

Low voltage  
Extract from Tesys Catalogue | 2020

# TeSys

All-in-one motor starters: **TeSys U**



Life Is On

**Schneider**  
Electric



### Introduction

A4/2

### TeSys U - Power bases, control modules, connectors

#### Type of product

#### Range

#### Page

Standard power base,  
basic control functionalities  
Direct and reversing

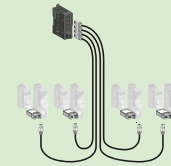
Up to 18.5 kW



A4/10

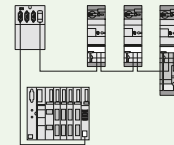
### TeSys U - Communication components

Parallel type cabling system  
Principle and components



A4/16

Bus type cabling systems  
Principle, panorama and components



A4/21

LUFPE communication gateway



A4/30

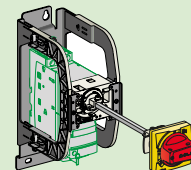
### TeSys U - Accessories

Short circuit current limiter



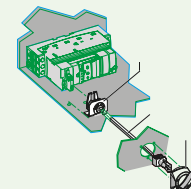
A4/31

Handles and accessories  
for rotary control



A4/32

Handles and accessories  
for integration into a MCC drawer



A4/33

TeSys U with Altistart U01 Soft starters  
and Variable speed controllers



A4/34

### Technical Data for Designers

A4/41

# From traditional solution to ...

Motor circuit breaker:  
**TeSys GV2L**



Magnetic protection  
 > short-circuit protection

Contactor:  
**TeSys D**



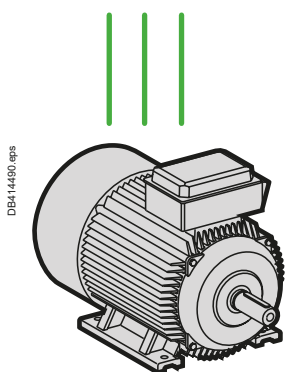
Control  
 > Start /Stop

Status monitoring  
 > signaling  
 > alarm monitoring

Protection relay:  
**TeSys LRD**



Thermal protection  
 > overload



TeSys U

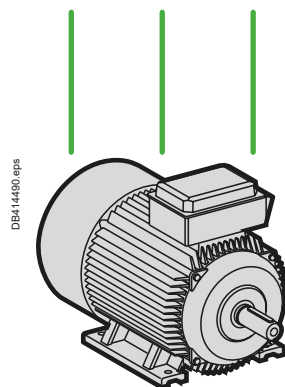
# ...TeSys U starter-controller



## TeSys U starter-controller

> All basic or advanced protection and control functions in one block and more...

- > Overload indication and alarm
- > Status report, remote control via communication bus



**TeSys U**  
can be used in  
**80 %**  
of motor protection  
and control  
applications.



# 1 All in one

- Optimising space in enclosures.
- Total coordination (No contact welding on short circuit).
- Reduces installation times.

# 2 Simplicity of choice

- Controlled power.
- Protection functions ensured.
- Signaling functions, communication with PLC ensured.

# 3 Universal mounting

- On DIN rail or grid.

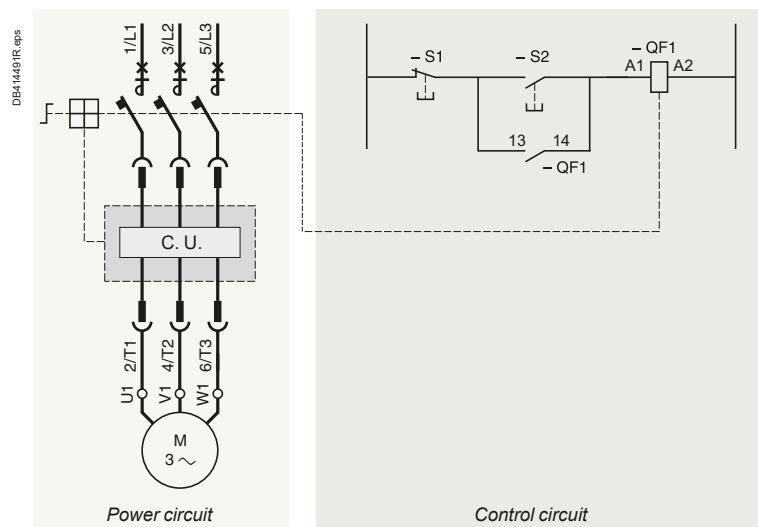
# 4 Conventional projet design

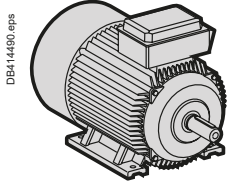
- Conventional control scheme with start , stop push buttons.

# 5 Electrically simple

Basic scheme of a TeSys U starter-controller

- Protection and power control functions acting on a single set of contact (QF1).
- The control unit (CU) monitors the voltage and current. In case of fault, it releases the coil, causing tripping.
- The coil is controlled by manual orders from an operator. Automatic control from a PLC is achieved with other diagrams.





#### Motor up to

- 7.5 kW / 1-phase 230 V / 50-60 Hz.
- 18.5 kW / 3-phase 400-440 V / 50-60 Hz.
- 18.5 kW / 3-phase 500 V / 50-60 Hz.
- 22 kW / 3-phase 690 V / 50-60 Hz.
- Non-reversing or reversing.

## Common characteristics

### Short-circuit protection

- I<sub>sc</sub>:
  - 50 kA at ≤ 400 V
  - 10 kA at 500 V
  - 4 kA at 690 V.
- Up to 690 V AC.

### Overload protection

- From 0.15 to 38 A, 6 setting ranges (tripping 14.2 x I setting).
- Test button.
- Adjustment lock.
- Coil choice: 24 V, 48...72 V, 110...240 V DC/AC.

### 3 power contacts

- For non-reversing (reversing with reverser block).
- I<sub>max</sub>, for 12 A power base (direct - reversing):
  - 12 A at up to 500 V / 50 Hz
  - 9 A > 500 V, up to 690 V.
- I<sub>max</sub>, for 38 A power base (direct - reversing):
  - 38 A at up to 500 V / 50 Hz
  - 21 A > 500 V, up to 690 V.

### 1 NO contact

### 1 NC contact

- 5 A / max. 690 V AC or 250 V CC.

### Other monitoring contacts

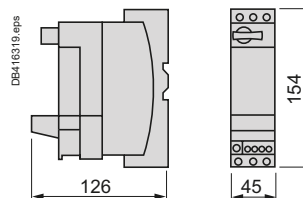
- 5 A / max. 690 V AC or 250 V DC.

### Communication modules

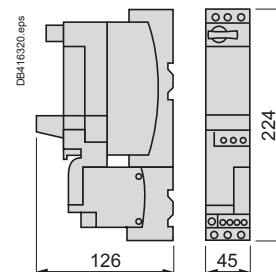
- Modbus,
- Ethernet,
- CANopen,
- DeviceNet,
- Advantys stb,
- Profibus DP,
- AS-interface.

### Dimensions

#### ■ Base:



#### ■ Base + reverser block:



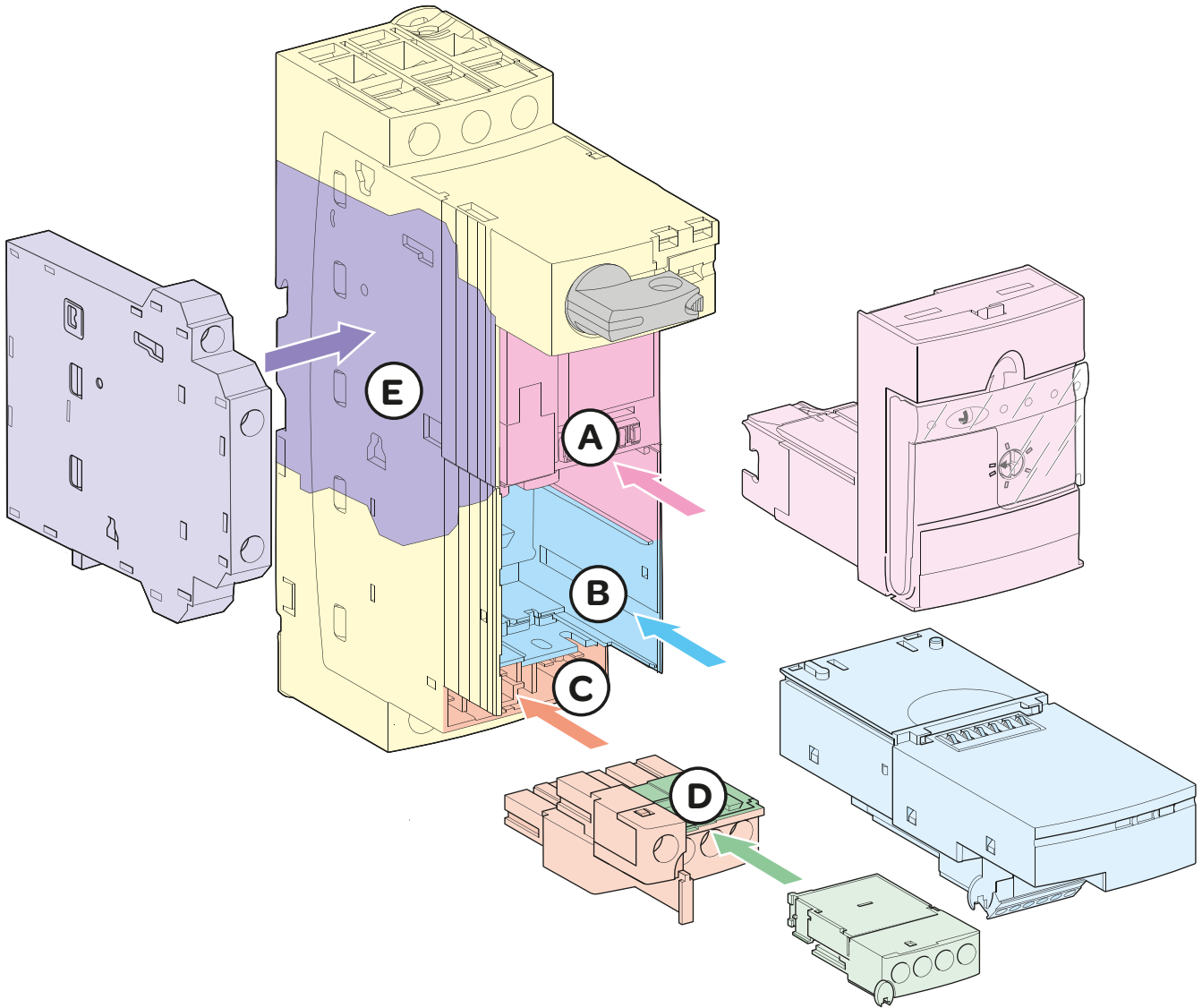
# TeSys

## TeSys U All-in-one motor starters

### Introduction

DB41483 eps

TeSys U



## The modularity principle

- Power base
- A Cavity for control unit
- B Cavity for auxiliary module
- C Cavity for control terminal block
- D Cavity for additional contact block or shutter
- E Space for additional block fastening

### Power Base

This is the basic constituent of the motor starter, it is composed of the power contacts, the control coil, the opening / closing mechanism of the protection device and the control pad.

### Additional lateral block

Composed of the protection device signaling contacts.

### Control unit

Composed of the power base management processor and setting knobs.

### Auxiliary module

Depending on its type, it integrates load status contacts or a communication processor or an alarm processor.

### Control terminal block

It is composed of two terminals "coil control", 1 NO auxiliary contact, 1 NC auxiliary contact. It can be eventually connected to an auxiliary communication module via a dedicated cable.

### Additional block

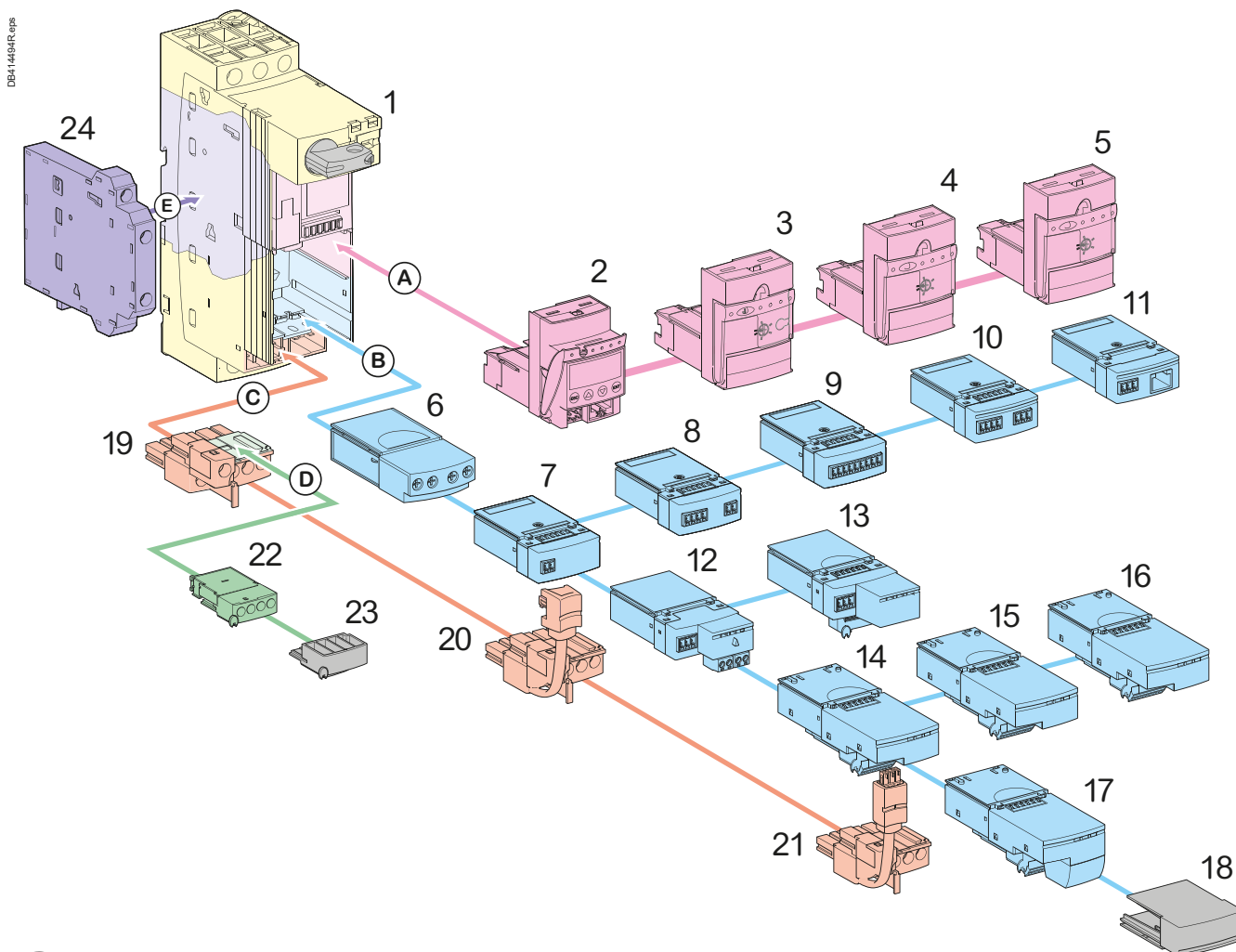
It includes protection device additional signaling contacts. By default, this is a simple shutter.



