TAE
pikatron group

U-DRIVE

Universal Drive

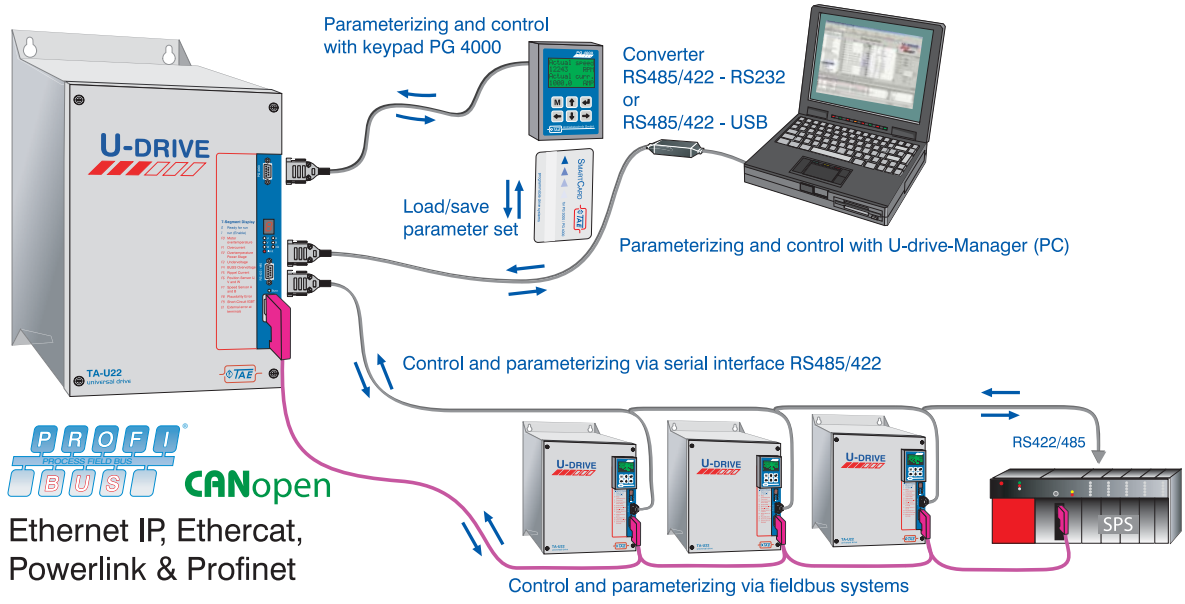
2,2 kW - 300 kW
3,5 HP - 476 HP

The Green Solution

Highlights

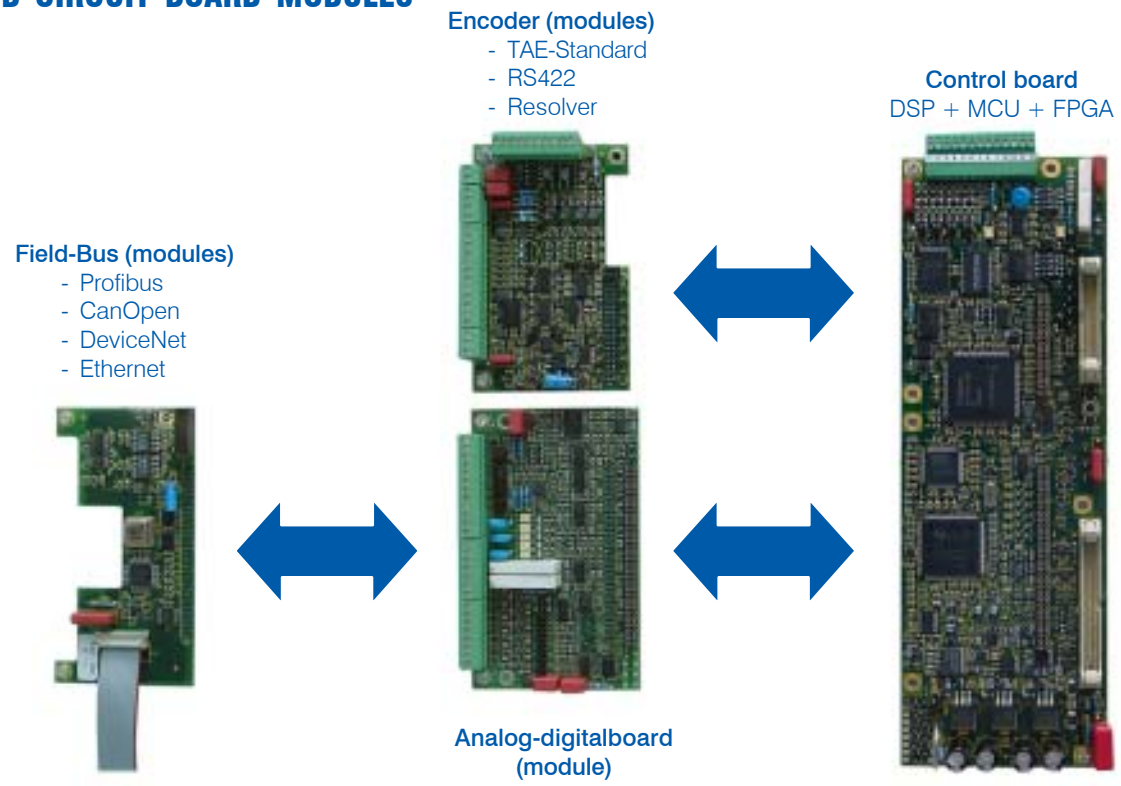
- Universal control for servo motors (BL-DC motors, AC Synchronous motors), Torque motors, Linear motors as well as AC standard motors (Asynchronous motors)
- Very high degree of efficiency as high power density
- Above average high efficiency factor: λ better than 0,95
- Worldwide input voltage range without adjustments
  170 - 250V ±10% at 50/60Hz or 300 - 480V ±10% at 50/60Hz
- Very short startup times due to coordinated motor-control packages and auto-tuning
- Standard internal chokes eliminate external power-chokes
- Integrated CE-conform EMC-Filter as option
- Because of special pulsing procedures, no throttle or filter necessary to the motor line
- Various encoder systems
- State-of-the-art IGBT and processor technology
- Integrated fieldbus systems, such as CANopen, Ethernet IP, Ethercat, Powerlink, Profinet and Profibus DP as option
- Easy to handle startup of the control with Keypad PG 4000 and SmartCard or U-Drive-Manager PC Software supported at Win 2000/XP
- Air-cooled or water-cooled available
- Many popular applications are already integrated

