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Low-Voltage Controls and Distribution

Answers for industry.

SIEMENS

Overview

The intelligent, highly flexible SIRIUS M200D motor starters for distributed configurations are designed to start, monitor and protect motors and loads up to 5.5 kW.

They are available in four versions:

M200D AS-i Basic	M200D AS-i Standard	M200D PROFIBUS	M200D PROFINET
Motor control with AS-i Communication		PROFIBUS	PROFINET
Mechanical or electronic switching			
✔	✔	✔	✔
Electronic switching with soft starter functionality			
--	✔	✔	✔

Basic functionality

All M200D motor starter versions have the following functions:

- Available as direct-on-line and reversing starters in a rugged design
- Electromechanical or solid-state switching version
- Little variance – only 2 device versions up to 5.5 kW thanks to wide range setting
- All versions have the same enclosure dimensions
- Degree of protection IP65
- Quick and failsafe wiring of system and motor cables using ISO 23570 plug-in connector technology (Q4/2 and Q8/0)
- Robust and widely used M12 connection method for the digital inputs and outputs
- Integrated feeder connector monitoring
- Full motor protection through overload protection and a temperature sensor (PTC, TC)
- Short-circuit and overload protection integrated
- Integrated repair switch lockable with 3 locks (multi-level service)
- Uniform wiring to the G110D/G120D frequency converters and to the ET200pro distributed peripherals system
- Extensive diagnostics concept using LEDs
- Optional integrated manual on-site controller with key-operated switch (ordering option)
- Optional brake control with voltages of 180 V DC (no rectifier needed in the motor) or 230/400 V AC (ordering options)

Benefits

M200D motor starters provide the following advantages for customers:

- High plant availability through plug-in capability of the main circuit, communication and IOs – relevant for installing and replacing devices
- Cabinet-free construction and near-motor installation thanks to the high degree of protection IP65
- The motor starters record the actual current flow for the parameterizable electronic motor overload protection. Reliable messages concerning the overranging or underranging of setpoint values for comprehensive motor protection. All motor protection functions can be defined by simple parameterization
- Low stock levels and low order costs through a wide setting range for the electronic motor protection of 1:10 (only 2 device versions up to 5.5 kW)
- The integrated wide range for the current enables a single device to cover numerous standard motors of different sizes
- Comprehensive offering of accessories, including ready-assembled cables
- The M200D motor starters can be installed with a few manual steps The integrated plug-in technology enables far lower wiring outlay:
  preassembled cables can be plugged directly onto the motor starter module
- Easy and user-friendly installation because all versions have the same enclosure dimensions
- Fast and user-friendly commissioning using an optional manual on-site controller
- Increase of process speed through integrated functions such as "Quick-Stop" and "Disable Quick-Stop", e. g. at points and crossings
- Optional manual on-site controller with momentary-contact and latching operation for easier start-up and easier service

Application

The high degree of protection IP65 makes the M200D motor starters suitable in particular for use on extensive conveying systems such as are found in mail sorting centers, airports, automotive factories and the packing industry.

For simple operating mechanism tasks, particularly in conveyor applications, the new SINAMICS G110D frequency converter series with a performance range from 0.75 kW to 7.5 kW and degree of protection IP65 is the ideal partner for the M200D motor starters. The SINAMICS G110D frequency converters permit continuous speed control of three-phase asynchronous motors and meet the requirements of conveyor applications with frequency control (for more information see Catalog D 11.1).

M200D Motor Starters for AS-Interface

Overview

For motor control using AS-Interface there are the following M200D motor starter versions: SIRIUS M200D AS-i Basic and SIRIUS M200D AS-i Standard.(For details of basic functionality see M200D Motor Starters, General Data.)

SIRIUS M200D AS-i Basic

Functionality

- Easy and fast on-site start-up through parameterization of local setting elements (DIP switches) and rotary coding switches for adjusting the rated operational current. The rotary coding switch has an OFF position for deactivating the overload protection with the help of the thermal motor model when using a temperature sensor.

Communication

- AS-i communication with A/B addressing according to Spec V2.1
- The AS-i bus is connected cost-effectively using an M12 connection on the device. Of the 4 digital inputs, 2 are contained in the process image and can therefore be used in the PLC program. The other 2 inputs are locally effective and permanently assigned with functions.
- The LEDs can provide comprehensive diagnostics of the device on the spot. In addition to diagnostics using the PAE process image, the device can create up to 15 different diagnostic signals per slave. The message with the highest priority can be read out through the AS-i communication. This is yet another new development which distinguishes the M200D AS-i Basic motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the system.

SIRIUS M200D AS-i Standard

The intelligent, highly flexible M200D AS-i Standard motor starters in A/B technology are designed to start and protect motors and loads up to 5.5 kW. They are available in direct-on-line or reversing starter variants, in a mechanical version and also an electronic version (the latter with soft start function).

The M200D AS-i Standard motor starter is the most functional member of the SIRIUS motor starter family in the high degree of protection IP65 for AS-i Communication. Consistency with other products of the SIRIUS M200D motor starter range and with the frequency converter and ET200pro peripherals system is assured.

Functionality

- AS-i communication with A/B addressing according to Spec 3.0
- Electronic version also with soft start function
- AS-i slave profile 7.A.E / 7.A.5 with process image 6E/4A
- Full TIA integration: All digital inputs and outputs exist in the cyclic process image and are visible through AS-i, providing maximum flexibility and best adaptability to the application
- Additionally expanded diagnostics using data record through AS-i bus
- Complete plant monitoring using statistics data record and current value monitoring by means of data records
- Parameterization through AS-i bus with the help of data records or an expanded process image from the user program
- Control of the motor starter using a command data record from the user program
- Flexible assignment of the digital inputs and outputs with all available assignable input actions
- Parameterization using Motor Starter ES at the local interface (ordering option for start-up software)
- Diagnostics with the help of Motor Starter ES (ordering option for start-up software)

Mounting and installation

The M200D motor starters can be installed with a few manual steps. The integrated plug-in technology enables far lower wiring outlay. Connecting cables can be plugged directly onto the motor starter module. Swapping of the connecting wires and malfunctions within the plant are prevented by preassembled cables. The AS-i bus is connected cost-effectively using an M12 connection on the device. All versions have identical enclosure dimensions for easier system design and conversion.