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## TeSys U All-in-one motor starters

### Introduction



## Components overview

### Power base

- 1- LUB  
Non reversing power base - 1 rotation direction

### Control units

- 2- LUCM  
Multifunctional control unit
- 3- LUCB/LUCC/LUCD  
Advanced control units
- 4- LUCA  
Standard control unit
- 5- LUCL  
Magnetic protection control unit

### Auxiliary module

- 6- LUFN  
Auxiliary contacts module

### Load monitoring auxiliary modules

- 7- LUFW10  
Overload alarm module
- 8- LUFDH11  
Overload alarm module with manual reset
- 9- LUFDA01/LUFAD10  
Overload alarm module with automatic reset/remote reset
- 10- LUFV2  
Motor load indication module

### Communication auxiliary modules

- 11- L UFC00  
Telefast parallel liaison module, with RJ45 connector
- 12- ASILUFC5/ASILUFC51  
AS-Interface c. m.
- 13- LULC033  
Modbus c. m.
- 14- LULC07 Profibus DP c. m.
- 15- LULC08 CANopen c. m.
- 16- LULC09 DeviceNET c. m.
- 17- LULC15 Advantys STB c. m.

### Shutters

- 18- LU9C1  
Shutter for module cavity
- 23- Shutter for contacts additional block cavity

### Control terminal blocks

- 19- LU9BN11  
Terminal block for imbedded auxiliary contacts
- 20- LU9BN11C  
Coil terminal block with its connecting cable
- 21- LU9BN11L  
Coil terminal block with its connecting cable

### Additional contacts blocks

- 22- LUA1  
Additional contacts
- 24- LUA8  
side-mounting additional contacts

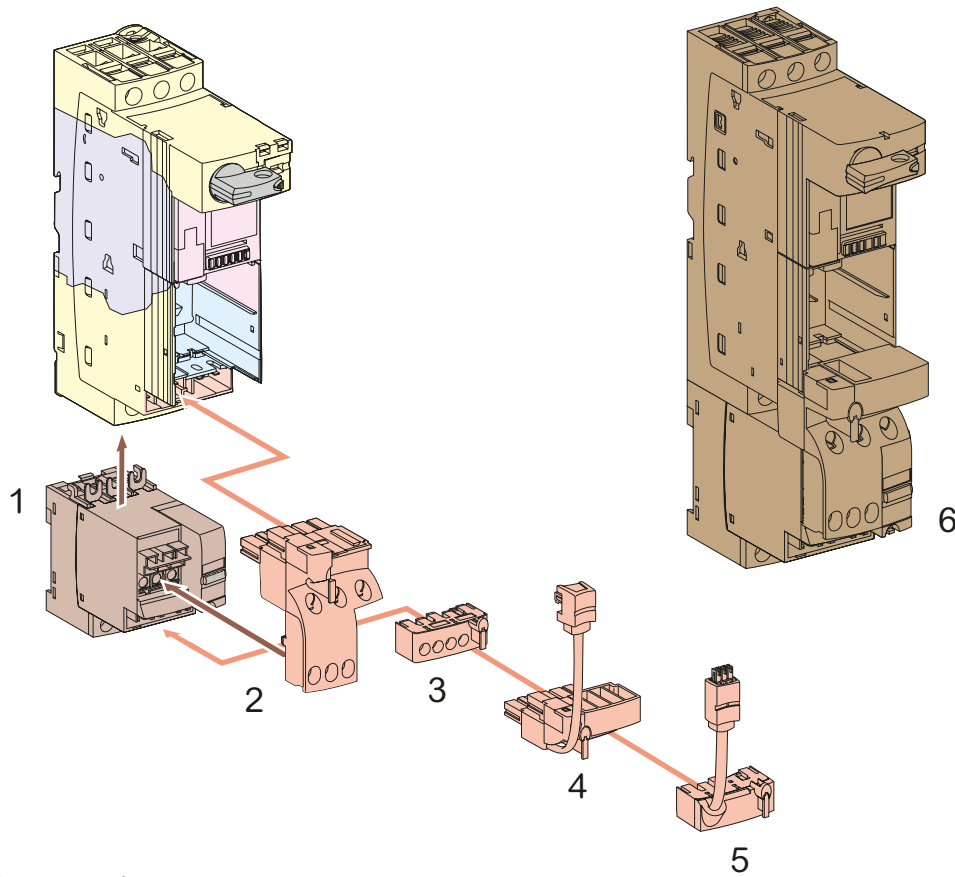
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## TeSys U All-in-one motor starters

### Introduction

DB1445R.eps

TeSys U



## Additional components overview

### Reverser block

- 1- LU2MB0●●  
vertical-mounting reverser block

### Evolving reversing power base

- 6- Pre-assembled reversing power base LU2B12

### Control terminal blocks

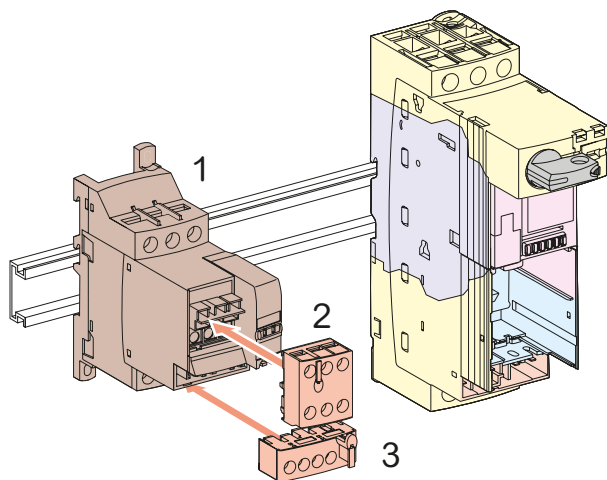
- 2- LU9MR1C  
Base/block assembling connector, with terminal block for imbedded auxiliary contacts
- 3- LU9M1  
Coil terminal block for wired control
- 4- LU9MRC  
Coil terminal block with its connecting cable for communicating control (only compatible with a selection of com. modules).
- 5- LU9MRL  
Coil terminal block with its connecting cable for communicating control (only compatible with a selection of com. modules).

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## TeSys U All-in-one motor starters

### Introduction

DB414497.eps



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## Additional components overview

### Reverser block

- 1- LU6MB0●●  
Side-mounting reverser block

### Terminal blocks for electrical remote control

- 2- LU9MR1  
Terminal block for 2 direction control (pulse or maintained control)
- 3- LU9M1  
Terminal block for power base coil interlocking.  
With direction of rotation monitoring contacts

# TeSys

## TeSys U All-in-one motor starters - Power bases

### Product references



1 direction:  
LUB12, LUB32, LUB38



1 direction:  
LUB120, LUB320, LUB380



2 direction:  
LU2B12●●, LU2B32●●,  
LU2B38●●



LU9MR1C



LU2MB0●●



LU9M1



LU6MB0●●



LU9MR1

### Power bases

TeSys U starters are composed with separate elements: power component + control units + auxiliary components.

The power base includes the electro mechanical parts. It is selected according to:

- Motor power to be handled
- Number of direction of rotation to be controlled: 1 or 2
- Type of control to be achieved: Basic or Advanced.

#### Basic control

- 1- direction rotation control
- 2 - direction rotation control
- Overload + Short circuit protection
- Main power monitoring
- Status signaling contacts

#### Advanced control

- Functions of basic control
- + Digital display of electrical values
- + Overload alarms
- + Network/bus communication

Function	Max motor standard power (400 V) kW	Lip_in (400 V) A	References	
			Basic ctrl	Advanced ctrl
1-direction rotation	5.5	12	LUB12	LUB120
	15	32	LUB32	LUB320
	18.5	38	LUB38	LUB380
2-direction rotation	5.5	12	LU2B12●● <sup>(1)</sup>	LUB120 + reverser block ass.
	15	32	LU2B32●● <sup>(1)</sup>	LUB320 + reverser block ass.
	18.5	38	LU2B38●● <sup>(1)(2)</sup>	LUB380 + reverser block ass.

<sup>(1)</sup> Replace the 2 dots by the coil voltage code below – AC is 50-60 Hz.

<sup>(2)</sup> With BL or FU code only.

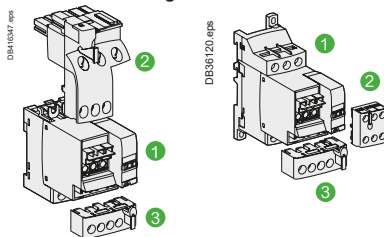
Coil voltage (V)	24∴	24~	48...72 ∴ or ~	110...220 ∴ and 110...240~
Code	BL	B	ES	FU

### Reverser blocks - assemblies

A reverser block assembly has to be added to the power base (LUB120 to 380) to build an 'Advanced control' with '2-direction of rotation' TeSys U starter.

Reverser blocks with 2 mounting possibilities:

- vertical mounting – mounted aspect: refer to LU2B12, 32, 38
- side mounting, on a Din rail.



Vertical mounting Side mounting

Blocks	References	
	Vertical mounting	Side mounting
1 Reverser block	LU2MB0●● <sup>(1)</sup>	LU6MB0●● <sup>(1)</sup>
2 Aux. contacts connector	LU9MR1C	LU9MR1
3 Coil supply connector	LU9M1	LU9M1

<sup>(1)</sup> Replace the 2 dots by the coil voltage code below – AC is 50-60 Hz.

Coil voltage (V)	24∴	24~	48...72 ∴ or ~	110...220 ∴ and 110...240~
Code	BL	B	ES	FU

### Main technical characteristics

#### Power bases

1-direction power base overall dimensions (HxWxD) : 154 x 45 x 126 mm

2-direction power base (assembly with vertical mounting reverser block) overall dimensions (HxWxD): 224 x 45 x 126 mm

Power bases are delivered with protective blanking plates.

3 power poles, for connections of a 1-phase or 3-phase motor

Screw clamp power terminals, for up to 2 x 6 mm<sup>2</sup> conductors

Screw clamp control terminals, for up to 2 x 1.5 mm<sup>2</sup> conductors

LUB12,32,38 imbedded terminals:

- coil supply,
- NO (13-14) contact (for control push button)
- NC (21-22) contact (for control push button).

Additional signaling contact modules provide more possibilities.

#### Reversing assemblies

LU2MB0, LU6MB0:

3 power poles, for connections of a 1-phase or 3-phase motor, screw clamp power terminals, for up to 2 x 6 mm<sup>2</sup> conductors  
LU9 connectors: screw clamp control terminals, for up to 2 x 1.5 mm<sup>2</sup> conductors

LU2MB0●●, LU6MB0●● provide terminals for power circuits.

LU9MR1C, LU9MR1 provide signalling contact terminals (82-81-84) that indicate the direction of rotation.

LU9M1 provides coil supply terminals (A2-A1-A3) and 2 NO contact terminals (A1-B1, A3-B3) for direction control.

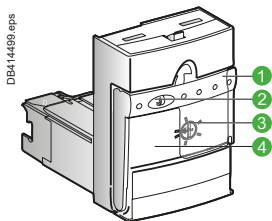
# TeSys

## TeSys U All-in-one motor starters - Control units

### Product references



LUCA, LUCB, LUCC, LUCD, LUCL series



#### LUCA.....

- 1 Extraction and locking handle.
- 2 Sealing of locking handle.
- 3 Ir adjustment dial.
- 4 Locking of settings by sealing the transparent cover.

TeSys U starters are composed with separate elements: power component + control units + auxiliary modules. The control unit includes electronic components and the current adjustment dial. The control unit is selected according to:

- Motor power to be handled.
- Type of protection: thermal+magnetic or magnetic only.

### Control units for power bases with basic control

#### LUCA - thermal + magnetic (standard) units

- Protection against overload: 14.2 x Ir (setting current).
- Protection against short circuit: 13 x Ir max (max setting current).
- Protection against missing or unbalanced phases.
- Protection against insulation fault (protection of equipment only).
- Class 10 tripping.
- Frequency 50...60 Hz.

#### LUCL - magnetic units

- Protection against short circuits.
- To be used when a standard power base is connected to a motor drive or a soft starter, as they provide the overload protection.

**Note:** both LUCA and LUCL units can be used in the advanced power bases LUB120 and LUB320.

Maximum standardized power ratings of 3 phases motors 50/60 Hz			Setting range	Lip_in mounting on the power base - Rating	Control unit product reference <sup>(1)</sup>	
400/440 V	500 V	690 V			Thermal + magnetic	Magnetic
kW	kW	kW	A	A	LUCA	LUCL
0.09	-	-	0.15...0.6	12 and 32	LUCAX6●●	LUCLX6●●
0.25	-	-	0.35...1.4	12 and 32	LUCA1X●●	LUCL1X●●
1.5	2.2	3	1.25...5	12 and 32	LUCA05●●	LUCL05●●
5.5	5.5	9	3...12	12 and 32	LUCA12●●	LUCL12●●
7.5	9	15	4.5...18	32	LUCA18●●	LUCL18●●
15	15	18.5	8...32	32	LUCA32●●	LUCL32●●
18.5	18.5	22	9.5...38	38	LUCA38●● <sup>(2)</sup>	LUCL38●● <sup>(2)</sup>

<sup>(1)</sup> Replace the 2 dots by the coil voltage code below – AC is 50-60 Hz.

