GearShift **C**ontrol **S**ystem

GTSystem has developed a gear shift application with a 4 axis industrial robot system for the actuating of the original vehicle gear lever for all kind of manual transmissions on durability, functional and roller test benches.

GCS **G**EAR**S**HIFT **C**ONTROL **S**YSTEM

*GTSystem 4 axis **G**earshift **C**ontrol **S**ystem actuator*

- Compact design
- Durable industrial technology
- Easy software application - Real time - IPC controlled
- Highly dynamic brushless servomotor
- Highly accurate travel measuring device
- High velocity and force control

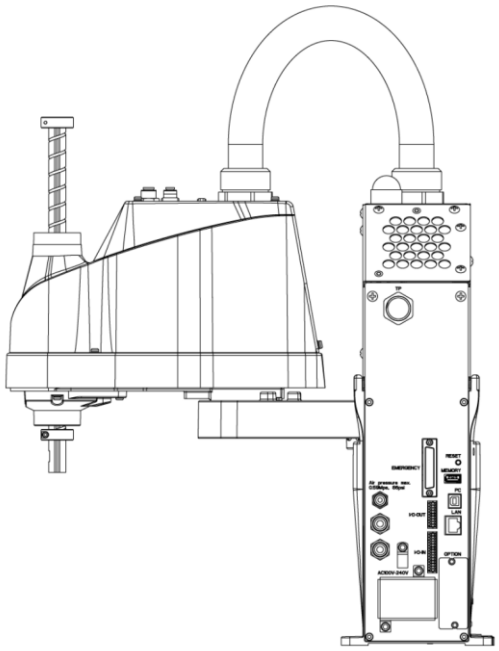
- Easy and fast adjustment at the test bench

The **G**earshift lever **C**ontrol **S**ystem **GCS** is well prepared for any kind of original gear lever adaptation from real vehicle. It can be used for Manual Transmissions and any kind of Automatic Transmissions with more than one number of moving lanes.

In comparison the other gear shifting equipment systems on the market there is no limitation with a fixed H or HH positioning specification. All positions can be free defined in the range of the 3 robot arms.

Typically the gear lever moves on a radius and the shift lever knob has different z-axis coordinates in the different gear positions. The GTSystem robot can control the gripper z-coordinate also in the exact height of each gear. Additionally the z axis turning position is controlled with high precision in the 3D room.

With the GTSystem GCS robot system the user can define an independent x,y,z coordinate system which can be adjusted parallel to the original H or HH gear lever system. The force can be measured in 3 axis and can be controlled with different software options.



View of all inputs and outputs of the GCS

The GTSystem GCS Control System has a real time processor layout and a modern HMI for several end devices. The intuitively operable menu interface enables the user to enter all parameters easily. Independently of the actuator,

the various operating modes are a component of the GTSystem software setup, which offers a uniform user interface for all testing applications.

For the communicating interface with external higher-level automation systems, in addition to digital and analogue I/O channels, the system also supports an EtherCat or as option a CAN interface.

For gear position teaching process the operation panel below is available:

Preliminary Data Sheet:

Technical Description		GCS I	GCS II
Movement radius range	[mm]	400	600
Maximum shifting force (static / dynamic)	[N]	130/~200 *	270/~400 *
Maximum shifting speed	[mm/s]	>1200	>1200
Position accuracy	[mm]	0,02	0,04
Gear lever implementation included for:	-	MT lever AT lever	MT lever AT lever

*All technical data are preliminary.
GTSystem GmbH Germany can change the technical data without notice.