Parameterization and configuration

The particularly robust M200D AS-i Standard motor starter is characterized by numerous functions which can be flexibly parameterized. It enables highly flexible parameterization through the AS-i bus using data records from the user program as well as user-friendly local parameterization using the Motor Starter ES start-up software through the local point-to-point interface.

Functions can be flexibly assigned to the digital inputs and outputs, adapting them to all possible conveyor applications. All motor protection functions, limit values and reactions can be defined by parameterization. The AS-i Standard is unique. In its 6E/4A process image the motor starter sends all 4 digital inputs and the digital output via the process image to the PLC in cyclic mode. System configuration and system documentation are facilitated not least by a number of CAX data.

Operation

The new motor starter generation is characterized by high functionality, maximum flexibility and the highest level of automation.

All digital inputs and outputs exist in the cyclic process image. All limit values for monitoring functions and their reactions are parameterizable and therefore adaptable to the application. The motor starters record the actual current flow. Evaluating the current of the parameterizable solid-state overload protection increases the availability of the drives, as do reliable messages concerning the overranging or underranging of setpoint values.

Diagnostics and maintenance

The M200D sets new standards for diagnostics. In addition to diagnostics using the PAE process image and diagnostics by "parameter echo" (up to 15 different diagnostic signals per slave can be read out via AS-i Communication), the possibility of reading out diagnostic data records is unique on the market.

The AS-i Standard is recommended in particular for expansive and highly automated plant parts because the possibility of monitoring devices and systems with data records (statistical data, measured values and device diagnostics) provides an in-depth view of the plant from the control room, guaranteeing the monitoring process and increasing plant availability.

The integrated maintenance timer can be used to implement preventative maintenance and avoid plant downtimes through look-ahead servicing.

Local on-site control of a drive is possible using the ordering option with integrated manual operation. This is yet another new development which distinguishes the M200D AS-i Standard motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the plant.

	SIRIUS M200D AS-i Basic	SIRIUS M200D AS-i Standard
Device functions (software features)		
Slave on the bus		
Fieldbus	✔ AS-i	
Slave type	✔ A/B acc. to Spec 2.1	✔ A/B acc. to Spec 3.0
Profile	✔ 7.A.E	✔ 7.A.E & 7.A.5
Number of assigned AS-i addresses on the bus	✔ 1	✔ 2
Number of stations per AS-i master	✔ Maximum 62 devices	✔ Maximum 31 devices
AS-i master profile	✔ M3 and higher	✔ M4 and higher
Parameterization		
DIP switches	✔	--
Potentiometer for rated operational current	✔	--
ES Motor Starter	--	✔
Data records through AS-i	--	✔
Diagnostics		
Diagnostics through parameter channel	✔	
Acyclic through data records	--	✔
Expanded process image PAE 4 bytes	--	✔
Process image		
Process image	✔ 4E/3A	✔ 6E/4A
Data channels		
Local optical interface (manual on-site)	✔	
AS-i bus	✔	
Motor Starter ES through local interface	--	✔
Motor Starter ES through bus	--	
Data records[1] (acyclic)		
Parameterization	--	✔
Diagnostics	--	✔
Measured values	--	✔
Statistics	--	✔
Commands	--	✔
Inputs		
Number	✔ 4	
• Of these in the process image	✔ 2 through AS-i	✔ 4 through AS-i
Input action	✔ Permanently assigned functions, see manual	✔ Parameterizable: Flexible
Quick-Stop	✔ Permanent function: latching, edge-triggered	✔ Parameterizable function: latching (edge-triggered), non-latching (level-triggered)
Outputs		
Number	✔ 1	
Output action	✔ Permanent function: assigned with group fault	✔ Parameterizable: Function, see manual
Brake output		
180 V DC / 230/400 V AC / none	✔	
Motor protection		
Overload protection	✔ Electronic, wide range 1:10	
Short-circuit protection	✔	
Full motor protection	✔	
Temperature sensor	✔ Parameterizable using DIP switches: PTC or Thermoclick or deactivated	✔ Parameterizable using ES Motor Starter, data record: PTC or Thermoclick or deactivated

✔ Function is available; -- Function is not available.

[1] The data records are a reduced selection compared with PROFIBUS/PROFINET

M200D Motor Starters for AS-Interface

	SIRIUS M200D AS-i Basic	SIRIUS M200D AS-i Standard
Device functions (software features)		
Device functions		
Repair switch	✔	
Current limit monitoring bottom	--	✔ Parameterizable
Current limit monitoring top	--	✔ Parameterizable
Zero current detection	✔ Permanent function: disconnection, less than 18.75 % of the rated operational current I_e	✔ Parameterizable
Blocking current	✔ Permanent function: Starting up of the motor: tripping limit at 800 % of the rated operational current I_e for 10 s Active operation: threshold for tripping "blocking current" at 400 % of the rated operational current I_e	✔ Parameterizable
Unbalance	✔ Permanent function: at 30 % of the rated operational current I_e (only mechanical MS)	✔ Parameterizable
Load type	✔ Permanent function: three-phase	✔ Parameterizable: single- and three-phase
Shutdown class	✔ Parameterizable using DIP switches: Class 10 / deactivated	Parameterizable using ES Motor Starter, data record: Class 5, 10, 15, 20
Protection against voltage failure	✔	✔ Parameterizable: Activated/deactivated
Soft starter control function		
Soft start function	--	✔
Bypass function	--	✔ Only electronic version

✔ Function is available; -- Function is not available.