<sup>(2)</sup> With BL or FU code only.

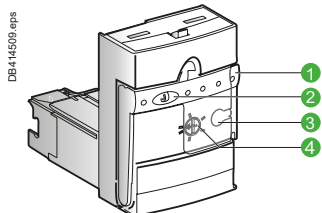
Coil voltage (V)	24---	24~	48...72 --- or ~	110...220 --- and 110...240~
Code	BL	B	ES	FU



# TeSys

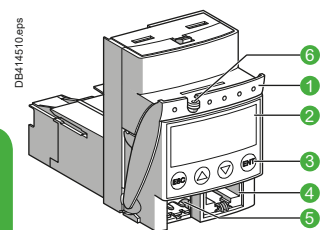
## TeSys U All-in-one motor starters - Control units

### Product references



LUCB●●●●, LUCC●●●●, LUCD●●●● control units

- 1 Extraction and locking.
- 2 Handle sealing of locking.
- 3 Handle
- 4 Ir adjustment dial test push button.



LUCM●●BL control unit

- 1 Extraction and locking handle.
- 2 Built-in LCD display (2 lines, 12 characters).
- 3 4 button keyboard.
- 4 RJ45 connector for RS485 Modbus communication
- 5 Connector for external 24 V DC power supply.
- 6 Sealing of locking handle.

### Control units for power bases with advanced control

#### LUCB, LUCC, LUCD control and diagnostic units

Motor protection, fault diagnostic.

Protection against

- overload:  $14.2 \times I_r$  (setting current).
- Simulation of an overload by depressing the test push button.
- short circuit:  $13 \times I_r$  max (max setting current).
- missing or unbalanced phases.
- insulation fault (protection of equipment only).

Overload alarm management:

- locally: with one of the LUF family module
- Remotely: with LULC031, LULC033, LULC07, LULC08, LULC09 or LULC15 (thermal alarm only) communication module.

Reset:

- manual
- automatic, with a communication module.

#### LUCM multifunctional control unit

Motor protection, operational values display and diagnostic.

To be associated with 24 V DC coil only.

LUCM●●BL: tripping class 5 to 30, single phase, three phase

Same functions as LUCB●●●● with complementary functions:

- in working mode: display of electrical values, setting parameters and events
- in configuration mode: display of protection and alarm settings.

These functions are available for local display on a display panel, and for remote display via a RJ45 Modbus connector.

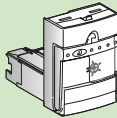
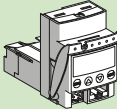
**LUCM is not compatible with LUB38.**

*Note: a 24 V DC power supply is required during the configuration process.*

TeSys U



LUCM12BL

Maximum standardized power ratings of 3 phases motors 50/60 Hz				Lip_in mounting on the power base - Rating	DBA14489 eps 	Protection type: - overload - short-circuit - Main power fault - alarm			DBA14504 eps 
400/440 V	500 V	600 V	Setting range			Class 10	Class 10	Class 20	
kW 1P 3P	kW 3P	kW 3P	A	A	3P	1P	3P	1 - 3P	
-	0.09	-	-	0.15...0,6	12 and 32	LUCB6●●	LUCC6●●	LUCD6●●	LUCM6BL
0.09	0.25	-	-	0.35...1,4	12 and 32	LUCB1X●●	LUCC1X●●	LUCD1X●●	LUCM1XBL
0.55	1.5	2.2	3	1.25...5	12 and 32	LUCB05●●	LUCC05●●	LUCD05●●	LUCM05BL
2.2	5.5	5.5	9	3...12	12 and 32	LUCB12●●	LUCC12●●	LUCD12●●	LUCM12BL
4	7.5	9	15	4.5...18	32	LUCB18●●	LUCC18●●	LUCD18●●	LUCM18BL
7.5	15	15	18.5	8...32	32	LUCB32●●	LUCC32●●	LUCD32●●	LUCM32BL
18.5	18.5	22	9.5...38	38		LUCB38●● <sup>(1)</sup>		LUCD38●● <sup>(1)</sup>	

Cial. ref. of the control unit: replace dots by the coil code.

Coil voltage (V)	24~	24~	48...72 ~ and 48~	110...220 ~ and 110...240~
Coil code	BL	B	ES	FU

#### Magelis XBT NU HMI terminal (optional)

Provides display and modification of the LUCM multifunctional control unit settings. Modbus protocol – dialog up to 8 TeSys U<sup>(2)</sup>- Pre-loaded application and alarm pages, multi-language.

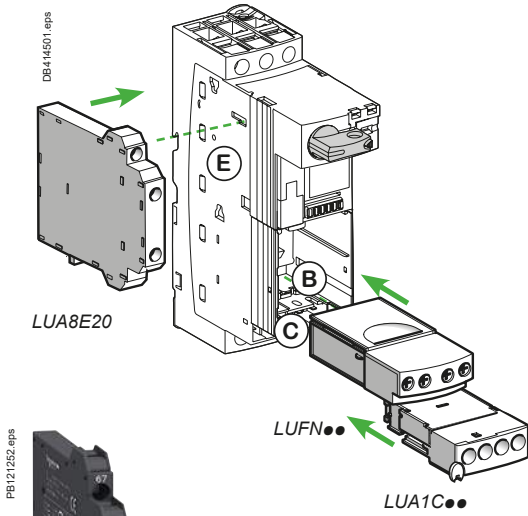


XBTNU400

Designation	References
Magelis TeSys U terminal	XBTNU400
Connecting cable XBTNU400 to LUCM ●●BL, L = 2.50 m <sup>(2)</sup>	XBTZ938

<sup>(1)</sup> With BL or FU code only.

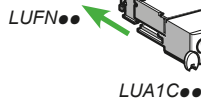
<sup>(2)</sup> A Modbus hub or - junction must be used when connecting several TeSys U.



LUA8E20



LUA8E20



LUA1C11



LUFN02



LUA1C20



LUFV2



LUFW10



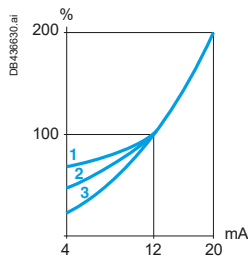
LUFDH11



LUFDA01



LUFDA10



- 1 2.2 kW
- 2 4 kW
- 3 7.5 kW

LUFV2 typical response curve

### Signaling module and blocks

They provide dry contacts of Normally Open (NO) or Normally Closed (NC) type for signaling purpose. The monitored status can be either the motor running status or the protection device status, depending on the commercial reference of the module or block.

#### Common electrical characteristics

Standard operating voltage: 24...250 V AC/DC.  
Maximum current: 5 A.

#### Compatibility - Positioning

The signaling module and blocks can be used in any power base. LUA8E20 is clipped on the E side of the power base. LUFN11, LUFN02, LUFN02 inserted into B cavity. LUA1C20, LUA1C11 inserted into C cavity.

**Note:** B and C cavities may be already used for reverser-starter, communication.

Signaling module and blocks	Output	References
Module	1 NO + 1 NC	LUFN11
Motor running status: ON / OFF	2 NC	LUFN02
	2 NO	LUFN20
Block	2 NO	LUA1C20
Protection status: OPEN / CLOSED (OF) STANDBY / TRIPPED (SD)	1 NO + 1 NC	LUA1C11
Side block	2 NO	LUA8E20
Protection status: OPEN / CLOSED (OF)		

### Function modules

They provide analog output or dry contacts of Normally Open (NO) or Normally Closed (NC) type for measurement or signaling purpose.

#### Common electrical characteristics

Standard operating voltage: 24...250 V AC/DC.  
Maximum current: 5 A.

#### Compatibility - Positioning

The function modules can only be used in a LUB120, LUB320 or LUB380 power base, in cavity B.

Function modules	Output type	References
Electrical value: average current in each phase. The signal is the image of the percentage of $I_n$ . External 24 V DC power supply needed	Analog: 4-20 mA	LUFV2
Contact closes if average current in the phases = 105 % of $I_n$	1 NO	LUFW10
Contacts change state if tripping is caused by overload	1 NO + 1 NC	LUFDH11
Contact opens if overload tripping is reset with control pad or remotely	1 NC	LUFDA01
Contact closes if overload tripping is reset with control pad or remotely	1 NO	LUFDA10

### Product references



LUFC00

PB121260.eps

TeSys U



LULC033

PB121261.eps



ASILUFC51

PB121262.eps



LULC07

PB121264.eps



LULC15

PB121265.eps



LU9BN11C

PB121266.eps



LU9BN11L

PB121267.eps



LU9MRC



LU9MRL

### Auxiliary parallel wiring module <sup>(1)</sup>

#### Auxiliary parallel wiring module for Modicon Telefast system

##### Inputs

They collect the FWD, REV controls from an automation process. An RJ45 parallel port is used, for connection to the 24 V DC outputs of a PLC.

##### Outputs

They give the position of the control pad and the state of the poles. They provide 24 V DC controls to the LUB120, 320 or 380 power base coil via the LU9BN11C adapter (A2, A1) or to the LU2B12, 32, 38 power base coil with a LU9MRC adapter (A2, A1, A3).

#### Compatibility - Positioning

The parallel wiring module can only be used in any TeSys U power base, with **LUC●●● control unit with coil voltage**

Compatible with:

- Modicon TM3 (map I/O controllers for RJ45 M221, M241, M25)
- Modicon STB modules (I/O for automation island)
- Modicon Telefast (interfaces RJ45/HE10).

The parallel wiring module is inserted in cavity B.

**Note:** the parallel wiring module must be connected to a **LU9G02** or **LU9G03** Telefast distribution

**Note:** more details on parallel wiring page A4/16.

#### Designation

TeSys U power base parallel wiring module

#### References

LUFC00

### Communication modules

#### Communication modules

These modules send the control pad position and pole state to a communicating system (PLC, monitoring system,...)

They collect the Forward, Reverse motor controls from an automation process.

The status and controls are coded according to an industrial communication protocol, depending on the communication module.

Bus cable connection, external power supply by crew clamp terminals.

Connector for coil control (to A1-A3-A2) via a prewired connection (LU9BN● for 1-direction control, LU9MR● for 2-direction control)

#### Compatibility - Positioning

The communication modules can only be used in a LUB120, LUB320 or LUB380 power base, in cavity B.

#### Designation

TeSys U Modbus communication module

#### References

LULC033

TeSys U AS-Interface communication module

ASILUFC51

TeSys U Profibus DP communication module

LULC07

TeSys U CANopen communication module

LULC08

TeSys U DeviceNet communication module

LULC09

TeSys U Advantys STB communication module

LULC15

**Note:** Ethernet communication can be achieved with **LULC033** + **ConneXium TeSys Port (ref. TCSEQM113M13M)**

**Note:** more details on bus-type communication page A4/21.

### Prewired connectors

They provide the necessary electrical link between a parallel or communication module and the coil supply connector, on the power base or reverser block. Thus, ON-OFF (1 direction) or FORWARD-REVERSE (2 direction) controls can be achieved.

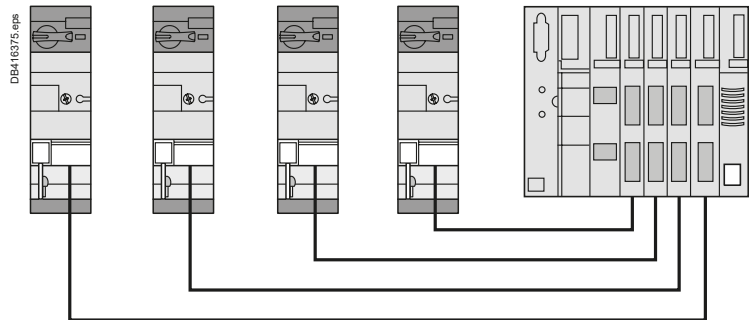
Prewired connection			References	Compatibility with modules
1 direction	Short cable	Side connection	LU9BN11C	LUF00, LULC033, ASILUFC51
		Bottom connection	LU9BN11L	LULC07, 08, 09, 15
2 direction	Long cable	Side connection	LU9MRC	LUF00, LULC033, ASILUFC51
		Bottom connection	LU9MRL	LULC07, 08, 09, 15







#### Point-to-point wiring

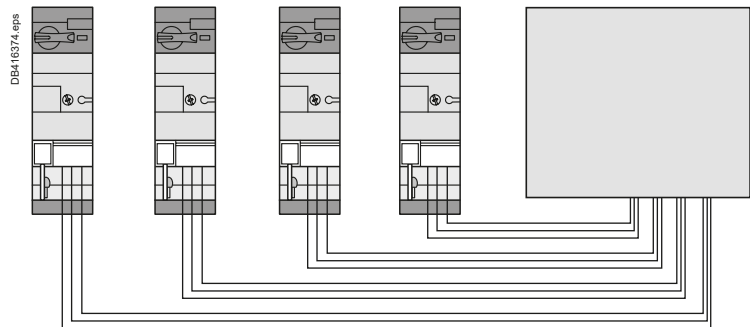


- The control inputs and signaling outputs of the starter are grouped in a single socket, usually RJ45. They are individually connected to PLC outputs and inputs.
- The wires run in parallel in a multicore cable equipped with a multipin connectors, RJ45 in the case of Telefast type system.
- 3 parallel wiring systems are available:
  - Modicon TM3, based on a RJ45 I/O module for M221, M241, M25 PLC
  - Modicon STB, based on I/O modules for automation island
  - Modicon Telefast: RJ45 / HE10 interfaces.
- Simple way of proximity wiring. Quick cabling. It is suitable for machine control panels when a large number of TeSys U starter-controller are installed.

