



Ultrasonic Sensor Programing Unit

UT-P Series

PRODUCT MANUAL

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

- 01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
Failure to follow this instruction may result in personal injury, economic loss or fire.
- 02. Do not use or store the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, salinity, moisture, or steam, or dust may be present.**
Failure to follow this instruction may result in explosion or fire.
- 03. Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.
- 04. Do not connect, repair, inspect, or replace the unit while connected to a power source.**
Failure to follow this instruction may result in fire.
- 05. Qualified personnel shall carry out installation, configuration.**
Responsible person for use is an operator who:
- is fully knowledgeable about the installation, settings, use and maintenance of the product.
Failure to follow this instruction may cause malfunction or result in accident.

⚠ Caution Failure to follow instructions may result in injury or product damage.

- 01. Use the product within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- 02. Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire.
- 03. Do not connect the load if only USB power is supplied.**
Failure to follow this instruction may result in fire or product damage.
- 04. IO-Link and UT-P communications cannot be used simultaneously.**
Do not connect wiring arbitrarily.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- The 5 VDC $\equiv$, 12 - 30 VDC $\equiv$ power input is insulated and limited voltage/current or use SELV, Class 2 power supply.
- Use the product, after 3 sec of supplying power.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise. Do not use near the equipment which generates strong magnetic force or high frequency noise (transceiver, etc.).
In case installing the product near the equipment which generates strong surge (motor, welding machine, etc.), use diode or varistor to remove surge.
- This unit may be used in the following environments.
 - Indoors (in the environment condition rated in 'Specifications')
 - Altitude max. 2,000 m
 - Pollution degree 3
 - Installation Category II

Cautions for Installation

- Install the unit correctly with the usage environment, location, and the designated specifications.
- The waterproof function may be damaged if the product is subjected to impact from a hard object or bent excessively or repeatedly.
- Do NOT pull the cable with a tensile strength of 80 N or over. It may result in fire due to the broken wire.

Product Components

- Product × 1
- Instuction Manual × 1
- USB 2.0 A-MiniB type cable (1 m) × 1
- Ferrite core × 1

Sold Separately

- Ultrasonic sensor: UTR Series
- M12 Connector cable: CIDH4-□, CLDH4-□, C1D5-□

Software

Download the installation file and the manuals from the Autonics Website.

■ atDistance

It is the monitoring data management program for installation of the ultrasonic sensor, parameter setting, and status information.

Specification

Model	UT-P
Power supply	External power: 12 - 30 VDC≐ (ripple P-P: ≤ 10 %) USB power: 5 VDC≐ USB bus power ⁰¹⁾
Current consumption ⁰²⁾	≤ 25 mA (no load)
Functions	Real-time monitoring of sensing distance. Perform UTR Series functions and set parameters through the dedicated software (atDistance).
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC≐ megger)
Dielectric strength	Between the charging part and the case : 1,000 VAC~ 50 / 60 Hz for 1 min
Vibration	1.5 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 2 hours
Shock	500 m/s ² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	5 to 60 °C, storage: -40 to 85 °C (no freezing or condensation)
Ambient humidity	0 to 50 %RH, storage: 0 to 50 %RH (no freezing or condensation)
Protection structure	IP20 (IEC standard)
Connection	Cable connector type models
Connector spec.	USB (mini-B type), M12 5-pin socket connector, M12 4-pin plug connector
Material	Case: PC, cable: PVC
Approval	CE  ENEC

01) USB bus Power is supplied from PC or USB host controller.

02) 3 sec after supplying power, up to 50 mA with button input.

First Beginning

01. Connect the programming unit to the ultrasonic sensor before supplying power.

02. Supply the external power

If the external power and the USB power are supplied together, the external power is operated. When USB power is supplied on supplying external power or external power is released on supplying external power and USB power together, the programming unit and the ultrasonic sensor are restarted.

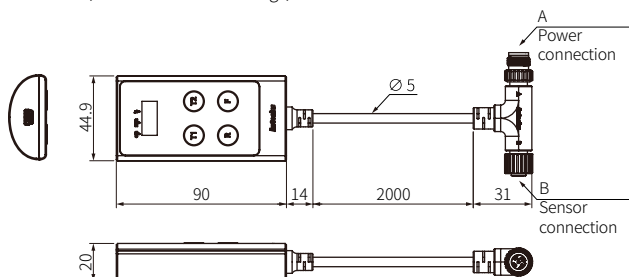
03. The display shows [H E L L o] and enters RUN mode.