Application

The M200D AS-i Standard is particularly suitable for highly automated conveyor applications which require the monitoring of devices and systems in order to prevent or limit plant downtimes.The functions of the motor starter or its interfaces can be parameterized, enabling fine-tuning of the motor starter in the application and therefore the greatest flexibility.

More information

Type		M200D Motor Starters			
		AS-i Basic electromechanical switching	AS-i Basic electronic switching	AS-i Standard electromechanical switching	AS-i Standard electronic switching
Technology designation[1]		DSte / RSte	sDSte / sRSte	DSte / RSte	sDSSte / sRSSte
Mechanics and environment					
Mounting dimensions (W x H x D)	mm	294 x 215 x 159			
Permissible ambient temperature					
• During operation	°C	-25 ... +55			
• During storage	°C	-40 ... +70			
Weight	g	2880 / 3130	3220 / 3420	2880 / 3130	3220 / 3420
Permissible mounting positions		Vertical, horizontal, lying			
Vibration resistance acc. to IEC 60068 Part 2-6		2 *g*			
Shock resistance					
• Acc. to IEC 60068 Part 2-27		12 *g*/11 ms half-sine			
• Without influencing the contact position		9.8 *g*/5 ms or 5.9 *g*/10 ms			
Degree of protection acc. to IEC 529		IP65			
Installation height					
• Up to 1000 m		No derating			
• Up to 2000 m		1 % per 100 m			
Cooling		Convection			
Protection class IEC 536 (VDE 0106-1)		1			
Electrical specifications					
Control circuit					
Operational voltage U_{As-i}	V DC	26.5 ... 31.6			
Control supply voltage U_{aux}	V DC	20.4 ... 28.8			
Power consumption from AS-i (incl. 200 mA sensor supply)	mA	<300			
Power consumption from U_{aux} (without digital output)					
• Max.	mA	155	15 (direct-on-line)/175 (reversing)	155	15 (direct-on-line)/175 (reversing)
• Typ.	mA	75	10 (direct-on-line)/75 (reversing)	75	10 (direct-on-line)/75 (reversing)
Main circuit					
Maximum power of induction motors at 400 V AC	kW	5.5	4	5.5	5.5
Rated operational voltage U_e					
• Approval acc. to EN 60947-1	V AC	400 (50/60 Hz)			
• Approval acc. to UL and CSA	V AC	600 (50/60 Hz)			480 (50/60 Hz)
• Rated operational current range	A	0.15 ... 2 / 1.5 ...12	--	0.15 ... 2 / 1.5 ...12	--
• Rated operational current range for soft start	A	--			0.15 ... 2 / 1.5 ...12
• Rated operational current range for direct start	A	--	0.15 - 2 /1.5 - 9	--	0.15 - 2 /1.5 - 9
Rated operational current for starter I_e at 400 V AC					
• 400 V - AC-1 / 2 / 3	A	12	--	12	--
• 500 V - AC-1 / 2 / 3	A	9	--	9	--
• 400 V - AC-4	A	4	--	4	--
• 400 V AC53a	A	--	9	--	12 for soft starting 9 for direct-in-line starting
Mechanical endurance of contactor		30 million operating cycles	--	30 million operating cycles	--
Trip class		Class 10		CLASS 5, 10, 15, 20	
Type of coordination acc. to IEC 60947-4-1		1 (2 for device variant 2A)	1	1 (2 for device variant 2A)	1
Reliable switching frequency		See manual			
Rated ultimate short-circuit breaking capacity I_q					
• At 400 V AC	kA	50			
• At 500 V AC	kA	50[2]	20[2]	50	20[2]
Short-circuit protection					
• At I_{emax} = 2 A		Integrated, 2 x13 I_e = 26 A			
• At I_{emax} = 9 /12 A		Integrated, 2 x13 I_e = 208 A			
Brake version (option)					
Designation		400 V/230 V AC	180 V DC	400 V/230 V AC	180 V DC
Operational voltage	V	400 / 230 AC	DC 180	400 / 230 AC	DC 180
Uninterrupted current	A	< 0.5	< 0.8	< 0.5	< 0.8
Short-circuit protection		Yes, 1 A melting fuse			

1) DS ... direct-on-line starter
RS ... reversing starter
te ..... full motor protection (thermal + electronic)
s ..... electronic switching with semiconductor

2) Only systems with grounded neutral point permitted

M200D motor starters for AS-Interface
M200D Basic motor starters

Selection and ordering data

M200D AS-i Basic without manual on-site operation

M200D AS-i Basic with manual on-site operation

Version	Order No.				Weight per PU approx.
					kg
Electromechanical starters (with integrated protection)					
	3RK1 315-6□S41-□AA□				2.6 ... 3.1
Setting range for rated operational current / A				*Additional price*	
• 0.15 ... 2	**K**				
• 1.5 ... 12	**L**				
Direct-on-line starters/reversing starters					
• Direct-on-line starters		**0**			
• Reversing starters		**1**			
• Direct-on-line starters with manual local operation		**2**			
• Reversing starters with manual local operation		**3**			
Brake control					
• Without brake control			**0**		
• Brake control (400 V AC)			**3**		
• Brake control (180 V DC)			**5**		
Electronic starters (with thyristors)					
	3RK1 315-6□S71-□AA□				2.6 ... 3.4
Setting range for rated operational current / A				*Additional price*	
• 0.15 ... 2	**K**				
• 1.5 ... 9	**N**				
Direct-on-line starters/reversing starters					
• Direct-on-line starters		**0**			
• Reversing starters		**1**			
• Direct-on-line starters with manual local operation		**2**			
• Reversing starters with manual local operation		**3**			
Brake control					
• Without brake control			**0**		
• Brake control (230/400 V AC)			**3**		
• Brake control (180 V DC)			**5**		

x = Additional price

Selection and ordering data

M200D AS-i Standard

Version	Order No.				Weight per PU approx. kg
Electromechanical starters (with integrated protection)					
	3RK1 325-6□S41-□AA□				2.6 ... 3.1
Setting range for rated operational current / A				***Additional price***	
• 0.15 ... 2	**K**				
• 1.5 ... 12	**L**				
Direct-on-line starters/reversing starters					
• Direct-on-line starters		**0**			
• Reversing starters		**1**			
• Direct-on-line starters with manual local operation		**2**			
• Reversing starters with manual local operation		**3**			
Brake control					
• Without brake control			**0**		
• Brake control (400 V AC)			**3**		
• Brake control (180 V DC)			**5**		
Electronic starters (with thyristors)					
	3RK1 325-6□S71-□AA□				2.6 ... 3.4
Setting range for rated operational current / A				***Additional price***	
• 0.15 ... 2	**K**				
• 1.5 ... 12	**L**				
Direct-on-line starters/reversing starters					
• Direct-on-line starters		**0**			
• Reversing starters		**1**			
• Direct-on-line starters with manual local operation		**2**			
• Reversing starters with manual local operation		**3**			
Brake control					
• Without brake control			**0**		
• Brake control (230/400 V AC)			**3**		
• Brake control (180 V DC)			**5**		

x = Additional price

* You can order this quantity or a multiple thereof.

M200D motor starters for PROFIBUS / PROFINET

Overview

The intelligent, highly flexible M200D PROFIBUS / PROFINET motor starters are the most functional motor starters of the SIRIUS motor starter family in the high degree of protection IP65 for PROFIBUS / PROFINET communication.

They start and protect motors and loads up to 5.5 kW. Direct-online and reversing starter variants are available, in a mechanical version and also an electronic version (the latter with soft start function).

The particularly robust M200D PROFIBUS / PROFINET motor starters are characterized by numerous functions which can be flexibly parameterized. Their modular design comprises a motor starter module and a communication module.

The M200D PROFINET motor starters enable TIA-integrated parameterization through PROFINET from STEP7 - in familiar, user-friendly manner with the same look-and-feel as PROFIBUS.

Functionality

- For basic functionality see M200D Motor Starters, General Data
- Electronic version also with soft start function
- Robust and widely used M12 connection method for the digital inputs and outputs and the PROFIBUS/PROFINET bus connection
- All four digital inputs and two digital outputs exist in the cyclic process image. This provides complete transparency of the process on the control level
- Full TIA integration: All digital inputs and outputs exist in the cyclic process image and are visible through the bus, providing maximum flexibility and best adaptability to the application
- Flexible assignment of the digital inputs and outputs with all available assignable input actions
- Extensive diagnostics concept using LEDs and through the bus with the TIA-conform mechanisms
- Expanded diagnostics using data records
- Complete plant monitoring using statistics data record and current value monitoring by means of data records
- Parameterization through PROFIBUS / PROFINET bus with the help of data records from the user program
- Control of the motor starter using a command data record from the user program
- Removable modular control unit – fixed wiring on the control unit means faster replacement of devices and therefore lower costs because only one device needs to be replaced
- Parameterization in Step7 HW Config using Motor Starter ES (ordering option for start-up software)
- Start-up and diagnostics with the help of Motor Starter ES (ordering option for start-up software)
- Trace function through Motor Starter ES for optimized start-up and tracking of process and device values

Only with PROFINET IO:

- Just one bus system from the MES level to the devices - no routers
- More stations on the bus and possible configuration of flexible bus structures
- Automatic re-parameterization in case of device replacement thanks to proximity detection
- Wireless integration of plant segments in difficult environments using WLAN
- Easier expansion of the system thanks to a higher number of stations on the bus and elimination of terminating resistors

M200D motor starter modules for PROFIBUS / PROFINET (without communication module)

M200D communication modules for PROFIBUS

M200D communication modules for PROFINET

M200D motor starters for PROFIBUS / PROFINET

Mounting and installation

The M200D PROFINET / PROFINET motor starter is comprised of a communication module and a motor starter module. Only the motor starter module has to be replaced therefore when replacing devices. This saves time and money. The communication module remains as an active station on the bus and all other system components continue running. This prevents downtimes.

The integrated plug-in technology enables far lower wiring outlay: Connecting cables can be plugged directly onto the motor starter module. The PROFINET bus is connected cost-effectively using an M12 connection on the device. All versions have identical enclosure dimensions for easier system design and conversion.

Parameterization and configuration

All motor protection functions, limit values and reactions can be defined by parameterization.

The user has several user-friendly options for the parameterization. In addition to parameterization directly from STEP 7, which also permits automatic re-parameterization in case of device replacement, it is possible to use the user-friendly Motor Starter ES start-up software. By connecting a programming device directly to PROFIBUS / PROFINET and the Motor Starter ES start-up software, the devices can also be conveniently programmed from a central point through the bus. Also, parameters can be changed during operation from the user program using the data record mechanism so that the function of the motor starter is adapted to the process when required. With the help of a PC and the Motor Starter ES software it is also possible to perform the parameterization through the local point-to-point interface on-site.

Functions can be flexibly assigned to the digital inputs and outputs, adapting them to all possible conveyor applications. All digital inputs and outputs exist in the cyclic process image. All limit values for monitoring functions and their reactions are parameterizable and therefore adaptable to the application. Consistency with other products of the SIRIUS M200D motor starter range and with the frequency converter and ET200pro peripherals system is assured.

Only with the M200D PROFINET motor starter

Thanks to the integrated proximity detection, the device name does not need to be issued manually when a device is replaced. The name is issued automatically by the neighboring devices which note the "names" of the devices in their proximity. No additional start-up measures are required therefore when replacing a device.

The new motor starter generation is characterized by high functionality, maximum flexibility and the highest level of automation. The PROFINET is recommended in particular for expansive and highly automated system components because the possibility of monitoring devices and systems with data records (statistical data, measured values and device diagnostics) guarantees an in-depth view of the plant from the control room and therefore increases plant availability.

