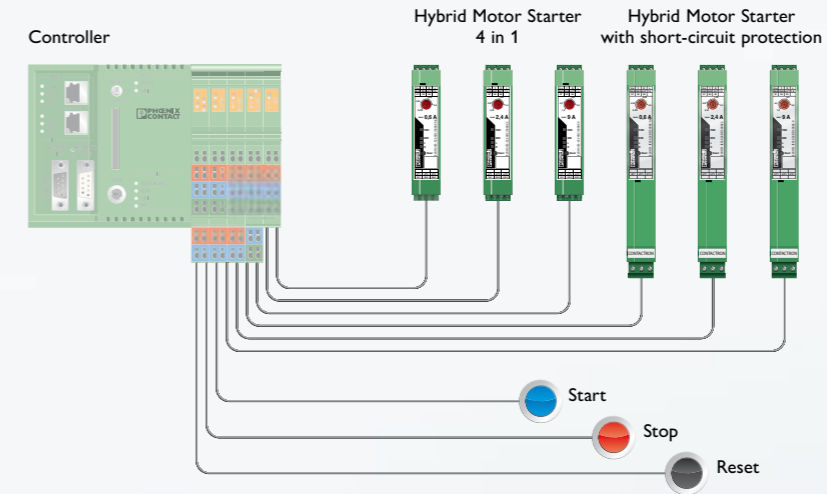


smart wiring

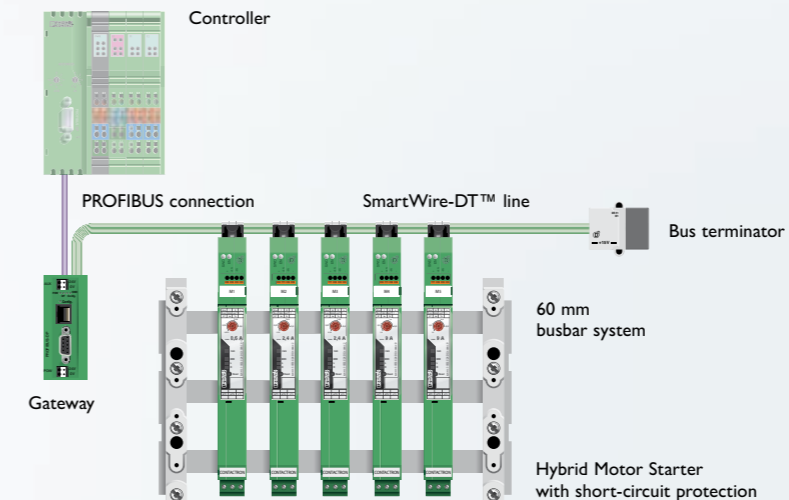
clever switching

reliable protection

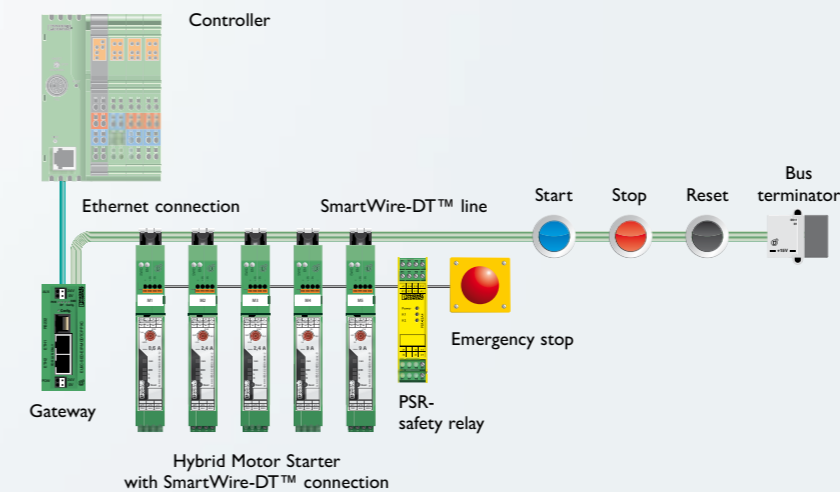
Clever motor switching and smart wiring



1. The internal load and locking circuits of the Hybrid Motor Starters reduce the amount of wiring – ideal for control cabinets with short wiring paths. Each button and Hybrid Motor Starter is directly connected to the I/O card of the controller.



2. The Hybrid Motor Starters with integrated fuses can also be mounted directly on busbar systems. Thus, you save time and money, particularly in large systems with many devices. A connection to SmartWire™ is also possible.



