



Tomsk Electronic Company
is certified to the international standard
BS EN ISO 9001:2008, auditor NQA Russia



Scientific and Manufacturing
Enterprise

**TOMSK
ELECTRONIC
COMPANY, Ltd.**



SME Tomsk Electronic Company, Ltd.
Vysotskogo Ul., 33, TOMSK, 634040, Russia

Phone/Fax: +7 3822 63 39 63
+7 3822 63 38 37

e-mail: npp@mail.npptec.ru
web: www.npptec.ru



TOO SMETEC,
Subsidiary Enterprise in the Republic of Kazakhstan
62, Voroshilov St., Ust-Kamenogorsk,
Republic of Kazakhstan, 070002

Phone: (7232) 75-38-31
Fax: (7232) 75-38-31

e-mail: smetec@mail.npptec.ru

Serial Production

Electric Drives and Packaged Electrics



Explosion-Proof RemTEK Electric Drives

SME Tomsk Electronic Company offers development and serial production of explosion-proof electric drives with electronic control system and all components to them: gearboxes, electric drives, electronic control modules. For this purpose company employees are qualified technicians and engineers and the branches of manufacture are mechanical, electronic and electrical engineering. To ensure high quality of its products, testing laboratory established in the company is provided with the up-to-date equipment: shake tables,

climatic chambers, loading stand, microsecond and nanosecond impulse interferences generators, static discharges generators, units for phase break and overload simulation in supply line. Guarantee and after guarantee service for electric drives is provided by specially established maintenance department.

They are used to control wedge and butterfly valves, cock valves, swivel dampers, cut-off devices and others.

02

RemTEK-01



RemTEK-02



RemTEK-03



Main Technical Parameters for RemTEK-1, RemTEK-2, RemTEK-3 electric drives

Technical features	RemTEK-01	RemTEK-02	RemTEK-03			
	Control module modifications					
	"V"	"V"	"R"	"R"	"M"	"S"
Control module type	In-built frequency converter		External reversing magnetic switch		External reversing magnetic switch, In-built non reversible thyristor converter	In-built reversing thyristor converter
Nominal diameter of DN fittings, mm	150...1200	50...500	150...1200			
Application for control valves	yes		limited			yes
Application for stop valves	yes					
Design	multiturn	multiturn rotary linear	multiturn			
Torque range, Nm		40...200 multiturn design				
Force ranges, N	300...10000	100...4000 rotary design 7000...45000 linear design	300...10000			
Travel rates ranges, rpm	0,6...300	3...220 multiturn design 0.25...3 rotary design 0.4...20 mm/s linear design	6; 7,5; 12; 15; 20; 40; 48; 60; 96; 230			
Rate can be changed within ranged from 10% to 200%	yes		no			
Smooth start	yes		no			yes
Motion capability at rated load and if one electrical phase is broken	yes		no			
Currents of the electric drive for maximum torque	not exceeding two rated currents of electric motor		(4 - 8) rated currents of electric motor			

Special Features of Explosion Proof RemTEK Electric Drives

- Explosion protection marking 1ExdIIBT4 permits the use of electric drives in various production branches: oil, gas, chemical, petrochemical and others
- The extended voltage ranges 380 V (220 V) from minus 50 to plus 47 %; breaks up to 3 seconds are allowed
- The extended ambient temperature ranges from minus 60 to plus 50°C
- Moisture and dust protection level IP67
- Highly reliable gearboxes, based on planetary and lantern-wheel gearing and ballscrew, with consistent aircraft antifreeze greases and dry screw and nut gearing with antifriction materials, ensures electric drives with life duration up to 1500 cycles in 'open-close' mode
- Design features:
 - multiturn drives up to 15000 Nm
 - turning drives up to 4000 Nm
 - linear drives up to 45000 N
- Wide ranges of travel speed: multiturn drives - from 0.75 rpm to 300 rpm, turning and linear drives travel time - from 60 seconds to 3 seconds. Electric drives with V-type electronic module can be reprogrammed easily by user for different required travel speed
- There are four control module modifications and electric drive, respectively, depending on electric drive control mode
- In-built fast-response microcomputer with nonvolatile memory provides optimum algorithms for asynchronous and synchronous electric motor control depending on the design and all necessary functions for pipeline valves control. This allows ranking RemTEK electric drives as intelligent
- In-built host module (black box) registers all time-tagged emergency and pre-emergency events (supply voltage, currents, temperature, torque, rate, position, control commands, readjustments) and allows main-tenance staff to service equipment expeditiously and timely
- All modes of electric drive control: on-site by handles or IR remote control panel, remotely via digital control signals of clean contact type or CAN, RS-485 interfaces with Modbus, Profibus protocols, via current control circuits with (4-20) mA, by a mechanical manual wheel
- In-built noncontact position sensor for 9999 turns provides all valve types matching as for required travel, and position control if power supply fails
- In-built electronic torque limitation algorithm ensures high reliability, accuracy (up to 10 %), wide ranges of cut off torques (from 20 to 100 %) when moving in different directions, and as per zones: when speeding-up, stopping and moving. This allows regulating pipeline valves with care and ensures their long life
- **Two basic modes of valves control:** travel up to pre-set position within gauged interval of the position sensor or travel up to pre-set limitation torque (compressing torque)
- **Additional modes:** travel during preset time, electric motor drying, monitoring over availability of electric drive, monitoring of two thresholds (1 Mohm, 0.5 Mohm) of insulation resistance, jammed valves turning off/uncapping, electronic position holding, high-precise arrival to the required position at positional controller, pressure, temperature and flow rate control by means of in-built PID control and technological sensors (that are hooked up to analog inputs (4 - 20) mA), phase break and short-circuit testing with the help of external master controller, on-site electric drive calibration with removal
- Complete electronic high-accuracy protection of the electric motor ensures its long life
- All main fits per Industrial Standard OCT 26-07-763-73 (A, B, C, D, E) for multiturn electric drives, per ISO 5211-2001 (F05, F07, F14) for turning electric drives and adapter kit for linear electric drives allow matching electric drives principal dimensions to all types of valves