Operation

The motor starters record the actual current flow. Evaluating the current of the parameterizable solid-state overload protection increases the availability of the drives, as do reliable messages concerning the overranging or underranging of setpoint values.

Diagnostics and maintenance

Diagnostics is provided through numerous mechanisms - and can be used as the customer prefers.

The motor starter has TIA diagnostics capability, i. e. detection of a fault automatically triggers a diagnostics alarm which in the case of a SIMATIC controller calls up the diagnostics OB. The fault can be evaluated as usual in the user program.

The M200D motor starter offers a large variety of diagnostics data through data records. Its functionality is without equal on the market. There are extensive options for reading out data from the motor starter for monitoring devices, systems or processes.

The motor starter is equipped internally with 3 logbooks for device faults, motor starter trips and events, which are issued with a time stamp. These logbooks can be read out of the motor starter at any time in the form of data records and provide the plant operator with plenty of information about the state of his plant and process which he can use to carry out improvements.

With the slave pointer and statistical data functions it is possible to read out, for example, the maximum internal current values or the number of motor starter connection operations for plant monitoring purposes. This enables process deviations to be monitored or commissioning to be optimized. The user can draw conclusions about the actual load conditions of the devices in his process and on this basis can optimize his plant maintenance intervals.

The device diagnostics data record contains details of all the states of the motor starter, the device configuration and the communication as a basis for central device and plant monitoring.

Installation and maintenance functions (I&M) save information concerning the module used in the motor starter as well as data which the user can define during the configuration, e. g. position IDs. I&M functions are used to rectify faults or to locate hardware changes in a plant or to check the system configuration. Reordering a device is particularly easy as the result.

The integrated maintenance timer can be used to implement preventative maintenance and avoid plant downtimes through look-ahead servicing.

Another new feature is the integrated TRACE function with the Motor Starter ES software. It can be used to record measured values as a function of time following a trigger event. This enables process flows to be recorded and their timing optimized.

Local control of a drive is possible using the ordering option with integrated manual operation. This is yet another new development which distinguishes the M200D PROFIBUS / PROFINET motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the system.

M200D motor starters for PROFIBUS / PROFINET

	SIRIUS M200D PROFIBUS	SIRIUS M200D PROFINET
Device functions (software features)		
Slave on the bus		
Fieldbus	✔ PROFIBUS to M12	✔ PROFINET to M12
Adjustable number of stations	✔ 1 125	✔ 1 ... 128 with CPU 315, 317 1 ... 256 with CPU 319
Parameterization		
DIP switches	✔ For address setting and terminating resistor	--
ES Motor Starter	✔ Through bus, optical interface	
PROFIBUS / PROFINET data records	✔	
From STEP 7 / HW config	✔	
Diagnostics		
Acyclic through data records	✔	
Support of diagnostics alarm	✔	
Process image		
Process image	✔ 2Byte PAE/ 2Byte PAA	
Data channels		
Local optical interface (manual on-site)	✔	
Through Motor Starter ES local interface	✔	
Using Motor Starter ES through bus	✔	
Data records (acyclic)		
Parameterization	✔ Using DS 131 (DS = data record)	
Diagnostics	✔ Device-specific DS 92	
Measured values	✔ Measured values DS 94	
Statistics	✔ Statistical data DS 95	
Commands	✔ Using DS 93	
Slave pointer	✔ Slave pointer DS 96	
Logbook	✔ Using Motor Starter ES and data records: Device faults DS 72, tripping operation DS 73, events DS 75	
Device identification	✔ Using DS 100	
I&M data	✔ Using DS 231 ... 234	✔ Using data records 0xAFF0 ... 0xAFF3
Inputs		
Number	✔ 4	
• Of these in the process image	✔ 4	
Input action	✔ Parameterizable: Flexibly assignable action (see manual)	
Quick-Stop	✔ Parameterizable: Latching, non-latching	
Outputs		
Number	✔ 2	
• Of these in the process image	✔ 2	
Output action	✔ Parameterizable: Flexibly assignable action (see manual)	
Brake output		
180 V DC / 230/400 V AC / none	✔	
Motor protection		
Overload protection	✔ Electronic, wide range 1:10	
Short-circuit protection	✔	
Full motor protection	✔	
Temperature sensor	✔ Parameterizable using ES Motor Starter, data record: PTC or Thermoclick or deactivated	

✔ Function is available; -- Function is not available.

	SIRIUS M200D PROFIBUS	SIRIUS M200D PROFINET
Device functions (software features)		
Device functions		
Repair switch	✔	
Current limit monitoring bottom	✔ Parameterizable	
Current limit monitoring top	✔ Parameterizable	
Zero current detection	✔ Parameterizable: tripping, warning	
Blocking current	✔ Parameterizable	
Unbalance	✔ Parameterizable	
Load type	✔ Parameterizable: single- and three-phase	
Shutdown class	✔ Parameterizable using ES Motor Starter, data record: Class 5, 10, 15, 20	
Protection against voltage failure	✔ Parameterizable: Activated/deactivated	
Soft starter control function		
Soft start function	✔	
Bypass function	✔ Only electronic version	

✔ Function is available; -- Function is not available.

Application

The M200D PROFIBUS / PROFINET motor starters are particularly suitable for fully TIA-integrated, highly automated conveyor applications which meet all needs with regard to the monitoring of devices and systems and preventative maintenance. Adaptability of the motor starter functions and maximum flexibility of the device enable a broad range of application without any limits. The PROFINET-specific expansions are the best assurance of a future-proof investment.