U-drive communication variants



Setup

Printed circuit board modules

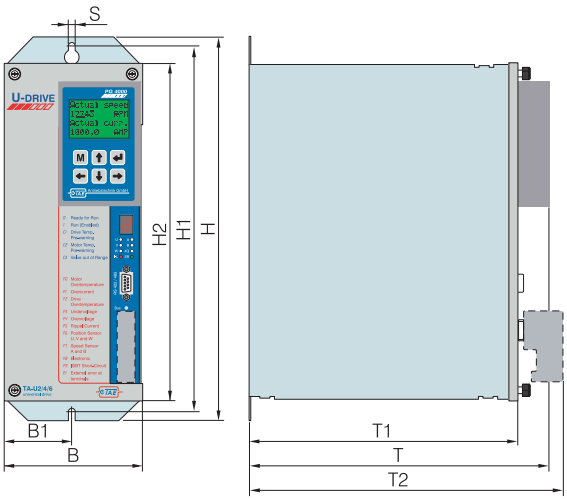


Devices

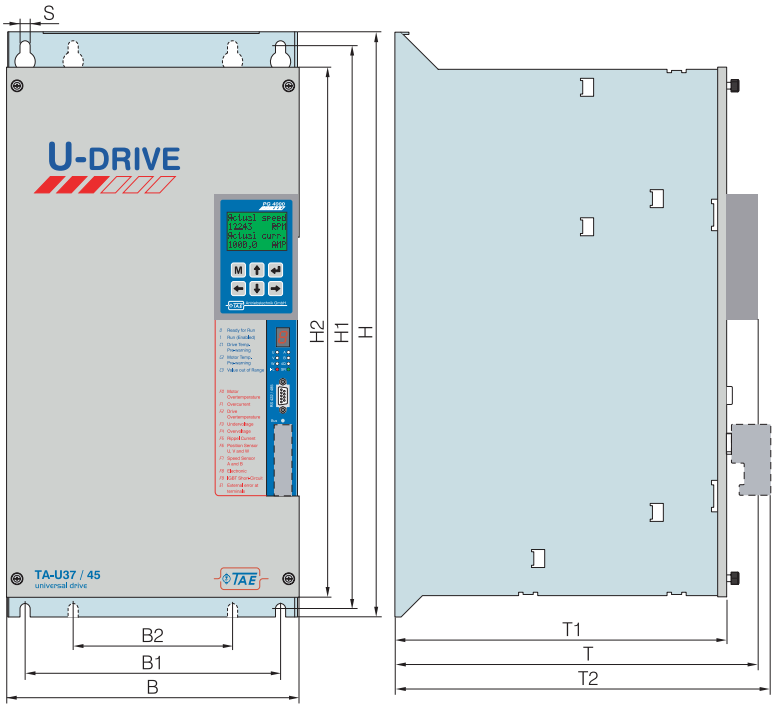
	Mains 3Ph 50/60 Hz			Power		Current (output)		
	Voltage	Current BL-Motor	Current AC-Motor	Output Control	Loss Drive (at 8kHz)	I-Nominal (at 8kHz)	I-Overload	I-Peak (disconnect)
TA-U2 19102-xxxx	230V	5,5 A	6,0 A	1,6 kW	45 W	7,5 A	10,7 A	19 A
TA-U4 HT 19105-xxxx	230V	13 A	14 A	4 kW	90 W	20 A	25,3 A	45 A
TA-U10 19110-xxxx	230V	19 A	21 A	6 kW	130 W	25 A	30 A	53 A
TA-U15 19115-xxxx	230V	24,5 A	26 A	8 kW	180 W	36 A	43 A	76 A
TA-U22 19122-xxxx	230V	36 A	39 A	12 kW	300 W	50 A	60 A	107 A
TA-U22 HT 19123-xxxx	230V	54 A	59 A	18 kW	420 W	75 A	100 A	178 A
TA-U2 19102-xxxx	400V 480V	4,3 A	5,1 A	2,2 kW 2,6 kW	100 W	6 A	9 A	16 A
TA-U4 19104-xxxx	400V 480V	7,0 A	7,8 A	3,7 kW 4,4 kW	160 W	9,5 A	14,3 A	25 A
TA-U6 19106-xxxx	400V 480V	10,5 A	12 A	5,5 kW 6,6 kW	230 W	13 A	15,2 A	27 A
TA-U6 HT 19107-xxxx	400V 480V	11,5 A	13 A	6,0 kW 7,2 kW	250 W	15 A	22,5 A	40 A
TA-U8 19108-xxxx	400V 480V	13,2 A	14,5 A	7,5 kW 9,0 kW	280 W	18 A	27 A	47 A
TA-U10 19110-xxxx	400V 480V	19,1 A	21,0 A	11 kW 13 kW	390 W	24 A	30 A	53 A
TA-U15 19115-xxxx	400V 480V	26,0 A	29,0 A	15 kW 18 kW	540 W	34 A	42,5 A	75 A
TA-U22 19122-xxxx	400V 480V	37,0 A	40,3 A	22 kW 26 kW	640 W	50 A	60 A	107 A
TA-U22 HT 19123-xxxx	400V 480V	38,0 A	41,8 A	22 kW 26 kW	660 W	50 A	87 A	154 A
TA-U30 19130-xxxx	400V 480V	51,0 A	56,2 A	30 kW 36 kW	850 W	65 A	98 A	174 A
