

Digital torque meter ATO-DPM-RTS5D with 3-channel 5 digit LED can real-time display dynamic torque, speed and power. Digital torque meter has functions such as zero tracking, low/high alarm and peak value display.

### I. Specification:

<b>Basics</b>	Model	ATO-DPM-RTS5D
	Dimension	160*80*170mm horizontal, hole size 152*76mm
	Shipping weight	2kg
<b>Technical parameters</b>	Display	Measuring range of torque: -99999~99999 Nm Display value of torque: 0~99999 Nm Display value of speed: 0~99999 rpm Display value of power: 0~99999 kW
	Measuring resolution	Meter resolution: 1/1000000, display resolution: 1/120000
	Measuring speed	25 times/second
	Display method	3-channel 5 digit LED display
	Meter power supply	220VAC, 50/60Hz
	Input signal	Various pulse signal: NPN, PNP, OC gate output signal of sensors, proximity sensors, rotary encoders
	Measuring frequency	Input pulse of torque: 5kHz~15kHz Input pulse of speed: 0.3Hz~20kHz
	Alarm	Three alarm outputs for L/H alarm
	Analog signal output	2-channel DC 4-20mA output signals (resolution: 1/4000, error: <0.2%FS, load capacity: ≤600Ω, optical isolation)
	Communication output	RS485 or RS232 (optical isolation)
	External power supply	±15VDC or 24VDC (≥300mA, provide power supply for torque sensor)
	Working environment	Temperature: -10~+70°C (14~158°F), humidity: 0~90%RH (no condensation)

### II. Panel and key description



Name		Description
Display	Display 1	Displays the measured value of torque. In the parameter setting state, the parameter codes and parameter values are displayed. If the last place decimal point blinks, it means it's the peak display state.
	Display 2	Displays the measured value of speed. Don't display any value in the parameter setting state.
	Display 3	Displays the measured value of power. Don't display any value in the parameter setting state.
Indicator		The alarm state of the torque alarm point and the peak display state.
Operating key	SET key	In the measurement state, press it and hold for more than 2 seconds to enter the setting state. In the setting state, press it once to display the next parameter and save the previous parameter.
	◀ key	It is invalid in the measurement state. In the setup state: 1 Recall the original parameter value.2 Move the modification digit.
	▲ key	It is invalid in the measurement state. Increase the parameter value or change the setting type in the setting state.
	▼ key	It is invalid in the measurement state. Decrease the parameter value or change the setting type in the setting state.

### III. Parameter setting

1. Press and hold the setting key "SET" for more than 2 seconds to enter the setting state, the meter displays the code of the first parameter.
2. "SET" key can select other parameters sequentially.
3. Press ◀ key to recall the original setting of the current parameter, the flashing digit is the correction digit.
4. Press ◀ key to move the modified digit, press ▲ Key to increase the value, press ▼ key to decrease the value.
5. Press "SET" to save the modified parameters and go to the next parameter. If it's the last parameter, press "SET" key will exit the setting state.
6. Repeat step 2~5 can set other parameters.

### IV. Parameter description

Code	Content	Range	Instruction
OA	Password 1	0~99999	No password is required.
OA1	Password 2	0~99999	No password is required.
FLtr	Filter coefficient	0~72	Default: 00006 When the torque measured value fluctuates greatly increase the setting value appropriately. The larger the setting value, the slower the display refresh speed.
in-d	The decimal point position of the torque display	0~4	This parameter is only for torque. Set to 1 to retain 1 decimal place, and set to 0 to not retain decimal place.
Lc	Torque range (absolute value)	256~99999	Torque range
Fd	Division value setting	1~36	Default: 5  This parameter helps display stability. It is defined as: when the meter judges that the measurement is stable, it displays the actual value, and then the measured value fluctuates less than the set value of this parameter, and the display remains unchanged.
tr-d	Zero tracking range	0~10	Default: 10 When the torque measured value is lower than this set value and is stable for at least 1 second, the measured value will be automatically cleared to zero.
in-d1	Decimal point of speed	0~1	This parameter is only for speed. Set to 1 to retain 1 decimal place, and set to 0 to not retain decimal.
Lc1	Speed range corresponding to analog signal	0~10000	Set to 3000 means the rotation speed is 0 ~ 3000 rpm, corresponding analog output signal: 4-20mA.
PULSE	Pulses per revolution	1~2000	Default: 00060
1-1	Absolute value measurement switch setting	0~1	Set to 0, indicating that the torque is displayed as the positive and negative torque. Set to 1, indicating that the torque is displayed as an absolute value.
ADD	Communication address	1~99	Default: 00001
bsH	Torque range corresponding to analog signal	0~99999	Torque transmitter output range setting. Note: 1. When the display value is absolute value, the transmitter output signal is also an absolute value. When the torque is 0, the transmitter output signal is lower limit value. 2. When the torque is displayed as the positive and negative torque, the zero corresponds to the middle point of the torque range.