#### informations

- The control and signaling terminals of the starters are connected to the output and input terminals of a PLC. No specific connectors or cables are required.
- Conventional wiring mode, without optimization of the cabling time. May be suitable when a very small number of starters is used, with a very small number of links.

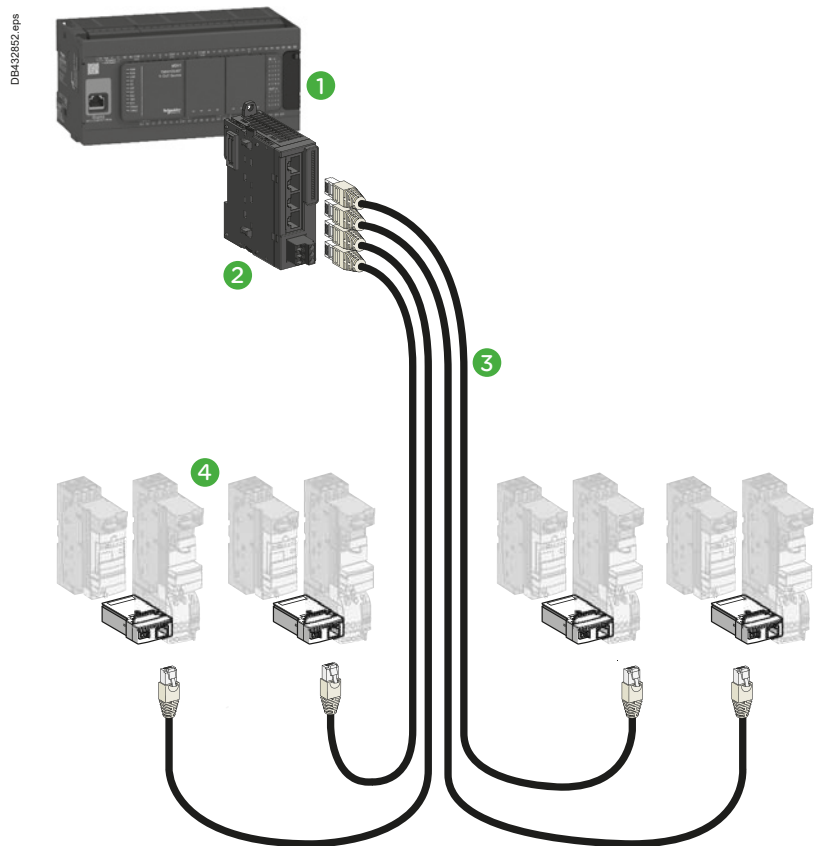
#### Parallel cabling systems



#### Integration in the Modicon TM3 wiring system

The TeSys U starter-controller are directly connected to a I/O module equipped with RJ45 connectors.

- 1 Modicon M221, M241, M251 PLC's
- 2 TM3XTY I/O module for 4 starters
- 3 LU9R●● cables with RJ45 connectors,
- 4 LUFC00 module for TeSys parallel connection (1 or 2 direction of rotation).



#### Integration in the Modicon Advantys STB system

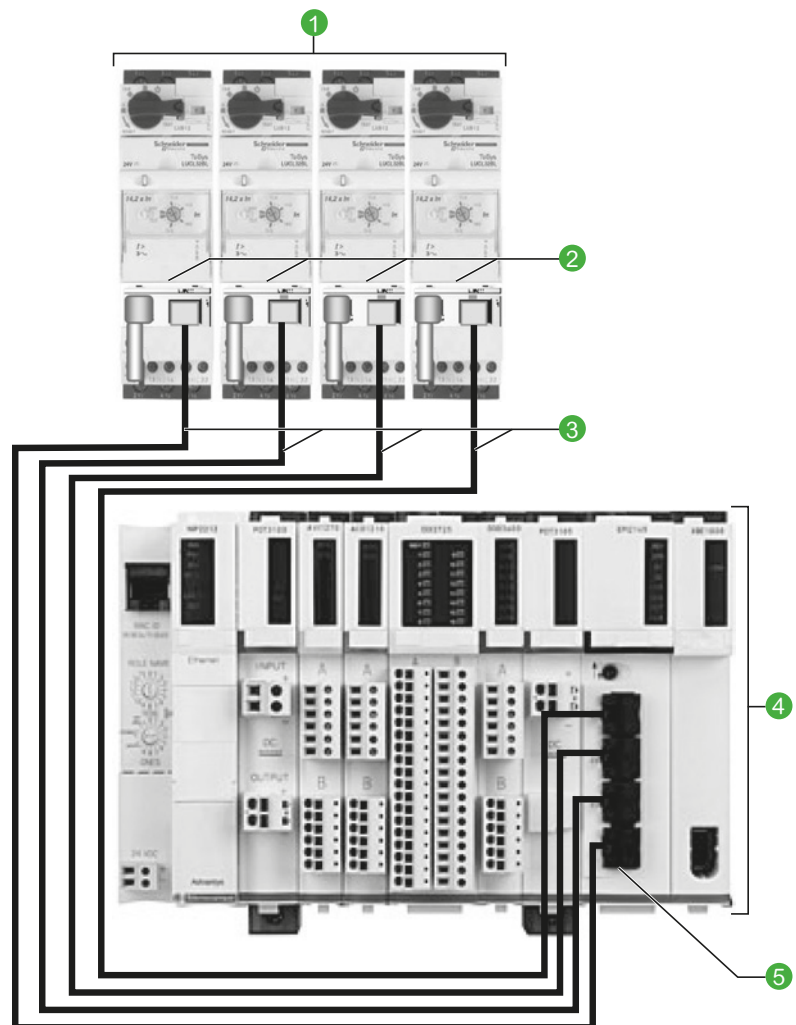
Advantys STB is a solution for remote I/O modules.

These communicate with the Modicon PLCs range thanks to a serial liaison, using the Advantys STB protocol.

In this example an Advantys I/O module is used to facilitate wiring.

Each of its four terminals receives a preassembled RJ45 cable connected to a TeSys U starter-controller.

- 1 TeSys U LUB120, 320 or 380 power base (equipped with 24 V DC LUC●●●●BL control modules)
- 2 TeSys module for parallel RJ45 wiring: LUFC00 + LU9BN11C (one direction) or LU9MRC (2 directions for LU2B12, 32 or 38 power base)
- 3 RJ45 cables (2 connectors):  
 ≤ 3 m: LU9R●●  
 > 3 m: 490 NTW000●● (5, 12, 40 or 80 m)
- 4 PLC: Modicon range
- 5 I/O Modicon Advantys module: STB EPI 2145K



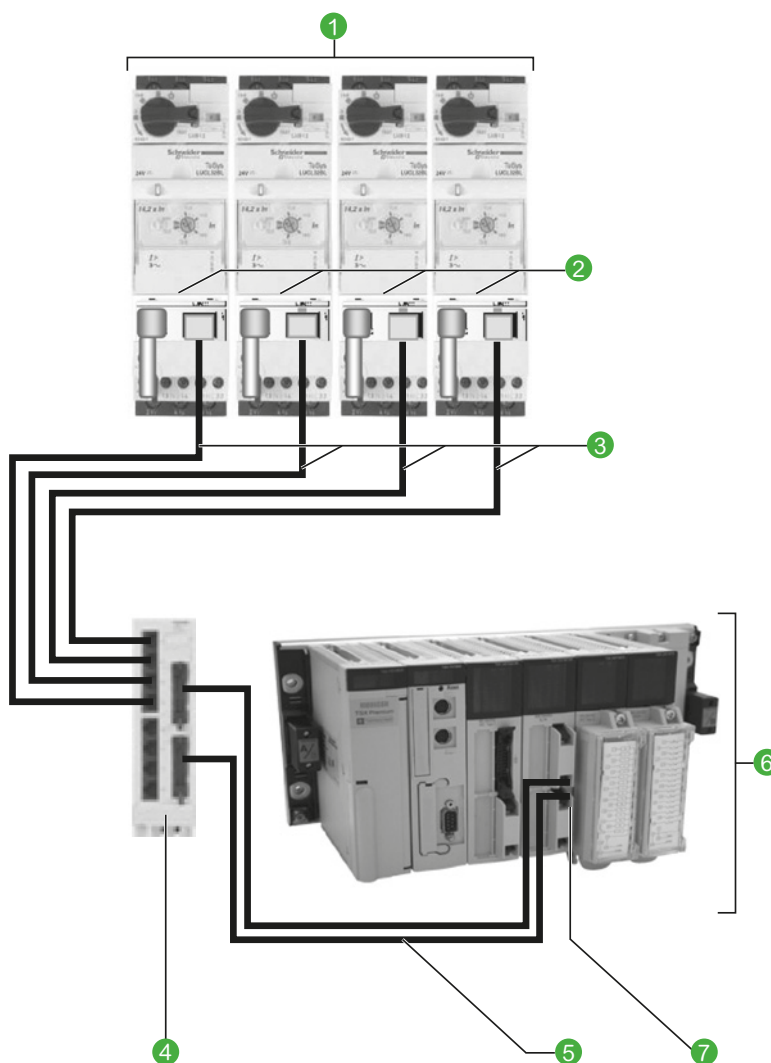
#### Integration in the Modicon Telefast system

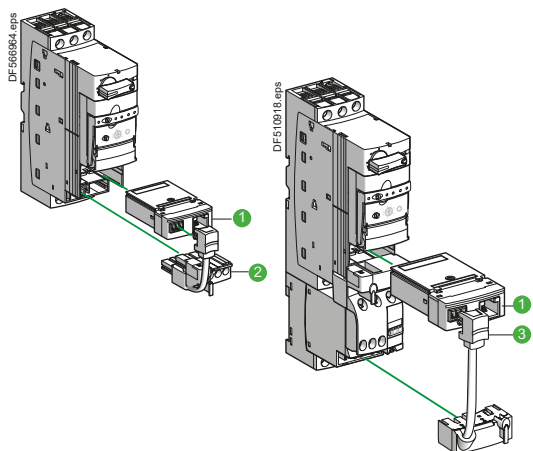
The wiring hubb **LU9G0●** facilitates the connection to Modicon Premium PLCs.

It adapts RJ45 connectors to HE10 available on the Telefast I/O modules.

Connection: up to 8 TeSys U per hubb.

- ① TeSys U LUB120, 320 or 380 power base (equipped with 24 V DC LUC●●●●BL control units)
- ② TeSys Module for parallel wiring RJ45: LUFC00 + LU9BN11C (one direction) or LU9MRC (2 directions for LU2B12, 32 or 38 power base)
- ③ RJ45 cables (2 connectors):  
 ≤ 3 m: LU9R●●  
 > 3 m: 490 NTW000●● (5, 12, 40 or 80 m)
- ④ Telefast RJ45 / HE10 splitter box: LU9G02 or LU9G03 (different TeSys U connection capacities)
- ⑤ HE10 cables (2 connectors): TSXCDP●●●
- ⑥ PLC: Modicon Premium range
- ⑦ I/O module: TSX DMY 28FK





#### Components for connection of a starter - 1 direction of rotation

Designation	Reference
① Parallel connection module, RJ45 output 2 coil control inputs, 3 signal outputs	LUFC00
② Pre wired connector, one direction of rotation, for LUB120, 320 or 380 power base coil connection and one contact for emergency stop	LU9BN11C

#### Components for connection of a starter - 2 directions of rotation

Designation	Reference
① Parallel connection module, RJ45 output	LUFC00
③ Pre wired connector, 2 directions of rotation, for LU2B12, 32 or 38 power base coil connection and one contact for emergency stop	LU9MRC

TeSys U



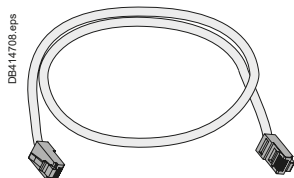
LU9G02



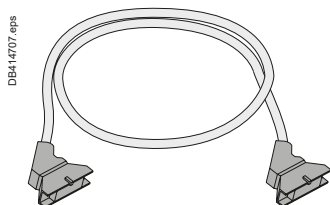
LU9G03

#### Telefast RJ45/ HE10 splitter box

Designation	Reference
Splitter box Connection to TeSys U: 4 RJ45 connectors: for 1 to 4 TeSys U, 1 or 2 directions 4 RJ45 connectors: for 1 to 4 TeSys U, 1 direction Connection to PLC: 1 x HE10 connector - 20 channels, for pole status, alarms 1 x HE10 connector - 20 channels, for control. 24 V DC auxiliary power supply required	LU9G02
Splitter box Connection to TeSys U: 8 RJ45 connectors: for 1 to 8 TeSys U, 1 or 2 directions Connection to PLC: 1 x HE10 connector - 20 channels, for pole status, alarms 1 x HE10 connector - 20 channels, for control. 24 V DC auxiliary power supply required.	LU9G03



RJ45 cables.



HE10 cables.

#### RJ45 connection cables, with 2 RJ45 connectors

0.3 m	LU9R03
1 m	LU9R10
3 m	LU9R30

#### HE10 connection cables, with 2 HE10/20 way connectors

Section: AWG 22 / 0.324 mm <sup>2</sup>	
0.5 m	TSXCDP053
1 m	TSXCDP103
2 m	TSXCDP203
3 m	TSXCDP303
5 m	TSXCDP503
Section: AWG 28 / 0.080 mm <sup>2</sup> (flat cable)	
1 m	ABFH20H100
2 m	ABFH20H200
3 m	ABFH20H300

#### HE10 connection cables, with 1 x HE10/40 way connector (PLC side) and 1x HE10/20 way connector (Splitter box side)

Section: 0.324 mm <sup>2</sup>	
0,5 m	BMXFCC053
1 m	BMXFCC103
2 m	BMXFCC203
3 m	BMXFCC303
5 m	BMXFCC503
10 m	BMXFCC1003

#### Cable with stripped wires (PLC side) 1 x HE10/20 ways connector (Splitter box side)

Section: AWG 22 / 0.324 mm <sup>2</sup>	
3 m	TSXCDP301
5 m	TSXCDP501

PB105992.eps



## > Application functionality, topology

### 1 Geographically expanded process

Many motors are scattered on the site, the process control requires individual control to ensure safety and proper operation.