3. The Hybrid Motor Starters, as well as the command and signaling devices, are directly connected to the controller with SmartWire-DT™ via a gateway. Safe shutdown is implemented with a PSR safety relay. Thanks to SmartWire-DT™ the amount of wiring is significantly reduced. You benefit from clearly arranged and compact control cabinets.

Solid-State Contactors – wear-free switching of single-phase or three-phase loads

Solid-State Contactors allow quick, frequent, and wear-free switching, for example of motors and heaters.

The CONTACTRON Solid-State Contactors are resistant to shocks, vibrations, and aggressive, polluted environments. They are available as single-phase or three-phase devices and depending on the type, also with reversing function.

Your advantages:

- Fast
- Durable
- Rugged



Forward running + reverse running

Easy control via a 24 V DC or 230 V AC signal. Locking circuit and load wiring included.

Motor Manager – protects motor and system

The Motor Manager offers more than motor protection, it also protects the system mechanics. Through permanent power measurement it detects critical load states and switches the motor off in the case of emergency. The Motor Manager also optimizes maintenance and helps you during startup.

Your advantages:

- Integrated full motor protection
- Protection of high-quality system parts
- High level of system availability
- Saves the cost of sensors
- Easy configuration and diagnostics
- ATEX certified for Ex e-Motors



PROFIBUS connection

- Optional auxiliary device
- Up to 32 Motor Managers per gateway
- Easy coupling via T-BUS connector



Motor protection

- Thermistor evaluation
- Electronic motor protection relay
- Adjustable trigger curves



Monitoring

- Overload and underload detection
- Wear detection
- Energy consumption and production data acquisition



System protection requires real power measurement

While a $\cos \varphi$ monitor only detects underload states, and a motor protection relay only detects overload states, real power measurement detects all critical load states of the motor. If necessary, the Motor Manager switches the drive off and thus protects the motor and the connected system mechanics.