TA-U30 HT 19131-xxxx	400V 480V	52,0 A	57,2 A	30 kW 36 kW	850 W	65 A	117 A	208 A
TA-U37 19137-xxxx	400V 480V	64,0 A	70,4 A	37 kW 44 kW	1080 W	80 A	120 A	213 A
TA-U37 HT 19138-xxxx	400V 480V	64,0 A	70,4 A	37 kW 44 kW	1100 W	80 A	144 A	255 A
TA-U45 19145-xxxx	400V 480V	77,0 A	84,7 A	45 kW 54 kW	1300 W	93 A	144 A	255 A
TA-U45 HT 19146-xxxx	400V 480V	77,0 A	84,7 A	45 kW 54 kW	1300 W	93 A	168 A	298 A
TA-U55 19155-xxxx	400V 480V	94,0 A	103,4 A	55 kW 66 kW	1600 W	115 A	168 A	298 A
TA-U55 HT 19156-xxxx	400V 480V	94,0 A	103,4 A	55 kW 66 kW	1650 W	115 A	207 A	366 A
TA-U65 19165-xxxx	400V 480V	110,0 A	121,0 A	65 kW 78 kW	1900 W	130 A	170 A	300 A
TA-U65 HT 19166-xxxx	400V 480V	110,0 A	121,0 A	65 kW 78 kW	1950 W	130 A	234 A	412 A
TA-U75 19175-xxxx	400V 480V	127,0 A	139,7 A	75 kW 90 kW	2200 W	150 A	195 A	345 A
TA-U75 HT 19176-xxxx	400V 480V	127,0 A	139,7 A	75 kW 90 kW	2250 W	150 A	270 A	478 A
TA-U90 19190-xxxx	400V 480V	150,0 A	165,0 A	90 kW 108 kW	2700 W	190 A	270 A	478 A
TA-U110 19211-xxxx	400V 480V	180,0 A	192,0 A	110 kW 132 kW	3320 W	225 A	270 A	478 A
TA-U110 HT 19212-xxxx	400V 480V	180,0 A	192,0 A	110 kW 132 kW	3450 W	225 A	390 A	690 A
TA-U150 19215-xxxx	400V 480V	250,0 A	270,0 A	150 kW 180 kW	4300 W	300 A	390 A	690 A
TA-U150 HT 19216-xxxx	400V 480V	250,0 A	270,0 A	150 kW 180 kW	4400 W	300 A	520 A	919 A
TA-U200 19220-xxxx	400V 480V	330,0 A	352,0 A	200 kW 240 kW	5800 W	450 A	599 A	1060 A
TA-U250 19225-xxxx	400V 480V	410,0 A	440,0 A	250 kW 300 kW	7500 W	550 A	820 A	1450 A