TeSys U is a suitable communicating actuator. The integration of a bus communication module in the starter-controller saves space in the control board and simplifies wiring, compared to solutions based on conventional components (circuit breaker + contactor).

### 2 Application: automatic motor control / monitoring

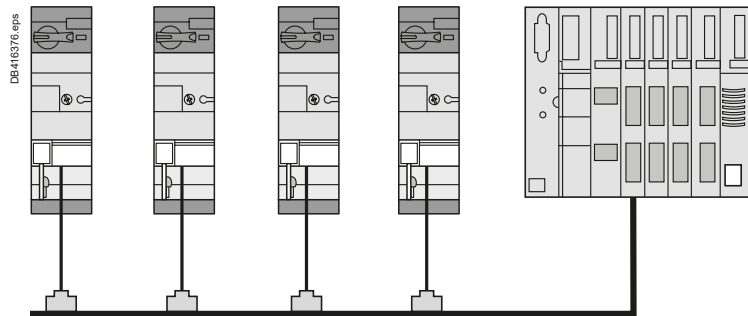
Thanks to a communication bus, starter-controllers are part of an automation system controlled by a PLC and (or) various communicating controllers.

These equipment can then share the status and alarm information related to each motor control and perform specific treatments.

### 3 Bus-type connection

This type of connection allows different topologies (star, ring ...) and supports various protocols dialogue. It is therefore recommended for geographically expanded process, in order to to simplify wiring and ensure multiple-controller management.

- The bus wiring interconnects TeSys U starters controllers and components of the installation via a single the cable.
- Commands and status are coded according to the selected protocol and transmitted on the communication bus.
- This wiring is simple, usually a shielded (or not) pair of wires, suitable for monitored automation, regardless of the number of TeSys U and their locations.



### Available TeSys U status and controls via a communication module

Control unit	LUCA	LUCB LUCC LUCD	LUCM
Starter status (ready, running, fault)	■	■	■
Start and Stop commands	■	■	■
Thermal overload alarm		■	■
Remote reset via the bus		■	■
Indication of motor load		■	■
Fault signalling and differentiation		■	■
Remote programming and monitoring of all functions			■
"Log" function			■
"Monitoring" function			■
Alarms (overcurrent, ...)			■

#### Network

#### Architecture

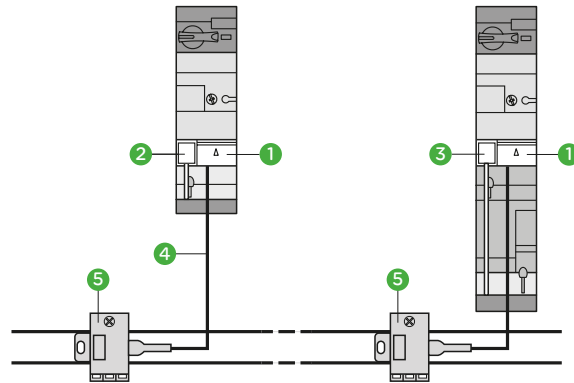
#### Component references

##### AS Interface

Cabling system for rapidly connecting sensors and actuators to the controller. A single cable provides both data transmission and power to sensors.

Details page

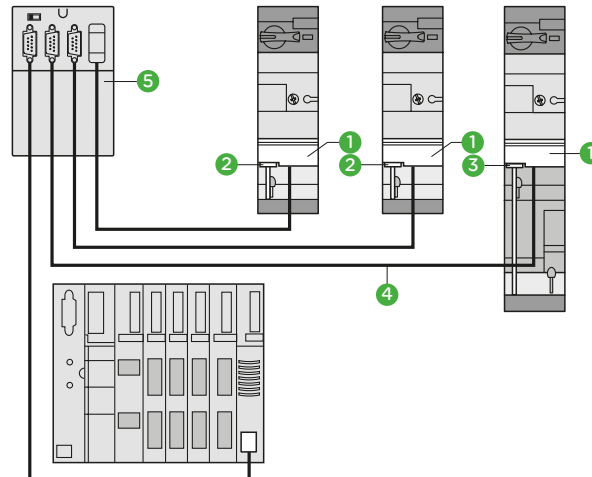
[A4/24](#)



- 1 ASILUFC5 or ASILUFC51
- 2 LU9BN11C
- 3 LU9MRC
- 4 XZCG0142
- 5 TCSATV01N2

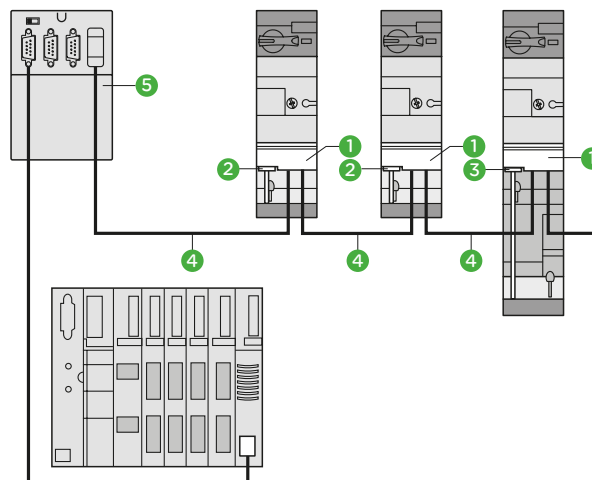
##### CANopen

Etoile



- 1 LULC08
- 2 LU9BN11L
- 3 LU9MRL
- 4 TSXCANC...
- 5 TSXCANTDM4
- 6 TSXCPP110

Bus

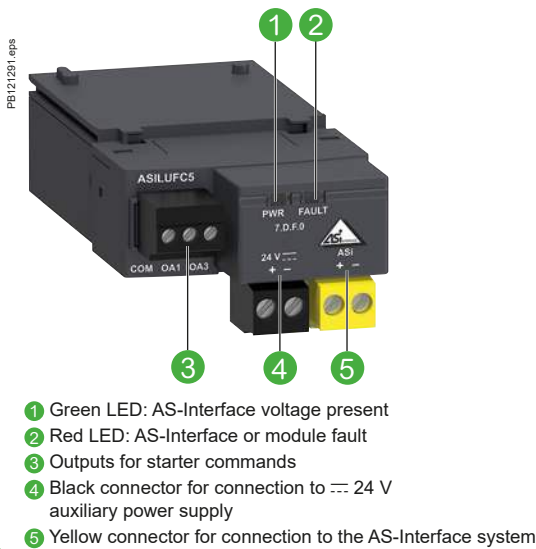


Details page

[A4/25](#)







The ASILUFC5 communication module, combined with the power base and control unit is used to control TeSys U starters-controllers via DeviceNet bus. The LULC09 communication module is slave type.

### Module Specifications

#### I/O terminal block

- Powered by external 24 V DC (power supply not included):
- 2 x configurable inputs for binary sensors
- 1 x 24 V DC output - 0.5 A local auxiliary command.

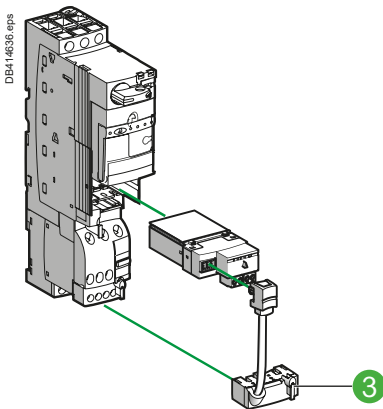
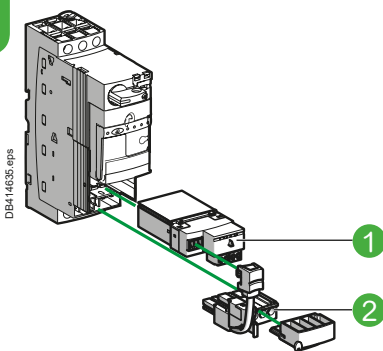
#### Connectors

- For TeSys U 24 V DC coil (common, direction 1, direction 2).
- For AS-Interface bus.

#### Signaling

- Module Status - Error - 24 V, by LED.

TeSys U



### TeSys components

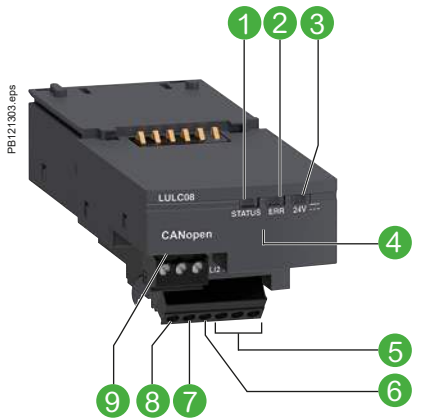
Description	Mark	Max number of slaves	References
AS-Interface communication module	1	31	ASILUFC5
		62	ASILUFC51
Pre-wired connector: coil - LUB powerbase	2	-	LU9BN11C
Pre-wired connector: coil - LUB2B powerbase	3	-	LU9MRC

### Connection of the communication module

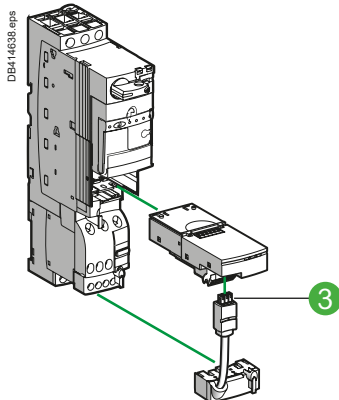
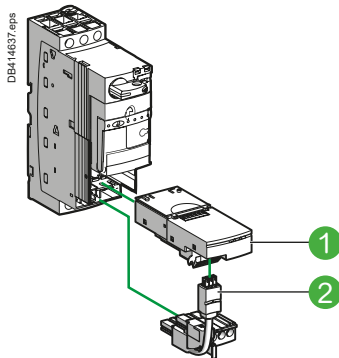
By a "Y" cable with:

- TeSys U side, 2 connectors (bus + power),
- Bus side, one connector to be connected to the AS-Interface TCSATV01N2 tap-off.

Description	References
AS-Interface / TeSys U branch cable, L = 2 m	XZCG0142
AS-Interface Tap-off	TCSATV01N2



- 1 LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating 24 V supply ON for outputs OA1, OA3 and LO1
- 4 SUB-D connector for bus link
- 5 24 V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter commands



The LULC08 communication module, combined with the power base and control unit is used to control TeSys U starters-controllers via CANopen bus. The LULC08 communication module is slave type.

### Module Specifications

#### I/O terminal block

- Powered by external 24 V DC (power supply not included):
  - 2 x configurable inputs for binary sensors
  - 1 x 24 V DC output - 0.5 A local auxiliary command.

#### Connectors

- For TeSys U 24 V DC coil (common, direction 1, direction 2).
- For CANopen bus.

#### Signaling

- Module Status - Error - 24 V, by LED.

### Tesys components

Description	Item	References
CANopen communication module	1	LULC08
Pre-wired connector: coil - LUB powerbase	2	LU9BN11L
Pre-wired connector: coil - LUB2B powerbase	3	LU9MRL

### Compatibility of CANopen communication module with control units

LUCA ●●BL / B ●●BL / C ●●BL / D ●●BL	All versions marketed after 2T0481 <sup>(1)</sup>
LUCM●●BL	All versions ≥ V3.2
LUCMT1BL	All versions ≥ V3.2

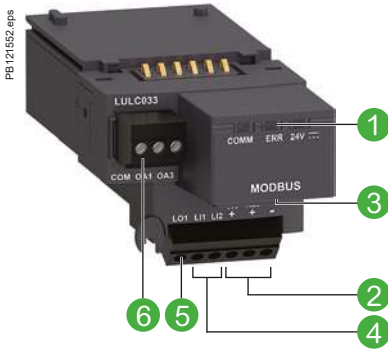
(1) This "date code" is made up as follows:  
 2T or 2C: factory code.  
 04, 05, 06 and so on: year of manufacture.  
 08: week.  
 1: 1st day of the week.

### How to get information on the design of a CANopen architecture and the choice of network accessories

Consult the library of downloadable documents on [schneider-electric.com](http://schneider-electric.com) by searching on the name of the communication protocol.

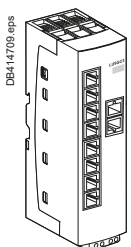
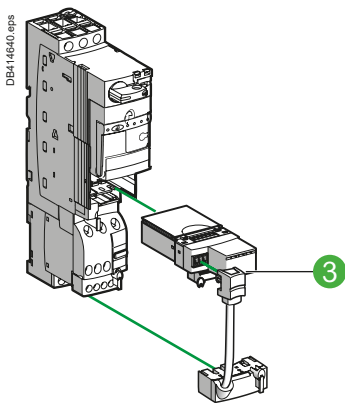
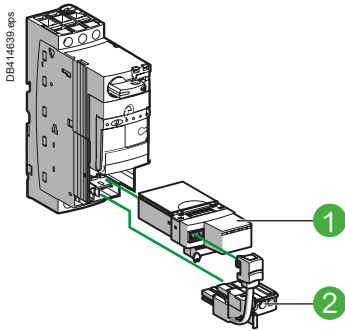


#### LULC033



- 1 Module status signalling LED
- 2 24 V supply connection
- 3 RJ45 connector for RS485 Modbus link
- 4 2 discrete inputs
- 5 1 discrete output
- 6 Outputs for starter commands

TeSys U



LULC033 communication module, combined with the power base and control unit is used to control TeSys U starters-controllers via Modbus.

### Module Specifications

#### I/O terminal block

- Powered by external 24 V DC (power supply not included):
- 2 x configurable inputs for binary sensors (on LULC033 only)
- 1 x 24 V DC output - 0.5 A local auxiliary command.

#### Connectors

- For TeSys U 24 V DC coil (common, direction 1, direction 2).
- RJ45, For Modbus line.

#### Signaling

- Module Status - Error - 24 V, by LED.