M200D motor starters for PROFIBUS/PROFINET
Communication modules, motor starter modules

Selection and ordering data

M200D PROFIBUS / PROFINET
without communication module

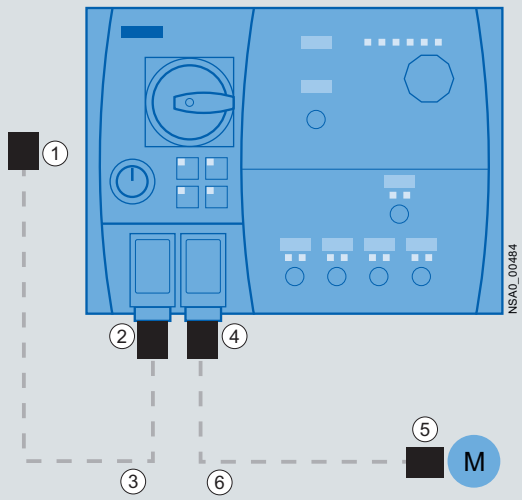
M200D PROFIBUS

M200D PROFINET

Version	Order No.			Weight per PU approx. kg
M200D communication modules for PROFIBUS				
Communication modules for PROFIBUS M12 termination 7/8 inch	**3RK1 305-0AS01-0AA0**			0.300
M200D communication modules for PROFINET				
Communication modules for PROFINET M12 termination 7/8 inch	**3RK1 335-0AS01-0AA0**			0.300
Electromechanical starters (with integrated protection)				
	3RK1 395-6☐S41-☐AD☐			2.3
Setting range for rated operational current / A			*Additional price*	
• 0.15 ... 2	**K**			
• 1.5 ... 12	**L**			
Direct-on-line starters/reversing starters				
• Direct-on-line starters		**0**		
• Reversing starters		**1**		
• Direct-on-line starters with manual local operation		**2**		
• Reversing starters with manual local operation		**3**		
Brake control				
• Without brake control			**0**	
• Brake control (400 V AC)			**3**	
• Brake control (180 V DC)			**5**	
Electronic starters (with thyristors)				
	3RK1 395-6☐S71-☐AD☐			2.3
Setting range for rated operational current / A			*Additional price*	
• 0.15 ... 2	**K**			
• 1.5 ... 12	**L**			
Direct-on-line starters/reversing starters				
• Direct-on-line starters		**0**		
• Reversing starters		**1**		
• Direct-on-line starters with manual local operation		**2**		
• Reversing starters with manual local operation		**3**		
Brake control				
• Without brake control			**0**	
• Brake control (230/400 V AC)			**3**	
• Brake control (180 V DC)			**5**	

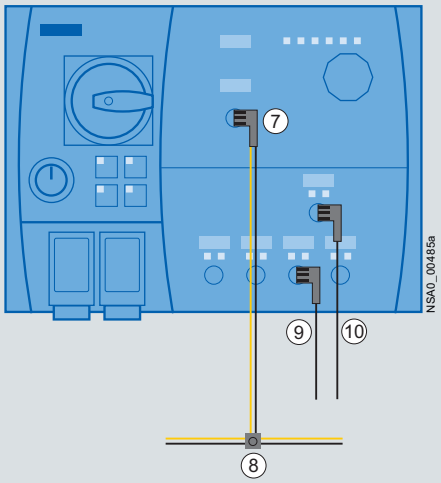
* You can order this quantity or a multiple thereof.

Overview



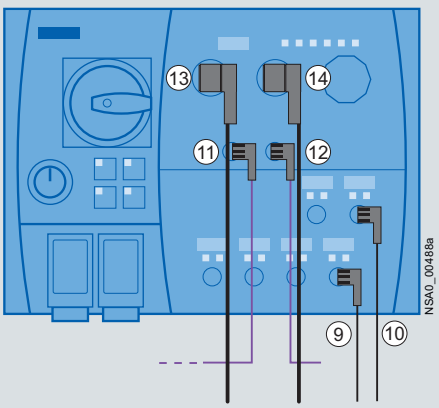
1 Power feeder plug
2 Power connection plug
3 Incoming energy supply cable
4 Motor connection plug
5 Motor plug
6 Motor cable

Power and motor connection on the M200D motor starter (in this example: M200D for AS-i)



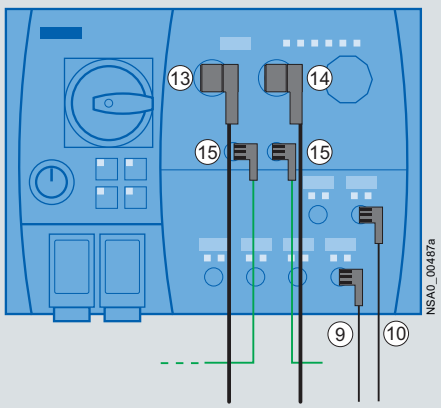
7 Connection for motor control with AS-i communication
8 AS-Interface M12 feeder
9 Connection for digital input (IO communication, 5-pole)
10 Connection for digital output (IO communication, 4 or 5-pole)

Communication connection using AS-Interface and digital inputs and outputs



9 Connection for digital input (IO communication, 5-pole)
10 Connection for digital output (IO communication, 4- or 5-pole)
11 PROFIBUS connection (input)
12 PROFIBUS connection (loop)
13 Connection for 24 V supply (infeed)
14 Connection for 24 V supply (loop)

Communication connection using PROFIBUS and digital inputs and outputs



9 Connection for digital input (IO communication, 5-pole)
10 Connection for digital output (IO communication, 4- or 5-pole)
13 Connection for 24 V supply (infeed)
14 Connection for 24 V supply (loop)
15 Connection with PROFINET (input on the left, loop on the right)

Communication connection using PROFINET and digital inputs and outputs

Accessories

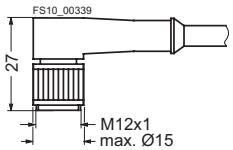
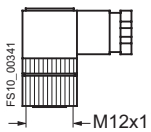
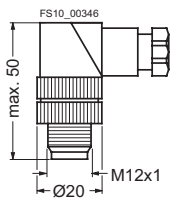
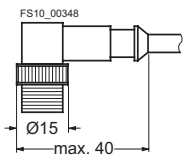
Selection and ordering data

The accessories listed below represent a basic selection.

