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# SYNTEC G-TYPE CONTROLLER

最 值 得 信 任 的 電 控 伙 伴  
TRUSTED TECHNICAL SERVICE

# About Syntec

## PROFILE

TRUSTED TECHNICAL SERVICE

SYNTEC has become one of the most influential and development potential controller brand in the Asia-Pacific market. With smart manufacturing system among its core strengths, SYNTEC is well experienced in lean and diverse manufacturing, the digital and physical integration, and on-site services. With the support of multiple distributions, we are the ideal one-stop shop for complete solutions and we hope all the small and medium manufacturers can join us in stepping into Industry 4.0.

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# Product features

- Full-color handheld touch screen
- One controller for HMI, PLC and MACRO
- Support for test run / inching, easy for development test
- The arm is provided with support for linear movement / circular movement / smooth turn
- Open-design tool easy for development of customized designs and product features
- A complete package for lathe pickup/release provides single-axis movement, safe zone protection and many other functions dedicated to lathe pickup and release, it's no need to design and develop from scratch
- New generation multifunctional drive supports for a wide range of encoders and servo motors (Nikon, Tamagawa, Sankyo, Panasonic)



# Product solutions

Requirements	<ol style="list-style-type: none"> <li>1. Lathe &amp; arm in one single package</li> <li>2. Robotic arm built in or attached to lathe</li> <li>3. Operations by G, M codes</li> </ol>	<ol style="list-style-type: none"> <li>1. Handheld control box for easy operations</li> <li>2. Independent robotic arm goes with any lathe</li> <li>3. 1-on-2 or 1-on-multiple pickup/release</li> <li>4. Coordinated sequence across multiple measurement and testing stations.</li> </ol>
Recommended solution	<p style="text-align: center;"><b>All in one</b></p> <p style="text-align: center;">Laths controller      3-in-1 drive + feed trays</p>	<p style="text-align: center;"><b>Independent robotic arm</b></p> <p style="text-align: center;">Laths controller      81R      drive      feed trays</p>
Basic setup	<p>Lathe:</p> <ul style="list-style-type: none"> <li>➤ Serial-Loader axis (program optional)</li> </ul>	<p>Robotic arm:</p> <ul style="list-style-type: none"> <li>➤ Serial-2~4 axes</li> <li>➤ 81R handheld controller box(handwheel)</li> </ul>
Hardware package	SYNTEC multifunctional drive	81R handheld controller box (handwheel) + SYNTEC multifunctional drive
Program features	<ol style="list-style-type: none"> <li>1. More than 100 steps of procedure instructions</li> <li>2. Matrix feed trays</li> <li>3. Serial PLC operations</li> <li>4. XMLDB file management</li> <li>5. Up to 20 reference points</li> <li>6. Safe protection zone</li> <li>7. Smooth corner turn</li> </ol>	<ol style="list-style-type: none"> <li>1. Infinite steps of procedure instructions</li> <li>2. High-level logic syntax instructions</li> <li>3. Matrix feed trays</li> <li>4. Pickup/release procedure file management</li> <li>5. Infinite number of reference points</li> <li>6. Safe protection zone</li> <li>7. Smooth corner turn</li> </ol>
Corresponding software package	<p style="text-align: right;">Right-angle pickup/ release module</p>	<p style="text-align: right;">Program dedicated to right-angle pickup/release for lathes</p>



# Controller program functions

Significant improvement of user-friendliness  
Improvement of capability and user feelings for those who have different needs

It lowers the threshold of learning and development for engineers in developing functional packages for pickup/release and allows operators to easily get their hands on how to operate the robotic arm. All of these add up to shorter development time, improved development efficiency and increased production for every unit of manpower.

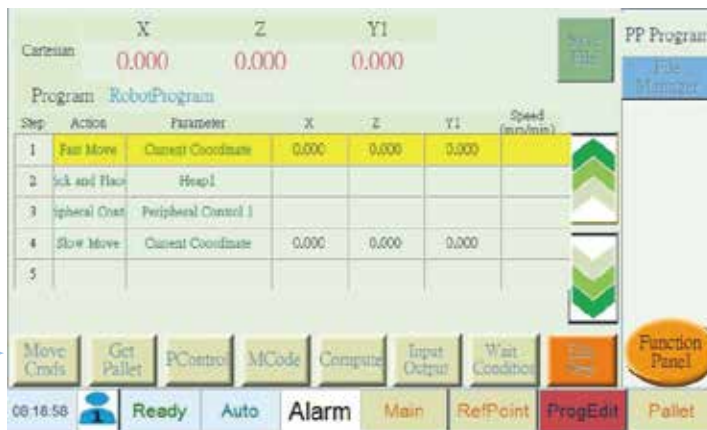
The arm movement setup and process are established through dialogue-style instructions in terms of arm parameter settings, reference point instructions, feed tray settings and pickup/release programming page on HMI. Users can easily establish and complete the applications of arm pickup/release without the need to learn any sophisticated programming language.

## Pickup/release program editing

Graphic dialogue instructions of movements and processes facilitates easy entries of parameters according to controller indications:

- ▶ No need to memorize long strings of controller programming commands and instructions, thus learning curves shortened for engineers;
- ▶ Memory for saving multiple pick-release programs for better flexibility;
- ▶ Ability to save multiple reference points allows updates according users' needs, greatly improving convenience in using.

Dialogue-style command input



Moving command features:

Single-axis movement for faster programming

3 kinds of movement

Smooth corner turn for greater pickup/release speed



# Reference point setting

Save coordinates needed for direct indication of reference points and easy retrieval later.

**Steps:**

- Move arm->press Instruction-> save point coordinates-> name the points.

**Functions:**

- Possible to edit the coordinates of reference points or delete and insert separately
- Return to reference point – specify the speed and movement back to reference point with greater flexibility and, thus, easier operations.

Current coordinates of arm

Point number and name

Specific point the arm returns to

No	Name	X	Z	Y1
1	Point1	0.000	0.000	0.000
2	LathWaitPoint	0.000	0.000	0.000
3	Trans	0.000	0.000	0.000
4	OverLatheP	0.000	0.000	0.000
5	StdPoint	0.000	0.000	0.000
6				

**Return to reference :**

In the auto mode, select the reference point to return to, tap "return to reference" and the information of the point will be shown.

- Activate handwheel during movement to simulate safety protection function.
- The machine indicates moving while returning to the reference point.
- Fast return to the defined reference point for accuracy test, calibration and many more.

Arm Move to StdPoint Point ?

X	Z	Y1
0.000	0.000	0.000

Slow Move Speed: \_\_\_\_\_ mm/min

Slow Move Fast Move Cancel

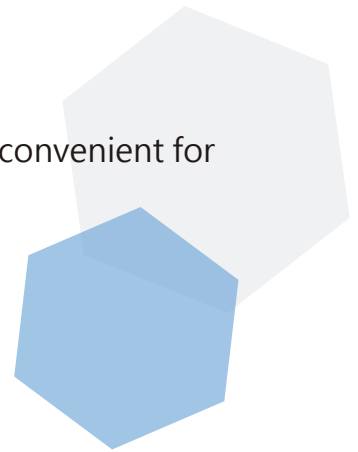


## Feed tray setting

Pickup and release with modular feed trays makes it easy to operate and convenient for pickup/release programming and flexible program calling.

### Features:

- ▶ Support for matrix feed trays  
Easy definition of parameters, such as number of trays
- ▶ Speed and pickup deceleration height  
Movement of arm at the pickup position editable



Feed tray position setting page

### Tray situation description:

Move to waiting point (the option of no waiting available) for peripheral control movements

Move to above the work piece

Slowly move to work piece position and initiate pickup control

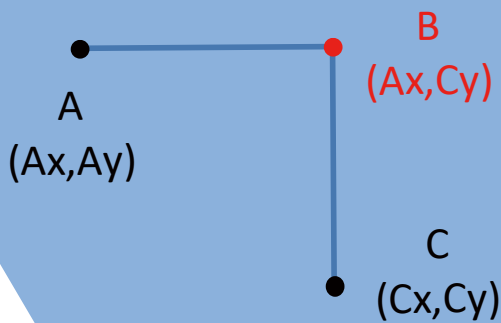
Follow the path back to waiting point (the option of no waiting available) for peripheral control movements