### Tesys components

Description	Item	Bin. input	References
Modbus communication module	1	2	LULC033
Pre-wired connector: coil - LUB powerbase	2	-	LU9BN11C
Pre-wired connector: coil - LUB2B powerbase	3	-	LU9MRC

### Modbus hub

Description	Length (m)	References
Modbus communication distributor	-	LU9GC3
Cables fitted with 2 x RJ45 connectors	0.3	VW3A8306R03
	1	VW3A8306R10
	3	VW3A8306R30
Tees derivations	0.3	VW3A8306TF03
	1	VW3A8306TF10

Description	References
RS 485 line terminator	VW3A8306R

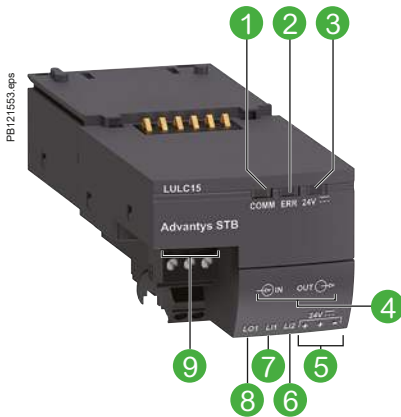
### Compatibility of Modbus communication modules

Communication modules (software version)		LUCLC033 from V2.1	LUCLC033 from V2.2
Power base	LUB●● / LU2B●2	■	■
	LUTM●●BL	■	■
Control unit	LUCA●●BL		■
	LUCB●●BL		■
	LUC●●BL		■
	LUCD●●BL		■
	LUCM●●BL		■ <sup>(1)</sup>
	LUCBT●●BL	■	
	LUCDT●●BL	■	
	LUCMT●●BL	■	

<sup>(1)</sup> Except LUCM●●BL V1.04 and V1.06.

### How to get information on the design of a Modbus architecture and the choice of network accessories

Consult the library of downloadable documents on [schneider-electric.com](http://schneider-electric.com) by searching on the name of the communication protocol.



- 1 Two-colour LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating that 24 V supply is ON
- 4 Bus connectors
- 5 24 V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter commands

Communication module LULC15 allows direct connection of TeSys U starter-controllers and controllers on an Advantys STB island, between two segments or at the end of a segment. The starter-controller will then be able to make use of the services provided by Advantys STB: self-addressing, autobaud, fallback positions.

### Module Specifications

#### I/O terminal block

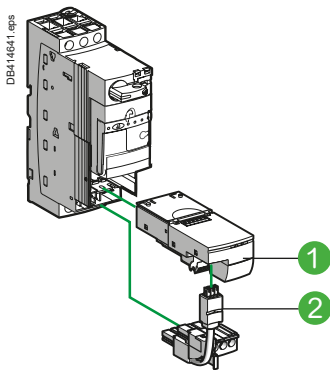
- Powered by external 24 V DC (power supply not included):
- 2 x configurable inputs for binary sensors (on LULC033 only)
- 1 x 24 V DC output - 0.5 A local auxiliary command.

#### Connectors

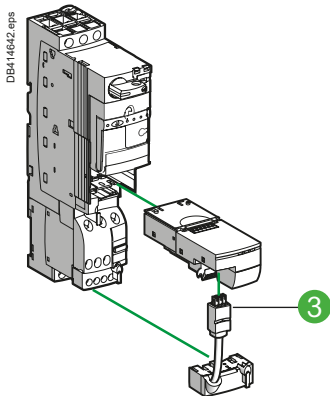
- For TeSys U 24 V DC coil (common, direction 1, direction 2).
- For Advantys STB bus.

#### Signaling

- Com - Error - 24 V, by LED.



LUB + LULC15 + LU9BN11L



LU2B + LULC15 + LU9MRL

### TeSys components

Description	Item	References
Advantys STB communication module	1	LULC15
Pre-wired connector: coil - LUB powerbase	2	LU9BN11L
Pre-wired connector: coil - LUB2B powerbase	3	LU9MRL

### Cables

Description	Length (m)	References
Cables fitted with connectors, one straight and one elbowed	0.3	LU9RCD03
	1	LU9RCD10
	3	LU9RCD30
	5	LU9RCD50
Cables fitted with two straight connectors	0.3	LU9RDD03
	1	LU9RDD10
	3	LU9RDD30

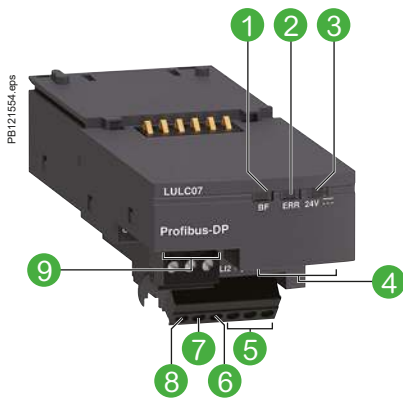
### Compatibility of Advantys STB communication module with control units

LUCA●●BL / B●●BL / C●●BL / D●●BL	All versions marketed after 2T0481 <sup>(1)</sup>
LUCM●●BL	All versions ≥ V3.2
LUCMT1BL	All versions ≥ V3.2

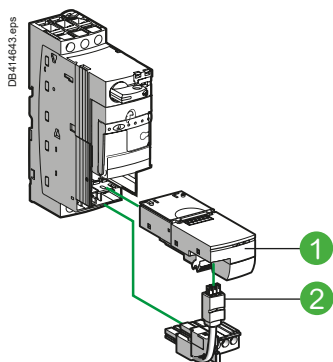
(1) This "date code" is made up as follows:  
 2T or 2C: factory code.  
 04, 05, 06 and so on: year of manufacture.  
 08: week.  
 1: 1st day of the week.

### How to get information on the design of a Advantys STB architecture and the choice of network accessories

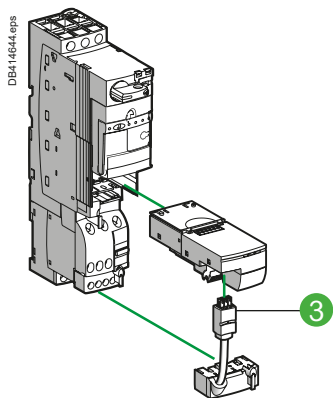
Consulter la librairie des documents téléchargeables sur le site [schneider-electric.com](http://schneider-electric.com) en faisant une recherche sur le nom du protocole de transmission.



- 1 Two-colour LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating 24 V supply ON for outputs OA1, OA3 and LO1
- 4 SUB-D connector for bus link
- 5 24 V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter-controller commands (non-reversing and reversing)



LUB + LUC...BL + LULC07 + LU9BN11L



LU2B + LUC...BL + LULC07 + LU9MRL

When used in conjunction with the power base and control unit, communication module LULC07 allows TeSys U starter-controllers to be controlled via Profibus DP (Deported Periphery) bus. Communication module LULC07 is of the slave type.

### Module Specifications

#### I/O terminal block

- Powered by external 24 V DC (power supply not included):
  - 2 x configurable inputs for binary sensors
  - 1 x 24 V DC output - 0.5 A local auxiliary command.

#### Connectors

- For TeSys U 24 V DC coil (common, direction 1, direction 2).
- For Profibus DP bus.

#### Signaling

- Com - Error - 24 V, by LED.

### TeSys components

Description	Item	References
Profibus DP communication module	1	LULC07
Pre-wired connector: coil - LUB powerbase	2	LU9BN11L
Pre-wired connector: coil - LUB2B powerbase	3	LU9MRL

### Components for connection to the bus and to the installation

The 24 V DC -Aux supply to Profibus DP modules LULC07 must pass through power supply module LU9GC7.

LULC07 modules must be connected to the LU9GC7 splitter box in order to be powered.

The number of TeSys U starter-controllers that can be powered by an LU9GC7 module is limited by the maximum current (1.5 A) which it can deliver.

The 24 V supply for the inputs/outputs must be provided separately..

Description	Length (m)	References
Profibus DP power supply module	-	LU9GC7
Profibus DP connector	-	LU9AD7
Profibus DP cables 2-wire	100	TSXPBSCA100
	400	TSXPBSCA400
Profibus DP cables 4-wire	10	LU9RPB010
	100	LU9RPB100
	400	LU9RPB400

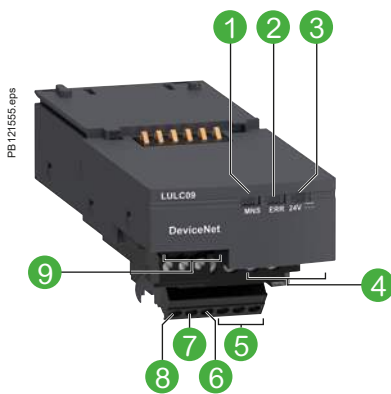
### How to get information on the design of a Profibus DP architecture and the choice of network accessories

Consult the library of downloadable documents on [schneider-electric.com](http://schneider-electric.com) by searching on the name of the communication protocol.

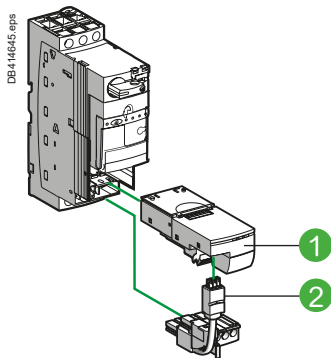
# TeSys

## TeSys U All-in-one motor starters - DeviceNet communication module

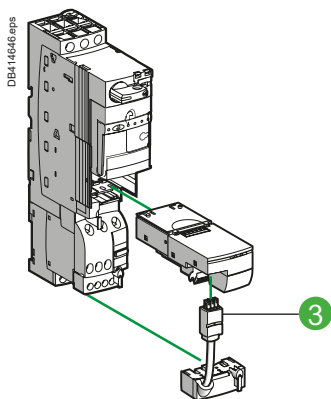
### Product references



- 1 LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating  $\overline{\text{24 V}}$  supply ON for outputs OA1, OA3 and LO1 and 24 V bus
- 4 DeviceNet connector for bus link
- 5  $\overline{\text{24 V}}$  supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter-controller commands (non-reversing and reversing)



LUB + LUC●●●BL + LULC07 + LU9BN11L



LU2B + LUC●●●BL + LULC07 + LU9MRL

When used in conjunction with the power base and control unit, communication module LULC09 allows TeSys U starter-controllers to be controlled via DeviceNet bus. Communication module LULC09 is of the slave type.

### Module Specifications

#### I/O terminal block

- Powered by external 24 V DC (power supply not included):
- 2 x configurable inputs for binary sensors
- 1 x 24 V DC output - 0.5 A local auxiliary command.

#### Connectors

- For TeSys U 24 V DC coil (common, direction 1, direction 2).
- For DeviceNet bus.

#### Signaling

- Com - Error - 24 V , by LED.

### Tesys components

Description	Item	References
DeviceNet communication module	1	LULC09
Pre-wired connector: coil - LUB powerbase	2	LU9BN11L
Pre-wired connector: coil - LUB2B powerbase	3	LU9MRL

### How to get information on the design of a DeviceNet architecture and the choice of network accessories

Consult the library of downloadable documents on [schneider-electric.com](http://schneider-electric.com) by searching on the name of the communication protocol.



PB 121537 eps



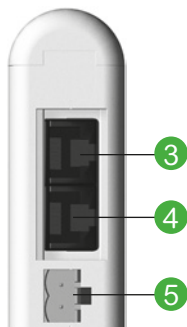
TeSys U



DF526109-17-M eps



561512 eps



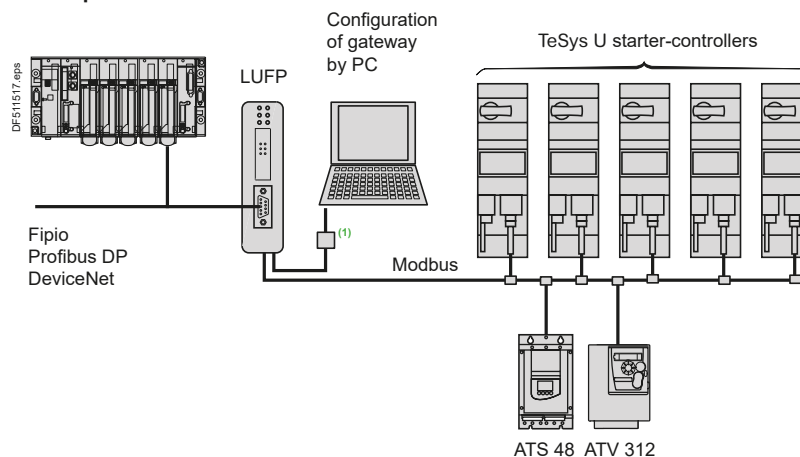
### Introduction

LUF communication gateways allow connection between the Modbus serial link and Fipio, Profibus DP or DeviceNet field buses.

After configuration, these gateways manage information which can be accessed by the Modbus serial link and make this information available for read/write functions (command, monitoring, configuration and adjustment) on the field buses.

An LUF communication gateway consists of a box which can be clipped onto a 35 mm omega rail, allowing connection of up to 8 Slaves connected on the Modbus serial link.

### Example of architecture



### Communication gateway LUF

Description	Reference
Fipio / Modbus gateway	LUFP1
Profibus DP / Modbus gateway	LUFP7
DeviceNet / Modbus gateway	LUFP9

### Description

#### Front panel of the product

- ① LED indicating :
  - communication status of the Modbus serial links,
  - gateway status,
  - communication status of the Fipio, Profibus DP or DeviceNet bus.
- ② Connectors for connection to Fipio, Profibus DP or DeviceNet buses.

#### Underside of product

- ③ RJ45 connector for connection of the Modbus serial link
- ④ RJ45 connector for link to a PC
- ⑤ 24 V power supply

### Software set-up

For the Fipio bus, software set-up of the gateway is performed using either PL7 Micro/Junior/Pro software or ABC Configurator software.

For the Profibus DP and DeviceNet buses, software set-up is performed using ABC Configurator.

This software is included in the TeSys U user's manual.

(1) Connection kit for PowerSuite software workshop.