Code	Content	Range	Instruction
ALSd	Lock function of alarm	0~1	Set to 0: The alarm output is not locked. Set to 1: The alarm output is locked. After alarm, it can only be cancelled by the "ZERO" key on the panel.
AL1	Alarm 1 setting value	-19999~99999	AL1 indicator
AL1F	Alarm mode of alarm 1	0~3	Default: 0  0: Upper limit alarm. 1: Lower limit alarm. 2: Absolute value upper limit alarm (Alarm when the absolute value of the measured value is greater than the set value). 3: Absolute value lower limit alarm (Alarm when the absolute value of the measured value is lower than the set value). Note: When set to absolute value alarm mode, parameter AL1 should be set to a positive value.
AL1HC	Return difference value of alarm 1	0~20000	Difference value between exiting alarm state and entering alarm state. Set to 0 means no return difference function.
AL1YS	Alarm delay setting of alarm 1	0~20.0s	When the displayed value alarms, the relay will output after the set delay time. This delay time will also work when exiting the alarm. When set to 0.0, there is no alarm delay function. This setting is only for alarm 1.
AL2	Alarm 2 setting value	-19999~99999	AL2 indicator
AL2F	Alarm mode of alarm 2	0~1	Default: 0  0: Upper limit alarm. 1: Lower limit alarm. 2: Absolute value upper limit alarm (Alarm when the absolute value of the measured value is greater than the set value). 3: Absolute value lower limit alarm (Alarm when the absolute value of the measured value is lower than the set value). Note: When set to absolute value alarm mode, parameter AL2 should be set to a positive value.
AL2HC	Return difference value of alarm 2	0~20000	Difference value between exiting alarm state and entering alarm state. Set to 0 means no return difference function.
AL2YS	Alarm delay setting of alarm 2	0~20.0s	When the displayed value alarms, the relay will output after the set delay time. This delay time will also work when exiting the alarm. When set to 0.0, there is no alarm delay function. This setting is only for alarm 2.
HZ-L	Torque frequency lower limit	0~99999	Default: 05000Hz Frequency value corresponding to negative torque range.

Code	Content	Range	Instruction
HZ-H	Torque frequency higher limit	0~99999	Default: 15000Hz Frequency value corresponding to positive torque range.
HZ-0	Torque frequency zero point	0~99999	Default: 10000 Frequency value corresponding to torque zero.
LO-HZ	Frequency value corresponding to zero clearing	0~99999	The frequency value when the panel is cleared by ZERO key. When press the ZERO key, the current frequency value is automatically stored in this parameter. By viewing this parameter, you can know the actual zero frequency value of the torque sensor.

### V. Function operation

1. Zero operation of torque value: Press and hold the "ZERO" key until the display value is zero. This function is used to clear the zero drift of the torque sensor to achieve the best detection effect.
2. Torque peak value display: Press the "PEAK" key, the peak torque is shown in display 1. When the peak value is displayed, the last digit blinks. Press the "PEAK" key again to return the current torque value measurement state. After the torque zero operation is performed, or the power is turned off, the peak value is returned to zero.

### VI. Wiring diagram:

