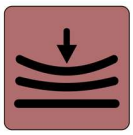
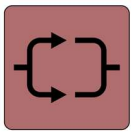
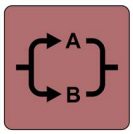
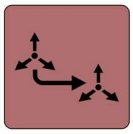
Application Package G1

Descriptions and videos of apps can be found on Franka World. All these apps require Firmware 4+ of the Franka Emika robot.

Name & icon	Description	Application / use case	Requirements
 Cart Flex	Within this app the behaviour is according to the settings. The CART FLEX app enables the user to set a so-called softness/rigidity at the position of the TCP (end effector coordinate system). Define this in all six degrees of freedom.	• Local change of stiffness. • Sensitive processes. • Inaccurate processes. • In the presence of large tolerance fields of the components. • Poor orientation of the components. • Assembly processes. • Screw applications (find thread start). • Damping	
 Dual Task	DUAL TASK generates two parallel execution lanes for each inserted app. It is possible to use the app multiple times. The tracks are simultaneously in progress. If one lane takes longer than another, the app waits for the slowest lane before closing.	• Execution of several actions at the same time. • Controlling of external peripherals during a movement. • Reading external sensor signals during a movement.	
 Try A Catch B	This app generates two execution lanes per inserted app. You can use the app multiple times. The A-Lane is running. If no error occurs, the app is completed. If an error occurs, the B-Lane is trying to execute.	• Stopping of external processes if there is a robot error (stop press, stop grinding machine, stop dispenser etc.). • Defined exit from a RERUN loop.	
Limiting	Allows to set the values of force and torque thresholds.	• Local setting of thresholds (higher or lower). • Increasing safety within a task (lower global limits, higher local limits).	
 Frame Ref	Programmed positions are relative to the defined reference.	• Subsequent moving of program sections.	

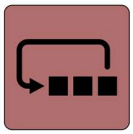
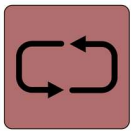
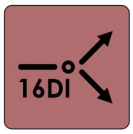
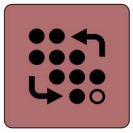
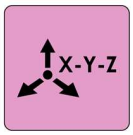
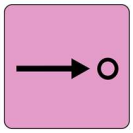
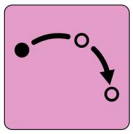
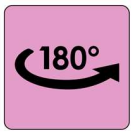
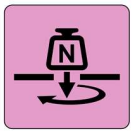
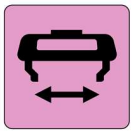
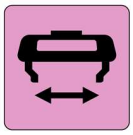
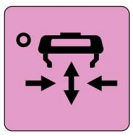
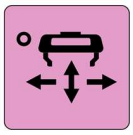
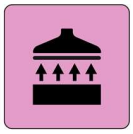
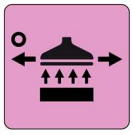
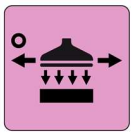
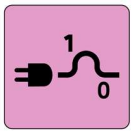
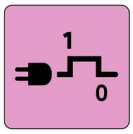
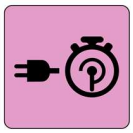
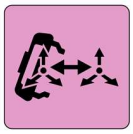
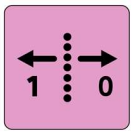
 Move To Start	After completing the last app within the MOVE TO START app, the robot moves to the initial point where the MOVE TO START app started. This allows programming within this app in absolute coordinates where you need relative movements.	• Ensure the same START and END POSITION after a motion action. • Upstream apps, which need a common start position and between execute movements.	
 Rerun	After completion of the last app within the RERUN app, the app executes again depending on the settings.	• Repetition of tasks.	
TCP Barrier	For a group you can define a cube or cylinder by using two points. The robot will run the built-in apps only if the TCP (end effector coordinate system) is moving within the defined space. The app produces an error if it reaches the space boundary or if the TCP is outside of the space at start up.	• Increased safety by restricting the workspace.	
 Modbus If	If the set conditions are true while calling the app, the apps within this group execute. Otherwise the whole MODBUS IF app skips.	• Implement decisions based on sensor signals (e.g. sorting GOOD or BAD parts).	Modbus System
 Array	Use this app to repeat tasks within a defined pattern in combination with a range of other apps. Two dimensions and the corner points define the pattern. The internally used counter is based on OPC/UA and can be defined and manipulated accordingly (e.g. with FLAG or from an external OPC/UA device). Optionally store the counter in case of an error stop.	• Remove and place objects out of a defined tray. • Place objects in a defined order (pattern).	
Mirror Task	The MIRROR TASK app enables you to copy (mirror) any TASK of your program memory into your current TASK. As soon or if the copied TASK changed you can update it using the REFRESH button inside the MIRROR TASK app.	• Reduce programming effort and increase clarity within a TASK. • Make repetitive processes available for several TASKs.	