Dimensions

TA-U 2/4/6



TA-U 8...250



	Housing sizes										
	U2/4/6	U8/10	U15	U22	U30	U37/45	U55/65	U75/90	U110	U150	U200/250
B	127	195	205	250	250	270	355	363	425	555	1100
B1	63,5	162,5	172	217	217	237	322	329	380	505	595
B2	-	-	-	-	-	-	-	-	-	-	965
H	341	378	378	390	495	520	564	660	842	981	1215
H1	325	358	358	370	475	500	544	640	815	954	1173
H2	301	330	330	341	446	471	516	611	780	919	1122
T	268/289*	267	325	301	292	338	379	369	413	418	420
T1	240/261*	239	297	273	264	310	351	341	385	390	392
T2	313/334*	312	370	346	337	383	424	414	458	463	465
S	6	9	9	9	9	9	9	9	12	13	13

* with integrated brake resistor inside the housing

All sizes are listed in mm

19XXX-XXXXXX

Housing sizes
1 = up to size TA-U90
2= as of size TA-U110

Rating (output power)

Voltage
0 = 170 - 250V 3Ph 50/60 Hz
1 = 300 - 480V 3Ph 50/60 Hz
2 = 170 - 250V 3Ph 50/60 Hz 1)
3 = 300 - 480V 3Ph 50/60 Hz 1)

Bus-system
F = Standard (without bus)
G = Profibus
I = CANopen
L = Powerlink
M = Ethercat
N = Ethernet IP
O = Profinet

1) with external supply for electronics

Analog / Digital -Board I/O
0 = without
1 = with analog/digital board

Feedback system
A = Standard (Hall sensors)
B = RS 422
C = Resolver
D = Hyperface
E = Sensorless

EMC-Filter
0 = without
1= with EMC-Filter

Geräteausführung
0 = 1Q
1 = 4Q (without brake chopper)
2 = 4Q (with brake chopper)
3 = 4Q (with brake chopper & resistor)