# Features of new-generation lathe pickup

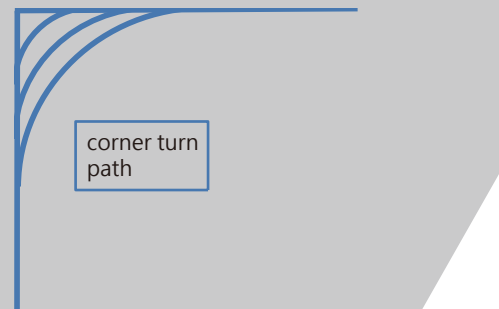
## Reference point setting

For instructions for points A and C, it is possible insert point B in program and skip the instructions for reference points, making it easier for operations and more user-friendly.



## Smooth corner turn

The smooth corner turn makes it smoother for movement control at a corner and, therefore, the operating speed is improved (program instruction path, corner turn path).



## Test run simulation

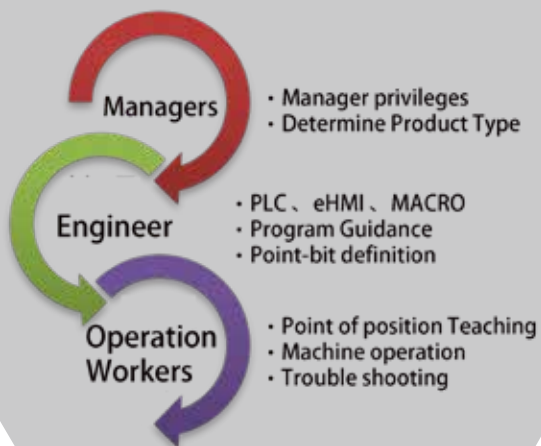
Operating the arm with rotating speed of handwheel (or button) ensures the safety as the program is being run, suitable for use during program development.





## Developed for different users

The user experience and user-friendliness are improved for users with difference needs.



## Safe zone protection

the limits of collision-proof zone is provided to prevent machine damage or undesirable loss due to human errors.



## Fast expansion and integration

The new generation model is provided with an integral expansion module for external devices, allowing fast plug-and-play function without complicated settings.



SRI IO



Visual

## All-in-one lathe arm

Everything is done with just one tap on the screen. The incorporation of customer's habits of use and the robotic arm gives products a greater value.



## One-on-one pickup and release for lathe

Easy settings of feed tray parameters with convenient instructions for key positions allows for quick introduction of automated material pickup and release.



## One-on-two pickup and release for lathe

The automatic production with one machine for two simultaneous procedures is realized. The combination of feed tray and work position detection results in fully automatic production.



## Pickup/release with robotic arm with visual inspection

The selection of visual inspection is provided for testing and pickup/release, enabling the most effective use of resource.





## 81RG series

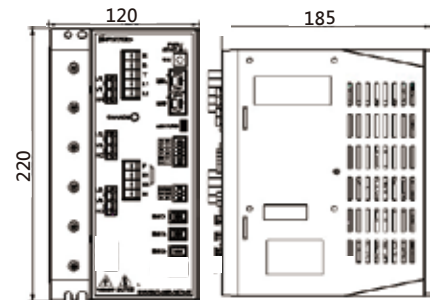
## All in one drive



Dimensions



Dimensions



Model	81RG	81RG-MPG	Model	S08-SMD
Modes supported	1~5-axis robotic arm		No. of axes supported	2 / 3 / 4axis
USB	USB * 1		Volume	200*110*185mm
Network	10/100 Mbps * 1		I/O connections	2I / 2O
COM Port	SRI *1		Modes supported	Nikon / Tamagawa / Sankyo / Panasonic
Server communication	M3 / EtherCAT		Server communication	M3 series
Max. no. of control axes	16		Power	1KW*2 / 1KW*3 / 1KW*4
I/O connections (expandable)	32 I / 32 O (256 I / 256 O)			