CONTACTRON product range and accessories

Hybrid Motor Starters – up to four functions in a single device

Motor Starter plus motor protection/emergency stop

4 in 1



Reversing Starter
+ emergency stop
+ motor protection



3 in 1



Reversing Starter
+ motor protection



Direct Starter
+ emergency stop
+ motor protection



Direct Starter
+ motor protection



Starting/Reversing

2 in 1



Reversing Starters



1 in 1



Direct Starters



Maximum load
current

Housing width

Input
voltage

0.6 A

24 V DC

ELR H5-IES-SC-24DC/500AC-0,6
Order No. 2900582

ELR H5-I-SC-24DC/500AC-0,6
Order No. 2900573

ELR H3-IES-SC-24DC/500AC-0,6
Order No. 2900566

ELR H3-I-SC-24DC/500AC-0,6
Order No. 2900542

120/230 V AC

ELR H5-IES-SC-230AC/500AC-0,6
Order No. 2900692

ELR H5-I-SC-230AC/500AC-0,6
Order No. 2900691

ELR H3-IES-SC-230AC/500AC-0,6
Order No. 2900689

ELR H3-I-SC-230AC/500AC-0,6
Order No. 2900685

2.4 A

24 V DC

ELR H5-IES-SC-24DC/500AC-2
Order No. 2900414

ELR H5-I-SC-24DC/500AC-2
Order No. 2900574

ELR H3-IES-SC-24DC/500AC-2
Order No. 2900567

ELR H3-I-SC-24DC/500AC-2
Order No. 2900543

ELR W3-24DC/500AC-2I*
Order No. 2297031

120/230 V AC

ELR H5-IES-SC-230AC/500AC-2
Order No. 2900420

ELR H5-I-SC-230AC/500AC-2
Order No. 2900575

ELR H3-IES-SC-230AC/500AC-2
Order No. 2900568

ELR H3-I-SC-230AC/500AC-2
Order No. 2900544

ELR W3-230VAC/500AC-2I*
Order No. 2297044

9 A

24 V DC

ELR H5-IES-SC-24DC/500AC-9
Order No. 2900421

ELR H5-I-SC-24DC/500AC-9
Order No. 2900576

ELR H3-IES-SC-24DC/500AC-9
Order No. 2900569

ELR H3-I-SC-24DC/500AC-9
Order No. 2900545

ELR W3-24DC/500AC-9I*
Order No. 2297057

120/230 V AC

ELR H5-IES-SC-230AC/500AC-9
Order No. 2900422

ELR H5-I-SC-230AC/500AC-9
Order No. 2900578

ELR H3-IES-SC-230AC/500AC-9
Order No. 2900570

ELR H3-I-SC-230AC/500AC-9
Order No. 2900546

ELR W3-230AC/500AC-9I*
Order No. 2297060

Maximum load
current

Housing width

Input
voltage

9 A

24 V DC

ELR H5-SC-24DC/500AC-9
Order No. 2900538

ELR H3-SC-24DC/500AC-9
Order No. 2900530

120/230 V AC

ELR H5-SC-230AC/500AC-9
Order No. 2900539

ELR H3-SC-230AC/500AC-9
Order No. 2900531

Bridge for Hybrid Motor Starter



For looping through the 3-phase supply




2-way	BRIDGE-2	Order No. 2900746
3-way	BRIDGE-3	Order No. 2900747
4-way	BRIDGE-4	Order No. 2900748
5-way	BRIDGE-5	Order No. 2900749
6-way	BRIDGE-6	Order No. 2900750
7-way	BRIDGE-7	Order No. 2900751
8-way	BRIDGE-8	Order No. 2900752
9-way	BRIDGE-9	Order No. 2900753
10-way	BRIDGE-10	Order No. 2900754



* Terminals L1–L3 and T1–T3 rotated




Reliable protection









		Hybrid Motor Starters	
			
		4 in 1 + short-circuit protection	
			
Maximum load current	Housing width	Input voltage	
0.6 A	22.5 mm	24 V DC	ELR-H51-IESSC-24DC500AC-06 Order No. 2902746 + Din rail adapter: ELR-H51-0.6-DIN-RAIL-SET Order No. 2902952
		24 V DC	ELR-H51-IESSC-24DC500AC-2 Order No. 2902744 + DIN rail adapter ELR-H51-2.4-DIN-RAIL-SET Order No. 2902953
2.4 A	22.5 mm	24 V DC	ELR-H51-IESSC-24DC500AC-9 Order No. 2902745 + DIN rail adapter: ELR-H51-9-DIN-RAIL-SET Order No. 2902954
9 A		24 V DC	

DIN rail adapter	Busbar adapter	
		
EM-RD-ADAPTER Order No. 2902747	160 mm EM-RI-ADAPTER COMPACT Order No. 2902748	200 mm EM-RI-ADAPTER CLASSIC Order No. 2902831

Fuses		
Coordination type 1 (e.g., for heavy-starting motors) 30 kA / 500 V FUSE-10X38-30A-MR Order No. 2903119	Coordination type 2 Devices are delivered with the following fuses: 0.6 A and 2.4 A device	
	10 kA / 500 V FUSE-10X38-16A-GR Order No. 2903126	5 kA/400 V FUSE-10X38-20A-GR Order No. 2903384

Smart wiring

		Hybrid Motor Starters	Gateways	I/O modules
				
		4 in 1 + SmartWire-DT™		Digital and analog modules
				
Maximum load current	Housing width	Input voltage		
0.6 A	22.5 mm	24 V DC	ELR H5-IES-SC-SWD/500AC-06 Order No. 2903116	Digital module: 4 inputs, 4 outputs EU5E-SWD-4D4D PXC Order No. 2903101
		24 V DC	ELR H5-IES-SC-SWD/500AC-2 Order No. 2903117	Digital module: 4 inputs EU5E-SWD-4DX PXC Order No. 2903102
2.4 A	22.5 mm	24 V DC	ELR H5-IES-SC-SWD/500AC-9 Order No. 2903118	Digital module: 8 outputs EU5E-SWD-X8D PXC Order No. 2903103
9 A		24 V DC		Analog module: 2 inputs, 2 outputs EU5E-SWD-2A2A PXC Order No. 2903104

Power-feed module	Network termination plug	Device plug, 8-pole	Flat plug, 8-pole
			
EU5C-SWD-PF2-1 PXC Order No. 2903113	SWD4-RC8-10 PXC Order No. 2903106	SWD4-8SF2-5 PXC Order No. 2903107	SWD4-8MF2 PXC Order No. 2903108
CONTACTRON adapter	Coupling for flat plug	Flat-ribbon cable, 8-pole	Pliers
			
EM SWD-ADAPTER Order No. 2902776	SWD4-8SFF2-5 PXC Order No. 2903109	100 m: SWD4-100LF-8-24 PXC Order No. 2903111 3 m: SWD-3LF8-24-2S Order No. 2903112	Pliers for device plugs: SWD4-CRP-1 PXC Order No. 2903110 Pliers for flat plugs: SWD4-CRP-2 PXC Order No. 2903114

Configuration software SmartWire-DT™ Assist




You can set up and configure a SmartWire-DT™ line without any software tools. The SWD-Assist software helps you to easily and quickly plan the SmartWire-DT™ line.