Technical Data

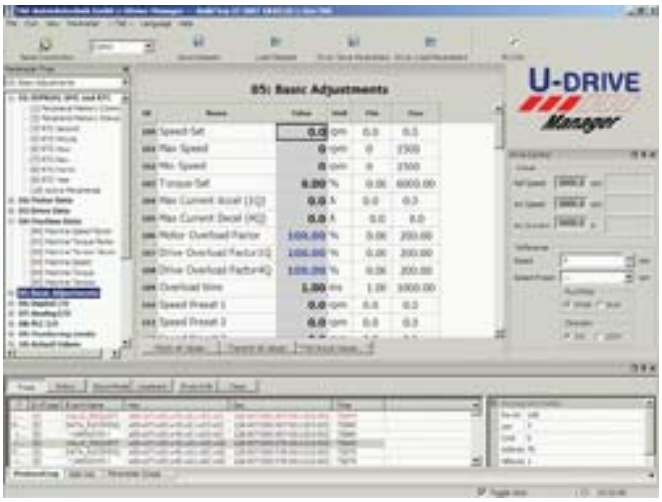
Ambient conditions	0-40 °C, less than 90% humidity, non-condensing, up to 1000m above MSL
Type of protection	IP20
Supply voltage	optional 170-250V or 300-480V, ±10%, 3 phases, 50/60Hz
Control voltage	External supply, appropriate power supply (Optional) External 24V, for safety stop
Operating modes	• Servomotor BL-DC (AC Synchronous Motor) • AC standard motor • Torque motor • Linear motor
Frequency	1kHz to 12kHz (nominal power with 8kHz)
Control modes	• Speed- torque control • Dancer control • Master/Slave • Electronic gearbox • Positioning • Angle synchronization
Processor control	• Fast current (50 µs) and speed control (200 µs) • Auto-tuning • With speed sensor systems or sensorless
Control accuracy (with feedback)	• Digital default 0,01% • Analog default 0,1% • Master/Slave ± 1 Digit
Control accuracy (without feedback)	• AC Motor 5% • Servo Motor 0,1%
Ramp generator	• Acceleration and delay time 0,01 upto 6000 s • 8 pairs of ramps, internal or external selectable with or without S-curve
Default speed	• analog 0-10 V, ±10V or 0/4 to 20 mA • digital with pulse signal or A/B-Signal • with 7 fixed speeds • communication link or KEYPAD PG 4000 • Motor potentiometer function
Default torque (limit)	• analog 0-10 V, 0-(-10V) or 0/4 to 20 mA • communication link or KEYPAD PG 4000 • Motor potentiometer function
Current detection	• analog 0-10 V, ±10V or 0/4 to 20 mA • communication link or KEYPAD PG 4000
Analog input	1x 0-10 V, or 0/4 to 20 mA (Standard) 3x 0-10 V, ±10V or 0/4 to 20 mA (Optional)
Analog output	2x ±10V, parameterable, e.g. for current or speed (Optional)
Digital inputs	4 freely-programmable, potential-free inputs, 24V DC (Standard) 6 freely-programmable, potential-free inputs, 24V DC (Optional)
Digital outputs	2 freely programmable digital outputs (Standard), 1x Relay and 1x Opto-coupler 24V DC 5 freely-programmable digital outputs (Optional), 2x Relay and 3x Opto-coupler 24V DC
Standards	CE VDE

Operation & Communication

U-DriveManager

Parameterizing software for U-Drive-Series.

- System requirements: at Windows 2000/XP, Serial interface RS232 or USB
- Multi-lingual: German, English (additional language upon request)
- Saving parameters to archive and export to popular Office formats
- Interactive help functions
- Test run and control of drive for startup with PC
- offline editing of parameter sets to prepare for startup



KeyPad PG 4000 - The multifunctional Control unit

The PG 4000 is a multi-functional control unit that facilitates to control all device functions in a comfortable way. The PG 4000 is the realtime indicator of operation status.

Features:

- Display of actual data, such as speed, current, line speeds, etc. numerically and also as bar graph
- Display and setting of all parameters
- Control of basic functions of the drive
- Detailed error and status display
- Read / write unit for SMARTCARD
- Multilingual menu

SmartCard

A SMARTCARD is part of the U-Drive-System and is the memory for the customized basic configuration.

In case of errors or replacements, the configuration can easily be restored without a time-consuming reparametrizing.

The SMARTCARD is a safe and cost-efficient archive for all parameters that allows to duplicate the parameter sets to several drives without using a PC as programming unit.

Benefits (General)

- Operation of synchronous, Torque and asynchronous motors
- Low load on the power supply line with harmonics
- Maintenance-free and low-noise drive
- Implementation of additional customer specific functions

Benefits

(Synchronous motors)

- low energy costs due to high degree of efficiency
- high momentum available as of speed zero
- speed control with subordinate moment limitation possible
- easy and fast startup due to preconfigured drive packages
- with protection type IP54, ventilation of the motor can be eliminated
- high dynamics due to low motor mass inertias

Future oriented

Considering the increasing shortage in energy resources worldwide, the energy saving Servo-Drive Technology (BL-DC) will be the drive system of the future.

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Applications

Extrusion plants
Films, plates, profiles, pipes, blow molding machines, food, noodles/snacks etc.

Winders
Textile, plastics or paper with compensator or torque control, center or surface-driven winders

Traction and lift drives
Hoisting devices, cranes, high-bay warehouses, lifts/ elevators

Pumps and ventilators

Miscellaneous
Conveyor belts, tube lines, knitting machines, centrifuges, gathering machines, felting machines, machine tools, glass-wool and mineral wool production

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03-GB 12/2011