Photo Move	The PHOTO MOVE app enables you to move to positions with the robot by selecting positions via a picture. At each selected position, the integrated apps will be executed. Demonstrate (manual guidance) four reference points so that the robot can locate the positions correctly. Adjust the approach level (height above reference level) via the dialog. In addition, define the approach speed and acceleration.	• Approaching positions instead of programming them manually. • Particularly helpful for many and unordered points. • Approach the same pattern when the object has shifted in space (keep the same reference points but demonstrate them again).	
Move Teach	Define any point within the working area. The robot moves to this point when running the app. Optionally deactivate specific parameters.	• HOME position. • Defined starting point for a task, even if the robot is somewhere else when starting the task. • Efficient programming. • Transfer positions. • Reference point in combination with the Supportive App ARRAY.	
 Move XYZ	Manually define the coordinates of any point within the working area. The robot moves to this point when running the app. The coordinates refer to the base coordinate system of the robot.	• Approaching a coordinate in the workspace of the robot. • HOME position. • Defined starting point for a task, even if the robot is somewhere else when starting the task. • Efficient programming.	
 Relativ Motion	Performs a Cartesian movement from the current position. The orientation (rotation) takes place in a defined order.	• Displacements of the end effector within the working area, where the absolute coordinate is not relevant or possible.	
 Circ Motion	This app allows you to program circles or circle segments. Three programmable points define the path.	• Movement on precise contours (defined radii, circles).	

Flex Motion	Use the app to reach motion points within the Cartesian space. You may allow deviations to the theoretical motion path through smoothness (spring effect e.g. with the app CART FLEX) or force with the app FLEX MOTION.	• Adaption to external factors (different size, position of objects) within the defined gross path. • Overlap and simultaneous use of forces within movements.	
Smooth Motion	The SMOOTH MOTION app enables constant movements either in the JOINT or CARTESIAN space.	• Movements with constant speed (CARTESIAN SPACE). • Smooth movements (JOINT SPACE).	
 Flip 180	FLIP 180 is a single app. The app rotates axle 7 of the robot 180° in each possible direction. If the 180° rotation is not possible, a fault signal appears.	• Turning of objects, which the robot grasps upside down 180° in the pre-process.	
Check Weight	The app checks the weight at the end effector. The execution is successful if the verification matches the apps settings. The setting options include the examination weight, the test duration and the logic. The app will report an error if the settings do not match the check.	• Check if an object is below or above a set weight. • Stacking off adherent objects, so that it checks whether one or more objects have been taken. • Fill-level control of objects with liquid or other contents.	
 Force	An app for applying forces and torques relative to the end effector (TCP).	• Joining, pressing, pulling, turning, tightening, pushing, lifting, holding…	
Recognize Contact	Detect a physical contact in a Cartesian direction with RECOGNIZE CONTACT. The robot moves within the end effector coordinate system in the programmed direction. As soon as an external force is applied (contact), the movement stops.	• Seek for a position in one direction. Use this position for further actions (following apps). • Stacking and de-stacking of parts.	
Gripper Snatch	With the GRIPPER SNATCH app you can grasp objects.	• Picking parts at the position of the end effector.	Franka Hand