More connection technology products can be found at our "Siemens Solution Partners" and in the catalogs IK PI and FS 10.

	Version	Order No.		Weight per PU approx. kg
Mountable accessories				
	M200D protective brackets	**3RK1 911-3BA00**		0.225
Incoming energy supply				
	① **Power feeder plugs** Connector set for energy supply, e. g. for connecting to T terminal connectors, comprising a coupling enclosure, straight outgoing feeder (with bracket), pin insert for HAN Q4/2, incl. gland			
	• 5 male contacts 2.5 mm²	**3RK1 911-2BS60**		0.100
	• 5 male contacts 4 mm²	**3RK1 911-2BS20**		0.100
	• 5 male contacts 6 mm²	**3RK1 911-2BS40**		0.100
	② **Power connection plugs** Connector set for energy supply for connection to M200D motor starters, comprising a cable-end connector hood, angular outgoing feeder, female insert for HAN Q4/2, incl. gland			
	• 5 female contacts 2.5 mm² 2 female contacts 0.5 mm²	**3RK1 911-2BE50**		0.200
	• 5 female contacts 4 mm² 2 female contacts 0.5 mm²	**3RK1 911-2BE10**		0.200
	• 5 female contacts 6 mm² 2 female contacts 0.5 mm²	**3RK1 911-2BE30**		0.200
	② + ③ **Power connection cable** Assembled at one end with "N" and jumper pin 11 and 12 for plug monitoring, with HAN Q4/2, angular; open at one end; 5 x 4 mm²			
	• Length 1.5 m	**3RK1 911-0DC13**		0.590
	• Length 5.0 m	**3RK1 911-0DC33**		0.590
Motor cables				
	④ **Motor connection plugs** Connector set for motor cable for connection to M200D motor starters, comprising a cable-end connector hood, angular outgoing feeder, pin insert for HAN Q8/0, incl. gland			
	• 8 male contacts 1.5 mm²	**3RK1 902-0CE00**		0.064
	• 6 male contacts 2.5 mm²	**3RK1 902-0CC00**		0.059
	⑤ **Motor plugs** Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e, incl. star jumper, incl. gland			
	• 7 female contacts 1.5 mm²	**3RK1 911-2BM21**		0.240
	• 7 female contacts 2.5 mm²	**3RK1 911-2BM22**		0.240
	④ + ⑥ **Motor cables, assembled at one end** Open at one end, HAN Q8/0, angled, length 5 m			
	• Motor cables for motor without brake, for M200D, 4 x 1.5 mm²	**3RK1 911-0EB31**		0.800
	• Motor cables for motor with brake control 400 V AC or 180 V DC, 6 x 1.5 mm²	**3RK1 911-0ED31**		1.150
	• Motor cables for motor with brake control 230 V AC and thermistor, 8 x 1.5 mm²	**3RK1 911-0EE31**		1.150

* You can order this quantity or a multiple thereof.

	Version			Order No.		Weight per PU approx. kg
Motor control with AS-i communication[1]						
 3RX8 000-0CC42-1AF0	⑦ **Control cables, assembled at one end** Open at one end, angular M12 cable boxes for screw fixing, degree of protection IP67, 4-pole, 4 x 0.34 mm^2					
	• Cable length 5 m			**3RX8 000-0CC42-1AF0**		0.180
 3RX8 000-0CC45	⑦ **Coupling boxes with terminal compartment, can be pre-assembled** Open at one end, angular M12 cable boxes for screw fixing, degree of protection IP67, 4-pole, 4 x 0.34 mm^2			**3RX8 000-0CC45**		0.015
 3RK1 901-1NR21	⑧ **AS-Interface M12 feeder**					
	For flat cable	For	Cable length			
	AS-i / U_{aux}	M12 socket	--	**3RK1 901-1NR20**		0.060
	AS-i / U_{aux}	M12 cable box	1 m	**3RK1 901-1NR21**		0.070
	AS-i / U_{aux}	M12 cable box	2 m	**3RK1 901-1NR22**		0.100
 3RK1 901-1MN00	**Cable terminating pieces** For sealing of open cable ends (shaped AS-Interface cable) in IP67			**3RK1 901-1MN00**		0.085
Motor control with IO communication[1]						
 3RX8 000-0CE55	⑩ **Angular M12 coupler plugs** Degree of protection IP 67, 5-pole, for extension cable (metal screw cap) with terminal compartment, cable let-through max. 6 mm			**3RX8 000-0CE55**		0.023
 3RX8 000-0CC42-1AF0	⑩ **Control cables, assembled at one end** Angular M12 cable plugs, degree of protection IP67, 4 x 0.34 mm^2 (metal screw cap)					
	• Length 5 m			**3RX8 000-0CE42-1AF0**		0.169
	• Length 10 m			**3RX8 000-0CE42-1AL0**		0.335
	⑨, ⑩ **Control cables, assembled at one end**					
	Angular M12 cable plugs, 5-pole					
	• PUR cables 1.5 m			**3RX8 000-1CE52-1AB5**		0.195
	• PUR cables 5 m			**3RX8 000-1CE52-1AF0**		0.195
	• PUR cables 10 m			**3RX8 000-1CE52-1AL0**		0.195

[1] For more plug-in connections see Catalogs FS 10 and IK PI.

* You can order this quantity or a multiple thereof.