04. Run the parameter reading.

If the ultrasonic sensor model connected to the programming unit is replaced, parameter writing is possible only when the parameter reading run. [n o P a r a m e t e r] will be displayed when you enter Direct Setting or Add-On mode if you have never run the parameter reading.

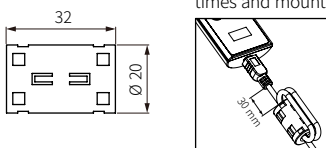
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.



■ Ferrite core

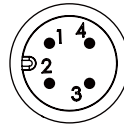
- Wind the cable through the inside of the ferrite core three times and mount the ferrite core.



Connector Specification

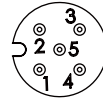
- Fasten the connector along the thread. (tightening torque: 0.39 to 0.49 N m)
- Fasten the vibration part with PTFE tape not to loosen.

■ A: Power connection



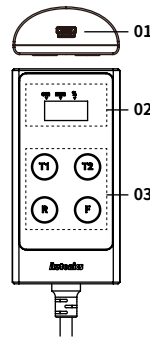
Pin no.	Function
① Brown	VCC 12 - 30 VDC≐
② White	I/V Analog output
③ Blue	GND 0 V
④ Black	C/Q Digital output

■ B: Sensor connection



Pin no.	Function
① Brown	VCC 12 - 30 VDC≐
② White	I/V Analog output
③ Blue	GND 0 V
④ Black	C/Q Digital output
⑤ Yellow	COM Multifunctional input

Unit Descriptions

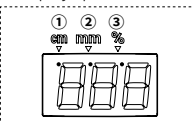


01. USB port

The USB bus power or the dedicated software (atDistance) connection

02. Display part (3-digit)

Displays present value and parameter setting value



① cm: displays 10 units (100 = 1000)

② mm: displays 1 units (100 = 100)

③ %: displays % (100 = 100 %)

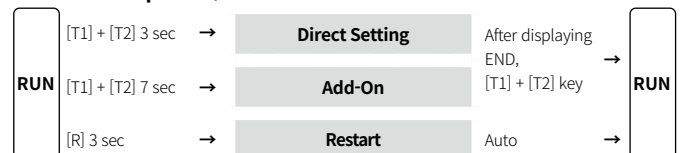
03. [T1], [T2], [R], [F] key

Parameter selection, Move digit of the setting value or change the setting value

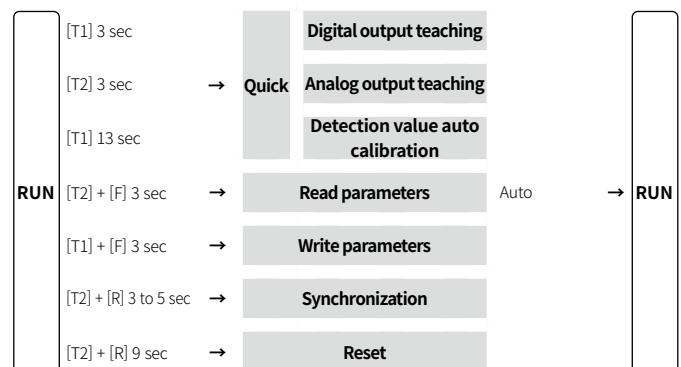
Mode Setting

- The available mode setting varies with the power supply method (external power/ USB power).
- On entering the mode, the key input elapse time is displayed through the display part. If there is no key input for 27 sec, the settings are ignored and it returns to the RUN mode.
- For more information, refer to the ultrasonic sensor UTR Series product manual.

■ External power / USB Power



■ External power



Ultrasonic Sensor UTR Series Reading / Writing Parameters

- Available only when supplying external power without the USB connection.
- Apply the same to the programming unit and the ultrasonic sensor by using reading / writing after changing the parameter setting value.

■ Reading parameters (Ultrasonic sensor → Programming unit)

Display	Setting operation
RUN mode	Press the [T2] + [F] key for 3 sec.
UPL	Release the key
000 → 000 → 000 (CCW rotation)	Ultrasonic sensor → Programming unit parameter reading run
End	The parameter reading is complete, and enter the RUN mode.