 Gripper Set	You can adjust the position of the gripper with the GRIPPER SET app.	• Setting the gripper position.	Franka Hand
 Gripper Ref	You can execute the end position calibration of the Franka hand with the GRIPPER REF app. The gripper fingers feel for the end positions (open & close).	• Initial calibration within a task. • Setting of virtual end stops for instance to compress an object to a certain dimension.	Franka Hand
 Snatch Move	With SNATCH MOVE you can grasp objects at a defined position.	• Picking objects. • In combination with ARRAY applicable on defined pattern positions.	Franka Hand
 Unclasp Move	With the app UNCLASP MOVE you can lay down objects at a defined position.	• Lay objects down. • In combination with ARRAY applicable on defined pattern positions.	Franka Hand
Error	For a defined exit from a task use the app, that generates a deliberate error. Optionally and under certain circumstances, the task may continue after the error app.	• Controlled exit from a loop. Optionally, you can stop or continue sensitive processes.	
 Take	With this app you can grab objects with the Cobot Pump. In the settings you can adjust the object weight. Starting the app activates the Cobot Pump and switches it on with the adjusted vacuum pressure. If the vacuum does not establish within the pre-set time, the app triggers an error.	• Gripping and picking objects.	Cobot Pump Schmalz Cobot Pump Feature
Detach	With this app you can release objects, grasped by the Cobot Pump.	• Releasing objects from the Cobot Pump.	Cobot Pump Schmalz Cobot Pump Feature
 Take Move	With this app you can grab objects with the Cobot Pump at a defined position.	• Gripping and picking objects. • In combination with ARRAY applicable on defined pattern positions.	Cobot Pump Schmalz Cobot Pump Feature

 Detach Move	With this app you can lay down objects with the Cobot Pump at a defined position.	• Lay objects down. • In combination with ARRAY applicable on defined pattern positions.	Cobot Pump Schmalz Cobot Pump Feature
 Modbus Analog	Writing of analog signals. Use the app to control an analog output signal.	• Controlling of analog actuators.	Modbus System
 Modbus Set	Processing digital output signals.	• Processing external signals. • Controlling of external actuators.	Modbus System
 Modbus Wait	Reading of digital signals.	• Processing of signals.	Modbus System
 TCP Shift	The app moves the TCP (Tool center point) to a defined position relative to a reference point (position of end effector or cartesian reference).	• Local relocation of the TCP, e.g. when using a gripper and an additional screw-ing unit. You can locally move the TCP to the tip point of the screwdriver.	
 Trigger Plane	At any programmed point, a virtual plane is generated. Once the TCP (end effector coordinate system) touches this layer (from both sides) the app is completed. Using this app only makes sense if you have multiple execution tracks (for example with DUAL TRACK).	• Start or stop actions depending on a defined position in the workspace. • Initial step (identification) for controlling actions (logic).	
Set Load	The app enables to set weight parameter.	• Setting weight parameters while grasping or dropping objects.	

Where am I	Display the position of the end effector (TCP) with the WHERE AM I app. The values show the distance between two taught points in cartesian space as well. Use this app solely in a temporary task.	• Measure and verification.	
Check TCP	This app can be used to check the TCP (endeffector frame) visually. You can programme three positions in the app. The coordinates and the orientation of the first position are stored, whereas for the other two points, only the orientation of the tool (TCP) is saved. As soon as the app is executed, the robot systematically moves to the programmed point with three different orientations. A static reference helps with the assessment. Use this app solely in a temporary task.	• Checking of manually adjusted end effector coordinates. • Increase of accuracy.	
Wait	With the WAIT app you can adjust waiting times.	• Delay. • Timed waiting of the termination of an external process.	
User Wait	USER WAIT registers any external force to the end effector coordinate system. As soon as it reaches the defined value, the app is completed.	• Interruption and waiting for an external interaction.	