Packaged Electrics



Subsystem for Power Control (SSU)

It is aimed for distribution, control and protection of power supply lines of power equipment as well as for recording power consumption at oil, gas and petrochemical and other facilities.

SSU is used for operation under three phase voltage at 380V, 50 Hz and amperage up to 600A.

SSU provides power supply and control over switching on and off of the following equipment:

- Pumps
- Motors of various capacity
- Electric drives for shutdown valves and fittings
- Samplers
- Ventilation and air conditioning
- Regular and emergency lights (outside/inside)
- Heating elements
- Electric and other equipment

Functions

- Current distribution in supply lines
- Protection of supply lines from short circuits and overload through installation of protection devices and automatic shutdown
- Switching on and off power supply for connected equipment, selection of operation mode, setting up rate, capacity and torque for the equipment controlled

Design

SSU is a cabinet with electric and control equipment located inside. Elements indicating the state and control over connected lines are located on the cabinet door (front panel). It is possible to install voltmeters and Ameters to display parameters of main and standby inputs.

Components are installed to the cabinet considering the distribution of outgoing lines in accordance with functional distribution or location of the equipment to be connected.

Depending on the type and quantity of the equipment to be connected and rated current, to locate SSU equipment one can use cabinets for one-way or two-way servicing, to be mounted to the wall or installed onto the floor. Cabinets are equipped with locks to avoid the unauthorized access. Dimensions of the cabinet, options for installation and mounting are defined when placing an order.

Low Voltage Packaged Units

Low Voltage Package Unit of NKU

It is aimed to control and protect from 1 up to 6 three phase asynchronous motors, being an integral part of various equipment: electric drives for pipe fittings, pumps, compressors, fans, conveyors etc.

Low Voltage Package Unit of NKU-3

It is aimed to be used as an input, recording, switching and control device for general industrial purposes, such as patrol stations, car washing, small stores and offices, warehouses etc.