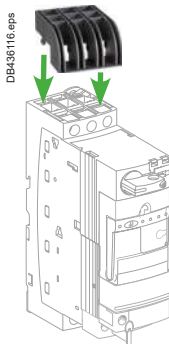
LUALB1



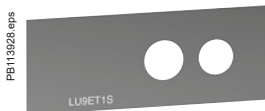
LUALF1



LA9LB920



LU9SP0



LU9ET1S

### Short-circuit current limiter block

To be connected in series and upstream of a TeSys U starter-controller. It increases its ability to withstand the short circuit current from 50 kA to 100 or 130 kA under 400 V.

Principle: under the action of a short-circuit, the opening of two contacts of each phase of the limiter creates a resistive arc. The current then decreases to a value tolerable by a TeSys U power base.

#### Limiter blocks and accessories

Description	Breaking capacity Iq (kA)		Ie (A)	Ith (A)	Mounting	Unit reference
	≤ 440 V	690 V				
Limiter-disconnector (1 x LUAF1 cartridge supplied)	130	70	-	32	Direct on power base up to 15 kW/32 A	LUALB1 <sup>(1)</sup>
Limiter limiter cartridge for LUALB1	100	35	32	63	Separate	LA9LB920 <sup>(2)</sup>
	130	70	-	-	Limiter-disconnector	LUALF1

(1) Must be connected to one power base only.

(2) Can be connected to multiple TeSys U power bases in parallel with limitation :

- Total Ith max 63 A

- Total nominal current (Ie) 32 A from motor with simultaneous start (LA9LB920 could not withstand higher inrush peak current)

### Phase barrier

Ensures a complementary electrical insulation between phases.

690 V AC network: compulsory.

440 V AC network: compulsory when assembling a UL508 type E compliant motor starter (Self Protected Starter).

Description	Use	Mounting	Reference
Phase separator	LUB or LU2B 12 or 120 LUB or LUB2B 32 or 320 LUALB1	Live terminals L1, L2, L3	LU9SP0

### Clip-in labels

Can be clipped on any TeSys U power base, on LU6MB0●● inverter block, and Linergy HK busbar system.

#### Marking accessory

Description	Sold by lot of	Reference per unit
Clip-in label 8 x 18 mm	100	LAD90

### Safety-chain identification - Red label

The red sticker is dedicated to TeSys U LUCA, LUCB, LUCC, LUCD and LUCL control units.

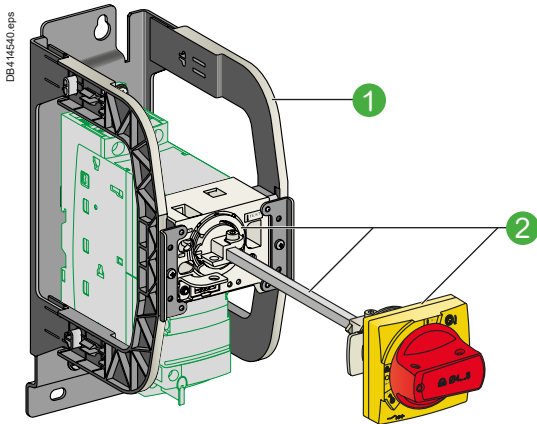
Description	Reference per unit
Retrofit safety-chain identification sticker	LU9ET1S



# TeSys

## TeSys U All-in-one motor starters - Rotary handles

### Product references



LU9APN21 mounting kit

#### Extended rotary handle

Allows a circuit breaker or a TeSys U starter-controller installed in back of an enclosure to be operated from the front panel.

The rotary handle can be black or red/yellow, IP54 or IP65. It includes a function for locking the circuit breaker or the starter in the O (OFF) or I (ON) position (depending on the type of rotary handle) by means of up to 3 padlocks with a shank diameter of 4 to 8 mm.

The extension shaft must be adjusted to the depth of the enclosure.

The IP54 rotary handle is fixed with a nut (Ø22) to make it easier to assemble.

#### Mounting kit

① TeSys U Power base bracket; its horseshoe shaped sides hold the rotary mechanism facing the original handle.

② Mechanism, shaft and handle; the shaft enters the handle attached to the door during closing.

#### Long shaft

■ to be cut to the required length. Equipped with a connection endpiece.

#### Shaft support plate for deep enclosure

■ Provides horizontal guiding of the shaft, when the door is open.

#### Spacer base (retrofit accessory)

■ Fixed on a side of the box, for heightening an GVAP●●● handle.

#### Handle

■ Delivered as a single unit, to be fitted on a side of the enclosure.

*Note: references below are suitable for TeSys U power bases after 2004.*

#### "Laser Square" Tool

■ On the principle of an angle extended with a laser beam, the "Laser Square" facilitates tracing the piercing marks on the door or the sides of an enclosure.

#### "Safety" stickers

■ Marking: Electrical hazard, etc.



GVAPA1 long shaft

PB100291.eps



GVAPK12 shaft support plate for deep enclosure

PB121242.eps



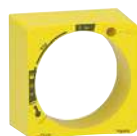
GVAPP1 spacer base (retrofit accessory)

PB100296.eps



GVAPR54 red handle, IP 54

PB100289.eps



GVAPYPHP external handle protection frame



GVAPL01 "Laser square" plotting tool

PB100297.eps

Description	Tripping indication	Reference
Mounting kit	Black handle, with error status, IP54	● LU9APN21
	Red handle, with error status, IP54	● LU9APN22
	Red handle, without error status, IP65	- LU9APN24
Separate elements	Long shaft = 315 mm	- GVAPA1
	Shaft (≥ 300 mm) support plate for deep enclosure	- GVAPK12
	Spacer base	- GVAPP1
	Black handle, IP54	● GVAPB54
	Red handle, IP54	● GVAPR54
	Black handle, IP65	● GVAPB65
Red handle, IP65	● GVAPR65	
Tool	"Laser square" plotting tool	GVAPL01
"Safety" stickers	French (x10)	GVAPSFR
	English (x10)	GVAPSEN
	German (x10)	GVAPSDE
	Spanish (x10)	GVAPSES
	Chinese (x10)	GVAPSCN
	Portuguese (x10)	GVAPSPT
	Russian (x10)	GVAPSRU
	Italian (x10)	GVAPSIT
External handle protection frame for TeSys U	Yellow frame	GVAPYPHP
	Black frame	GVAPBPHP

# TeSys

## TeSys U All-in-one motor starters - Handle mounting kit for MCC drawers

### Product references



PB111807\_104.eps

#### MCC drawers (Motor Control Center)

The drawers are composed of:

- a fixed part, in the frame of the panel,
- a fully withdrawable part, integrating the protection, control and automation components.

With a height of 3/4/6/8/12/18/24/36 modules, they allow the assembling of motor protection/control feeders:

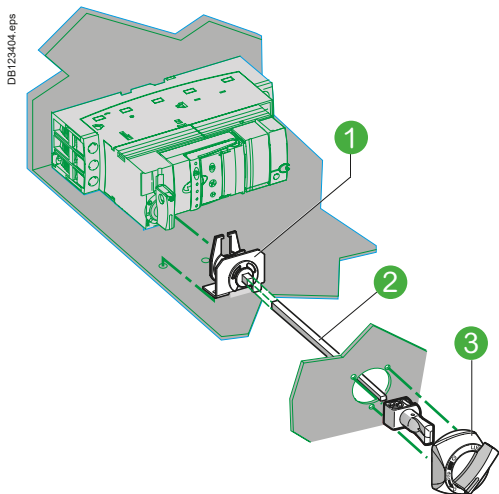
- Direct, one direction of rotation
- Direct, 2 directions of rotation
- Star-delta
- Dahlander (2 speeds)
- 2-speed, separate winding
- Motor drives from 0 to 500 kW
- Soft starters of 0 to 75 kW.

TeSys U

#### Mounting kit and handle for MCC drawer

Together, this provides manual control of a TeSys U starter-controller from the front face of the drawer.

As the clamping part on top of TeSys U control pad is open, the kit may be used on TeSys U power bases before 2005.



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#### Mounting kit + small handle

Description	Item	Reference
Handle with mounting kit for MCC drawer	1 + 2 + 3	LU9AP20

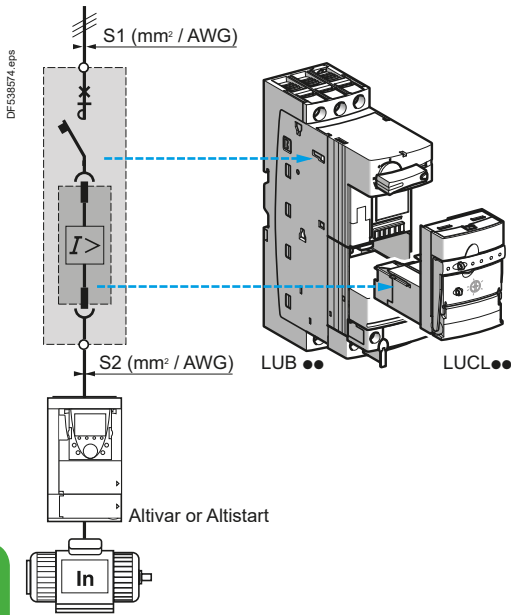


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# TeSys

## TeSys U All-in-one motor starters - Use with soft starter / Variable Speed Drive - LUCL control module

### Product references



### Introduction

When installed upstream of a variable speed controller or soft start unit, control unit LUCL●●, used in conjunction with an LUB12 or LUB32 power base, provides:

- isolation,
- short-circuit protection of the motor starter.  
(variable speed controller-based or soft start unit-based motor starters).

**Note:** control unit LUCL, when used in conjunction with power base LUB12 or LUB32, conforms to standard IEC 60947-6-2.

### Installation regulations

When the length of the cable between the TeSys U starter and the variable speed controller is more than 1.5 m, the c.s.a. of the cable between the variable speed controller and the TeSys U starter (S2) must be equal to the c.s.a. of the cable upstream of TeSys U (S1).

### Description of LUCL magnetic control unit

- 1 Extraction and locking handle
- 2 Sealing of locking handle
- 3 Dial for magnetic adjustment of motor In
- 4 Locking of settings by sealing the transparent cover

### References

Description	Line current of the variable speed controller or soft start unit	Reference <sup>(1)</sup>
<b>A</b>		
Magnetic control unit	0.15...0.6	LUCLX6●●
	0.35...1.4	LUCL1X●●
	1.25...5	LUCL05●●
	3...12	LUCL12●●
	4.5...18	LUCL18●●
	8...32	LUCL32●●

<sup>(1)</sup> Standard control circuit voltage:

Volts	24	48...72	110...240
⋮	BL <sup>(2) (3)</sup>	—	—
~	B	—	—
⋮ or ~	—	ES <sup>(4)</sup>	FU <sup>(5)</sup>

<sup>(2)</sup> Voltage code to be used for a starter-controller with communication module.

<sup>(3)</sup> d.c. voltage with maximum ripple of ±10 %.

<sup>(4)</sup> ⋮: 48...72 V, ~: 48 V.

<sup>(5)</sup> ⋮: 110...220 V, ~: 110...240 V.



Control unit and associated power base selection						
Functions provided	Maximum motor power ratings 50/60 Hz			Power base reference	Control unit reference	Line current
	< 400/415 V	500 V	690 V			
	KW	KW	KW			
■ Short-circuit protection	0.09	–	–	LUB12 or LUB32	LUCLX6●●	0.15...0.6
■ Manual reset	0.25	–	–	LUB12 or LUB32	LUCL1X●●	0.35...1.4
	1.5	2.2	3	LUB12 or LUB32	LUCL05●●	1.25...5
	5.5	5.5	9	LUB12 or LUB32	LUCL12●●	3...12
	7.5	9	15	LUB32	LUCL18●●	4.5...18
	15	15	18.5	LUB32	LUCL32●●	8...32

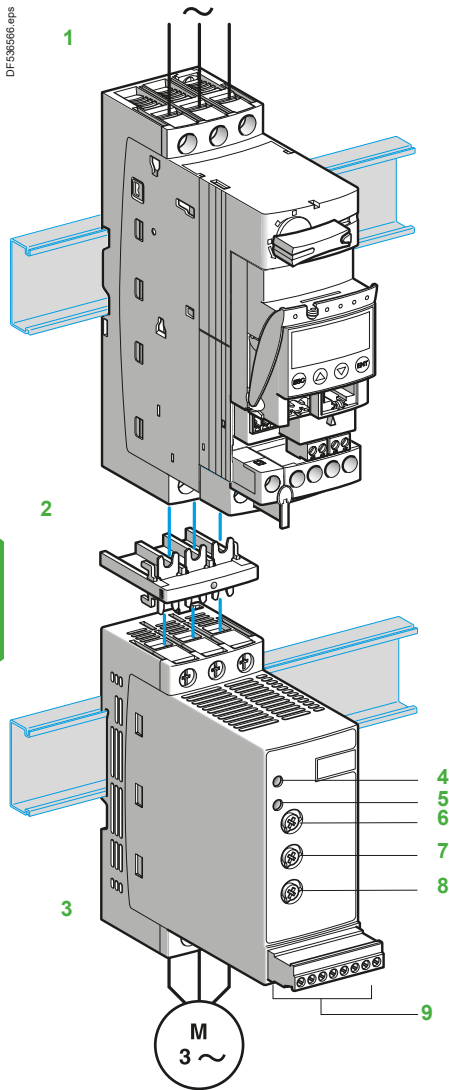
Operating characteristics						
Control units	Standard		Advanced			Multifunction
	LUCA	LUCB	LUCB	LUCB	LUCD	LUCM
Thermal overload protection	Integrated function					
Over current protection	14.2 x the setting current					3 to 17 x the setting current
Short-circuit protection	13 x Ir max (max current setting)					
Protection against phase loss	Integrated function					
Protection against phase imbalance	Integrated function					
Earth fault protection (equipment protection only)	Integrated function					
Tripping class	10	10	10	20		5...30
Motor type	3-phase		Single-phase	3-phase	Single-phase and 3-phase	
Thermal overload test function	Integrated function					
Overtorque	Integrated function					
No-load running	Integrated function					
Long starting time	Integrated function					
Reset method	Manual	Integrated function				Parameters can be set
	Automatic or remote	Function provided with accessory				Parameters can be set
		Function provided with accessory				Parameters can be set via the bus with a communication module (see page 24614/2).