Standard MS Windows functions facilitate operation and handling. You can save the configuration and continue to use it for any number of other projects.









Download the software free of charge at: www.phoenixcontact.net/catalog



Solid-State Contactors – wear-free switching

		Single-phase	3-phase	
		Switching	Switching	Switching + reversing
Maximum load current	Housing width			
	Input voltage			
20 A	22.5 mm	24 V DC ELR 1- 24DC/600AC-20 Order No. 2297138	24 V DC ELR 3-24DC/500AC-2 Order No. 2297196	24 V DC ELR W3-24DC/500AC-2 Order No. 2297293
	45 mm	120/230 V AC ELR 1-230AC/600AC-20 Order No. 2297141	120/230 V AC ELR 3-230AC/500AC-2 Order No. 2297206	120/230 V AC ELR W3-230AC/500AC-2 Order No. 2297303
30 A	22.5 mm	24 V DC ELR 1- 24DC/600AC-30 Order No. 2297154	24 V DC ELR 3-24DC/500AC-9 Order No. 2297219	24 V DC ELR W3-24DC/500AC-9 Order No. 2297316
	45 mm	120/230 V AC ELR 1-230AC/600AC-30 Order No. 2297167	120/230 V AC ELR 3-230AC/500AC-9 Order No. 2297222	120/230 V AC ELR W3-230AC/500AC-9 Order No. 2297329
50 A	22.5 mm	24 V DC ELR 1- 24DC/600AC-50 Order No. 2297170	24 V DC ELR 3-24DC/500AC-16 Order No. 2297235	24 V DC ELR W3-24DC/500AC-16 Order No. 2297332
	45 mm	120/230 V AC ELR 1-230AC/600AC-50 Order No. 2297183	120/230 V AC ELR 3-230AC/500AC-16 Order No. 2297248	120/230 V AC ELR W3-230AC/500AC-16 Order No. 2297345
37 A	147.5 mm	24 V DC ELR 2+1-24DC/500AC-37 Order No. 2297277	24 V DC ELR 2+1-24DC/500AC-37 Order No. 2297277	24 V DC ELR W 2+1- 24DC/500AC-37 Order No. 2297374
	45 mm	120/230 V AC ELR 2+1-230AC/500AC-37 Order No. 2297280	120/230 V AC ELR 2+1-230AC/500AC-37 Order No. 2297280	120/230 V AC ELR W 2+1-230AC/500AC-37 Order No. 2297387

Motor and system protection

Motor Managers	
< 16 A with integrated current transformers	> 16 A for external current transformers (e.g., with PACT current transformers)
 	 
24 V DC EMM 3- 24DC/500AC-16-IFS Order No. 2297523	24 V DC EMM 3- 24DC/500AC-IFS Order No. 2297497
120/230 V AC EMM 3- 24DC/500AC-16-IFS Order No. 2297536	120/230 V AC EMM 3-230AC/500AC-IFS Order No. 2297507
PROFIBUS gateway	Inline gateway
 EM-PB-GATEWAY-IFS Order No. 2297620	 IB IL IFS-MA-PAC* Order No. 2992720
T-BUS connector	USB programming adapter
 ME 22,5 TBUS 1,5/ 5-ST-3,81 GN Order No. 2707437	 IFS-USB-PROG-ADAPTER Order No. 2811271

Easy configuration and diagnostics

The CONTACTRON-DTM-IFS configuration software allows you to configure and parameterize the Motor Managers. Familiarize yourself with the software using the different video tutorials. Among other things, you will learn:

- How to set up the programming adapter and software
- How to configure and assign parameters for Motor Managers
- How to observe and record online values

Download the software free of charge at:
www.phoenixcontact.net/catalog

* Suitable connecting cable for Inline gateway
IMC 1,5/5-ST-3,81SET IL IFS 2M, Order No. 1784729

Further information on the products presented here and on the world of solutions from Phoenix Contact can be found at www.phoenixcontact.net/catalog



Or contact us directly.



Modular Terminal Blocks
CLIPLINE 1



Marking Systems, Tools, and Mounting Material
CLIPLINE 2



Connection Technology for Field Devices and Field Cabling
PLUSCON



Device Connection Technology and Electronic Housings
COMBICON



Power and Signal Quality
TRABTECH



Signal Converters, Switching Devices, Power Supply Units
INTERFACE



Automation Components and Systems
AUTOMATION

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