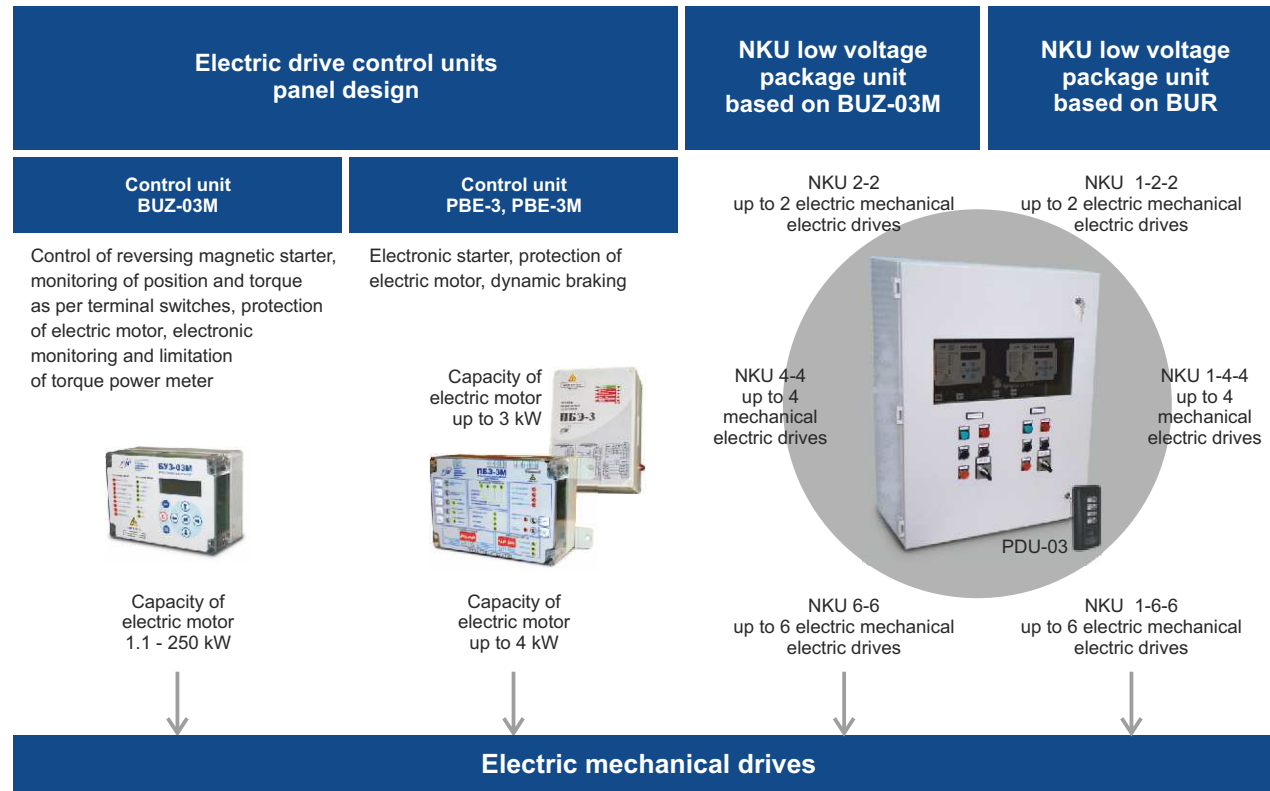
Units for Electric Motors Control and Protection

Contactless Electronic Starter of PBE-3

PBE-3 thyristor control unit is aimed for control and protection of asynchronous electric motors with the capacity from 0.37 to 3 kW.

Unit for Electric Motor Control and Protection of BUZ-03M

BUZ-03M electronic control unit provided with magnetic starter is aimed for control and protection of asynchronous electric motors with the capacity from 0.37 to 250kW.



Power Supply Units



Power Unit of BP-24/3

BP-24/3 Power Supply is aimed for power supply to various industrial equipment with direct voltage at 24V and current up to 3 A. Output voltage can be adjusted within ranges from 23,5 to 28,5 V.



Power Supply IP-20

It is aimed for power supply to industrial machinery (particularly samplers of Proba-1M type) providing direct voltage at 170V and amperage up to 0.8A.



Power Supply IP-15-01

It is aimed for power supply to units with spark proof circuits of explosion protection marking [Exia]IIC as per GOST P51330.0, GOST 51330.10. IP-15 is provided with voltage outputs of 24V and 12V (various modifications).



Power Controller RMS-03

It is aimed for power supply to solenoid magnet with two windings under direct voltage. Output voltage of the first channel makes 100V. Output voltage of the second channel makes 150V when switched on and from 9 to 18V in hold mode. Maximum output amperage for each channel makes 1A.

BPE Solenoid Power Supply

It is aimed for power supply to solenoid magnet winding under direct voltage. Output voltage of the forced switching mode makes 380 V by current up to 40A. In hold mode output voltage makes from 18 to 28V by current up to 3A.

Overload Protection Units



Protection Unit BZS-03

It is aimed for high-speed protection of equipment from excessive voltage and overload in mono phase circuits with alternating currents up to 220V, as well as for control over main parameters of the circuit. Maximum output capacity makes 2500W.



Input Filters FV

FV input filters are aimed for equipment protection from high voltage interference in three phase circuits AC with 380V voltage. Filter output capacity makes from 1.5 to 45 kW (depending on the modification).

Communication Units

Communication Micro Controller MKS-07M

It provides connection to remote control systems and PCS of electric drives and other devices equipped with CAN exchange interface.

BI-M4 Interface Unit

It provides connection to remote control systems and PCS of electric drives and other devices equipped with CAN exchange interface.

Interface Converters PI-04M, PI-04T, PI-08M

Aimed for converting signals from field buses into RS-232 and USB 2.0 interfaces.