 Integrated function

 Function provided with accessory

Compatibility			
Compatibility of control unit LUCL●● with	References	Functions	
The controller	No	LUTM	Controller (without thermal overload protection)
Add-on contact blocks with fault signalling and auxiliary contacts	Yes	LUA1C11	Add-on contact blocks with fault signalling (1 N/O + 1 N/C)
		LUA1C20	Add-on contact blocks with fault signalling (2 N/O)
		LUFN20	Auxiliary contacts (2 N/O)
		LUFN11	Auxiliary contacts (1 N/O + 1 N/C)
		LUFN02	Auxiliary contacts (2 N/C)
Communication modules	Yes	ASILUFC5 and ASILUFC51	AS-Interface communication modules
		LUFC00	Parallel wiring module
		LULC07	Profibus DP communication module (1 output/2 inputs)
		LULC08	CANopen communication module (1 output/2 inputs)
		LULC09	DeviceNet communication module (1 output/2 inputs)
		LULC15	Advantys STB communication module (1 output/2 inputs)
	LULC033	Modbus communication module (1 output/2 inputs)	
Function modules	No	LUFW10	Alarm function module
		LUFDH11	Thermal overload signalling module with manual reset
		LUFDA01	Thermal overload signalling module with automatic or remote reset (1 N/C)
		LUFDA10	Thermal overload signalling module with automatic or remote reset (1 N/O)
		LUFV2	Motor load indication module

TeSys U



### Introduction

The Altistart U01 is a soft start/soft stop unit for asynchronous motors. It is designed primarily for combinations with TeSys U controller-starters.

When combined with a TeSys U 1 controller by means of a connector 2, the Altistart U01 3 is a power option which provides the “Soft start/soft stop” function. The result is a unique, innovative motor starter.

Using the Altistart U01 starter enhances the starting performance of asynchronous motors by allowing them to start gradually, smoothly and in a controlled manner. It prevents mechanical shocks, which lead to wear and tear, and limits the amount of maintenance work and production downtime.

The Altistart U01 limits the starting torque and current peaks on starting, on machines which do not require a high starting torque.

The Altistart U01 is designed for the following simple applications:

- Conveyors
- Conveyor belts
- Pumps
- Fans
- Compressors
- Automatic doors and gates
- Small cranes
- Belt-driven machines, etc.

The Altistart U01 is compact and easy to install. It complies with standards IEC/EN 60947-4-2, carries UL, CSA, C-Tick, CCC certifications and CE marking.

#### ■ ATSU01N2●●LT soft start/soft stop units

- Control two phases of the motor power supply to limit the starting current and for deceleration
- Internal bypass relay
- Motor power ratings ranging from 0.75 kW to 15 kW
- Motor supply voltages ranging from 200 V to 480 V, 50/60 Hz.

An external power supply is required for controlling the starter.

### Description

■ Altistart U01 soft start/soft stop units are equipped with:

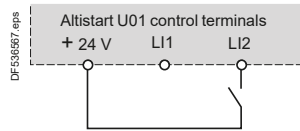
- A potentiometer for setting the starting time 6
- A potentiometer for setting the deceleration time 8
- A potentiometer for adjusting the start voltage threshold according to the motor load 7
- 1 green LED 4 to indicate that the unit is switched on
- 1 yellow LED 5 to indicate that the motor is powered at nominal voltage, if it is connected to the starter
- A connector 9:

- 2 logic inputs for Run/Stop commands
- 1 logic input for the BOOST function
- 1 logic output to indicate the end of starting
- 1 relay output to indicate the starter has a power supply fault or the motor has reached a standstill at the end of the deceleration stage

#### ATSU01N2●●●LT soft start unit functions

##### ■ 2-wire control

The run and stop commands are controlled by a single logic input. State 1 of logic input LI2 controls starting and state 0 controls stopping.



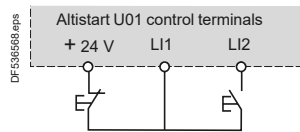
Wiring diagram for 2-wire control

##### ■ 3-wire control

The run and stop commands are controlled by 2 different logic inputs.

Stopping is achieved when logic input LI1 opens (state 0).

The pulse on input LI2 is stored until input LI1 opens.



Wiring diagram for 3-wire control

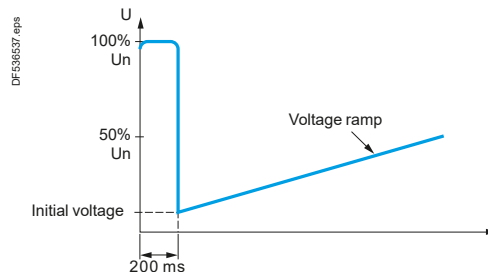
##### ■ Starting time

Controlling the starting time means that the time of the voltage ramp applied to the motor can be adjusted to obtain a gradual starting time, dependent on the motor load.

##### ■ Voltage boost function via logic input

Activating the BOOST logic input enables the function for supplying a starting overtorque capable of overcoming any mechanical friction.

When the input is at state 1, the function is active (input connected to the + 24 V) and the starter applies a fixed voltage to the motor for a limited time before starting.



Application of a voltage boost equal to 100% of the nominal motor voltage

##### ■ End of starting

○ application function for logic output LO1

ATSU01N2●●●LT soft start/soft stop units are equipped with an open collector logic output LO, which indicates the end of starting when the motor has reached nominal speed.

# TeSys

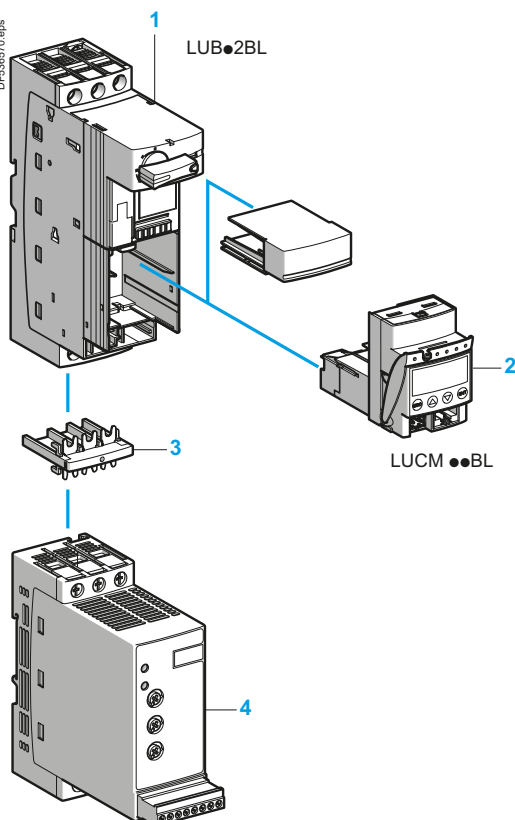
## Altistart U01 soft starter

### Product references



ATSU01N222LT

TeSys U



ATSU 01N2●●LT

### Soft start/soft stop units for 0.75 to 15 kW motors (can be combined with the TeSys U starter)

Motor				Starter	
Motor power <sup>(1)</sup>				Nominal current	Reference
230 V		400 V	460 V	A	
kW	HP	kW	HP		
<b>3-phase supply voltage: 200...480 V 50/60 Hz</b>					
0.75	1	1.5	2	6	ATSU01N206LT
1.1	1.5	2.2	3		
1.5	2	–	5	9	ATSU01N209LT
–	–	4	–		
2.2	3	5.5	7.5	12	ATSU01N212LT
3	–	–	–		
4	5	7.5	10	22	ATSU01N222LT
5.5	7.5	11	15		
7.5	10	15	20	32	ATSU01N232LT

### Accessories

Description	Used for starter	Reference
Power connector between ATSU01N2●●LT and TeSys U	ATSU01N2●●LT	VW3G4104

### TeSys U starter and soft start unit combinations

Numerous possibilities for combinations and options are offered. Please consult the "TeSys U Starters-open version" specialist catalogue.

Motor power	Soft starter			TeSys U	
	230 V	400 V	460 V	Power base	Control unit <sup>(2)</sup>
Voltage	kW/HP	kW	HP		
0.75/1	1.5	2	–	ATSU01N206LT	LUB12 LUC●05BL
1.1/1.5	2.2/3	3	–	ATSU01N206LT	LUB12 LUC●12BL
1.5/2	–	–	–	ATSU01N209LT	LUB12 LUC●12BL
–	4	5	–	ATSU01N209LT	LUB12 LUC●12BL
2.2/3	–	–	–	ATSU01N212LT	LUB12 LUC●12BL
3/–	5.5	7.5	–	ATSU01N212LT	LUB32 LUC●18BL
4/5	7.5	10	–	ATSU01N222LT	LUB32 LUC●18BL
5.5/7.5	11	15	–	ATSU01N222LT	LUB32 LUC●32BL
7.5/10	15	20	–	ATSU01N232LT	LUB32 LUC●32BL

- Example of a starter-motor combination with:
- 1 non-reversing power base for DOL starting (LUB●2BL)
  - 2 control unit (LUCM●●BL)
  - 3 power connector (VW3G4104)
  - 4 Altistart U01 soft start/soft stop unit (ATSU01N2●●LT)

<sup>(1)</sup> Standard motor power ratings, HP power ratings indicated according to standard UL508.  
<sup>(2)</sup> Depending on the configuration of the chosen TeSys U starter, replace the ● with A for standard, B for expandable, and M for multifunction.



# TeSys

## TeSys U All-in-one motor starters -

### Coordination with soft starters / Variable speed controllers

#### Product references



#### Coordination

The standard defines tests at different levels of current; the purpose of these tests is to place the equipment in extreme conditions.

The standard defines 2 types of coordination, according to the condition of the components after testing: type 1 and type 2.

Type 1 coordination requires that in a short-circuit condition, the contactor or starter must not present any danger to personnel or installations and must not be able to resume operation without repair or the replacement of parts.

**The product combinations given below provide type 1 coordination**

#### Soft start-soft stop unit/TeSys U starter controller combination with magnetic protection

##### TeSys U / Altistart 48: type 1 coordination

Power 400 V (kW)	TeSys U references (protection + power switching)	Soft start unit reference	
		Class 10	Class 20
5.5	LUB32 + LUCL32 or LUCL18	–	ATS48D17
7.5	LUB32 + LUCL32	ATS48D17	ATS48D22
11	LUB32 + LUCL32	ATS48D22	ATS48D32
15	LUB32 + LUCL32	ATS48D32	ATS48D38

#### Variable speed controller/TeSys U starter controller combination with magnetic protection

##### TeSys U / Altivar 21 UL Type 1/IP 20: type 1 coordination

Power 400 V (kW)	TeSys U references (protection + power switching)	Variable speed controller reference	
0.75	LUB12 + LUCL05	ATV21H075N4	
		ATV21HU15N4	
2.2	LUB12 + LUCL12	ATV21HU22N4	
3	LUB12 + LUCL12	ATV21HU30N4	
4	LUB12 + LUCL12	ATV21HU40N4	
5.5	LUB32 + LUCL32 or LUCL18	ATV21HU55N4	
7.5	LUB32 + LUCL32 or LUCL18	ATV21HU75N4	
11	LUB32 + LUCL32	ATV21HD11N4	
15	LUB32 + LUCL32	ATV21HD15N4	

##### TeSys U / Altivar 21 IP 54: type 1 coordination

Power 400 V (kW)	TeSys U references (protection + power switching)	Variable speed controller reference	
0.75	LUB12 + LUCL05	ATV21W075N4/N4C	
1.5	LUB12 + LUCL12 or LUCL05	ATV21WU15N4/N4C	
2.2	LUB12 + LUCL12	ATV21WU22N4/N4C	
3	LUB12 + LUCL12	ATV21WU30N4/N4C	
4	LUB12 + LUCL12	ATV21WU40N4/N4C	
5.5	LUB32 + LUCL32 or LUCL18	ATV21WU55N4/N4C	
7.5	LUB32 + LUCL32 or LUCL18	ATV21WU75N4/N4C	
11	LUB32 + LUCL32	ATV21WD11N4/N4C	
15	LUB32 + LUCL32	ATV21WD15N4/N4C	

# TeSys

## TeSys U All-in-one motor starters -

### Coordination with Soft starters / Variable speed controllers

#### Products coordination



#### Variable speed controller/TeSys U starter controller combination with magnetic protection (continued)

##### TeSys U / Altivar 31: type 1 coordination

Power 400 V (kW)	TeSys U references (protection + power switching)	Variable speed controller reference
0.37	LUB12 + LUCL05	ATV31H037N4
0.55	LUB12 + LUCL05	ATV31H055N4
0.75	LUB12 + LUCL05	ATV31H075N4
1.1	LUB12 + LUCL12	ATV31HU11N4
1.5	LUB12 + LUCL12	ATV31HU15N4
2.2	LUB12 + LUCL12	ATV31HU22N4
3	LUB32 + LUCL18	ATV31HU30N4
4	LUB32 + LUCL18	ATV31HU40N4
5.5	LUB32 + LUCL32	ATV31HU55N4
7.5	LUB32 + LUCL32	ATV31HU75N4

##### TeSys U / Altivar 61: type 1 coordination

Power 400V (kW)	TeSys U references (protection + power switching)	Variable speed controller reference
0.75	LUB12 + LUCL05	ATV61H075N4
1.5	LUB12 + LUCL12	ATV61HU15N4
2.2	LUB12 + LUCL12	ATV61HU22N4
3	LUB32 + LUCL18	ATV61HU30N4
4	LUB32 + LUCL18	ATV61HU40N4
5.5	LUB32 + LUCL32	ATV61HU55N4
7.5	LUB32 + LUCL32	ATV61HU75N4

##### TeSys U / Altivar 71: type 1 coordination

Power 400V (kW)	TeSys U references (protection + power switching)	Variable speed controller reference
0.75	LUB12 + LUCL05	ATV71H075N4
1.5	LUB12 + LUCL12	ATV71HU15N4
2.2	LUB12 + LUCL12	ATV71HU22N4
3	LUB32 + LUCL18	ATV71HU30N4
4	LUB32 + LUCL18	ATV71HU40N4
5.5	LUB32 + LUCL32	ATV71HU55N4

TeSys U