■ Writing parameters (Ultrasonic sensor ← Programming unit)

- On running the parameter writing, the sensor and model that read the parameter must be the same as the most recently.
- If it is not the same model, run the parameter read first.

Display	Setting operation
RUN mode	Press the [T1] + [F] key for 3 sec.
d n L	Release the key
000 → 000 → 000 (CC rotation)	Ultrasonic sensor ← Programming unit parameter writing run
End	The parameter writing is complete, and enter the RUN mode.

Synchronization / Reset

- Available only when supplying external power without the USB connection.
- Press the [T2] + [R] key to set up multiplex OFF / factory reset.
- If the [T2] keys are pressed for 12 sec for each parameter item, the existing settings are ignored and the CAN is displayed before returning to RUN mode.

■ Multiplex OFF

- Same as the select synchronization mode (setting value: 00) setting in Add-on mode.

Display	Setting operation
RUN mode	Press the [T2] + [R] key for 3 to 5 sec
5 9 C	Release the key
5 9 n	Press the [T2] key for 3 sec
RUN mode	YES: synchronization use, Release the [T2] key to complete setting and enter RUN mode.

■ Factory reset

Display	Setting operation
RUN mode	Press the [T2] + [R] key for 9 sec
r 5 t	Release the key
r 5 5	Press the [T2] key for 3 sec
RUN mode	YES: factory reset completion, Release the [T2] key to reset to default and enter RUN mode.

Restart

- Restart the ultrasonic sensor.

Display	Setting operation
RUN mode	Press the [R] key for 3 sec.
r E S E t	Release the key
RUN mode	The programming unit and sensor are restarted and enter the RUN mode. The parameter setting value is maintained.

Error

- In case an error occurs, the setting is canceled and the RUN mode is returned.

Display	Cause
Error	Out of the parameter setting range or teaching range
	Use present value correction before temperature stabilization (after about 30 min of supplying power)
	The model that tries to write parameters is different from the model that reads the parameter lastly.
	Set analog teaching with digital output models

Sold Separately: M12 Connector Cable

- For detailed information, refer to the 'M8/M12 Connector Cable' manual.

Appearance	Power	Connector 1	Connector 2	Length	Feature	Model
	DC	M12 (Socket-Female)	4-wire	2 m	Oil resistance PVC	CIDH4-2
				3 m		CIDH4-3
				5 m		CIDH4-5
				7 m		CIDH4-7
				2 m	Oil resistance PVC 	CIDH4-2-A
				3 m		CIDH4-3-A
				5 m		CIDH4-5-A
				7 m		CIDH4-7-A
		M12 (Socket-Female), L type		2 m	Oil resistance PVC	CLDH4-2
				3 m		CLDH4-3
				5 m		CLDH4-5
				7 m		CLDH4-7
				2 m	Oil resistance PVC 	CLDH4-2-A
				3 m		CLDH4-3-A
				5 m		CLDH4-5-A
				7 m		CLDH4-7-A
	M12 (Socket-Female)	M12 (Plug-Male)	1 m	PVC	C1D5-1	
			2 m		C1D5-2	
			3 m		C1D5-3	
			5 m		C1D5-5	
			7 m		C1D5-7	

Segment Table

The segments displayed on the product indicate the following meanings. It may differ depending on the product.

7 segment	11 segment	12 segment	16 segment
0 0 i I	0 0 i I	0 0 i I	0 0 i I
1 1 j J	1 1 j J	1 1 j J	1 1 j J
2 2 k K	2 2 k K	2 2 k K	2 2 k K
3 3 l L	3 3 l L	3 3 l L	3 3 l L
4 4 m M	4 4 m M	4 4 m M	4 4 m M
5 5 n N	5 5 n N	5 5 n N	5 5 n N
6 6 o O	6 6 o O	6 6 o O	6 6 o O
7 7 p P	7 7 p P	7 7 p P	7 7 p P
8 8 q Q	8 8 q Q	8 8 q Q	8 8 q Q
9 9 r R	9 9 r R	9 9 r R	9 9 r R
A A s S	A A s S	A A s S	A A s S
b B t T	b B t T	b B t T	b B t T
c C u U	c C u U	c C u U	c C u U
d D v V	d D v V	d D v V	d D v V
E E w W	E E w W	E E w W	E E w W
F F x X	F F x X	F F x X	F F x X
G G y Y	G G y Y	G G y Y	G G y Y
H H z Z	H H z Z	H H z Z	H H z Z