Accessories

Version	Order No.		Weight per PU approx. kg
Motor control with PROFIBUS			
Plugs M12 for screw fixing, angled, B coded, no terminating resistor			
• ⑪㉕ female contacts	**3RK1 902-1DA00**		0.100
• ⑫㉕ male contacts	**3RK1 902-1BA00**		0.100
Control cables, assembled at one end M12 for screw fixing, angled, B coded, no terminating resistor			
• ⑪㉕ female contacts, 3 m	**3RK1 902-1GB30**		0.100
• ⑪㉕ female contacts, 5 m	**3RK1 902-1GB50**		0.100
• ⑪㉕ female contacts, 10 m	**3RK1 902-1GC10**		0.100
⑪ ⑫㉔ **Control cables, assembled at both ends** M12 for screw fixing, angled, 5-pole, B coded, no terminating resistor			
• 3.0 m	**3RK1 902-1NB30**		0.100
• 5.0 m	**3RK1 902-1NB50**		0.100
• 10.0 m	**3RK1 902-1NC10**		0.100
Motor control with PROFINET			
⑮㉗ **Plugs** M12 for screw fixing, angled, D coded,			
• 4 male contacts	**3RK1 902-2DA00**		0.100
⑮㉔ **Control cables, assembled at one end** M12 for screw fixing, angled, D coded,			
• 4 male contacts, 3.0 m	**3RK1 902-2HB30**		0.100
• 4 male contacts, 5.0 m	**3RK1 902-2HB50**		
• 4 male contacts, 10.0 m	**3RK1 902-2HC10**		0.100
⑮㉔ **Control cables, assembled at both ends** M12 for screw fixing, angled at both ends, 4-pole, D coded, male contacts at both ends			
• 3.0 m	**3RK1 902-2NB30**		0.100
• 5.0 m	**3RK1 902-2NB50**		0.100
• 10.0 m	**3RK1 902-2NC10**		0.100
Connection for 24 V supply to M200D PROFIBUS / PROFINET			
Plugs On M200D, 7/8″ for screw fixing, angled, 1.5 mm^2			
• ⑬㉕ female contacts	**3RK1 902-3DA00**		0.100
• ⑭㉕ male contacts	**3RK1 902-3BA00**		0.100
⑬㉕ **Supply lines, assembled at one end** 7/8″ for screw fixing, angled, 1.5 mm^2			
• 5 female contacts, 3.0 m	**3RK1 902-3GB30**		0.100
• 5 female contacts, 5.0 m	**3RK1 902-3GB50**		
• 5 female contacts, 10.0 m	**3RK1 902-3GC10**		0.100
⑬㉔㉕ **Supply lines, assembled at both ends** 7/8″ for screw fixing, angled at both ends, 5-pole, 1.5 mm^2			
• 3.0 m	**3RK1 902-3NB30**		0.100
• 5.0 m	**3RK1 902-3NB50**		
• 10.0 m	**3RK1 902-3NC10**		0.100
Further accessories			
PROFIBUS trailing cables Max. acceleration 4 m/s^2, at least 3000000 bending cycles, bending radius at least 60 mm, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	**6XV1 830-3EH10**		0.072
PROFIBUS FC Food bus cables With PE outer sheath for operation in the food and beverage industry, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	**6XV1 830-0GH10**		0.069
PROFIBUS FC Robust bus cables With PUR outer sheath for operation in environments exposed to chemicals and mechanical loads, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	**6XV1 830-0JH10**		0.075
Power cables 5-core, 5 x 1.5 mm^2, trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	**6XV1 830-8AH10**		0.149

* You can order this quantity or a multiple thereof.

	Version	Order No.		Weight per PU approx. kg
More accessories (continued)				
	PROFINET IE FC TP Standard Cable GP 2 x 2 sold by the meter	**6XV1 840-2AH10**		0.068
	PROFINET IE FC TP Trailing Cable 2 x 2 sold by the meter	**6XV1 840-3AH10**		0.055
	PROFINET IE FC TP Trailing Cable GP 2 x 2 sold by the meter	**6XV1 870-2D**		0.068
	PROFINET IE FC TP Torsion Cable 2 x 2 sold by the meter	**6XV1 870-2F**		0.060
	PROFINET IE FC TP Marine Cable, 4-core sold by the meter	**6XV1 840-4AH10**		0.055
More accessories (continued)				
 3RK1 922-3BA00	**Hand-held devices** for ET 200pro motor starter, (also for M200D, ET 200S High Feature and ECOFAST), for local operation. A serial interface cable must be ordered separately.	**3RK1 922-3BA00**		
 3RK19 04-2AB01	**Addressing units for AS-i add-on modules** • For active AS-Interface modules, intelligent sensors and actuators • Acc. to AS-Interface Version 2.1 • Including expanded addressing mode • Scope of supply - 1 addressing unit - 1 operating manual (German, English, French, Spanish, Italian) - 1 addressing cable (1.5 m, with jack plug)	**3RK19 04-2AB01**		0.540
 3RX8 000-0GF32-1AB5	**M12 addressing cables to M12** • Standard M12 cable for addressing slaves with M12 connection, e. g. K60R modules • When using the current version of the 3RK1 904-2AB01 addressing unit • 1.5 m	**3RX8 000-0GF32-1AB5**		0.066
	Dismantling tools for HAN Q4/2	**3RK1 902-0AB00**		0.024
	Crimping tools for pins/sockets 4 mm^2 and 6 mm^2	**3RK1 902-0CW00**		0.620
	Crimping tools for male contacts and sockets up to 4.0 mm^2 (HAN Q8/0)	**3RK1 902-0CT00**		0.644
	Dismantling tools for male contacts and sockets (HAN Q8/0)	**3RK1 902-0AJ00**		0.047
	USB interface cables, 2.5 m	**6SL3555-0PA00-2AA0**		0.150
	7/8″Sealing caps	**6ES7194-3JA00-0AA0**		0.037
 3RK1 901-1KA00	**AS-Interface sealing caps M12** For sealing unused input and output sockets – not for M12-AS-i connections (one set contains 10 sealing caps)	**3RK1 901-1KA00**		0.100
	RS 232 interface cables	**3RK1 922-2BP00**		0.330

* You can order this quantity or a multiple thereof.

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