# TFT DISPLAY SPECIFICATION




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Represented by:

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# SPECIFICATION

## MODEL NO. : WL0F0007000A8GXACSA00-FC

# Summary

WL0F0007000A8GXACSA00-FC is a 7-inch multiple Interfaces HMI Smart display module with 1024x600 pixels resolution.

Supply input voltage with dynamic range from 8V-48V, typical value is 24V.
It works within temperature range from -20 to +70℃ and storage temperature ranges from -30 to +80℃.

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**Features**

| Item | Specifications | Connector |
|---|---|---|
| Display | WF70-1024600A8L#BP3-FC | CON12 |
| Touch | PCAP | CON2 |
| Brightness | Hi-Brightness(Typ 850/ Min 800 nits) | N/A |
| MCU | STM32 Hi-end series | N/A |
| SW GUI tool | ST TouchGFX | N/A |
| FW design | initial code only | N/A |
| System interface | RS485_1 w/PWR | 2.0mm, 4P (CON3) |
| | RS485_2 w/PWR | 2.0mm, 4P (CON4) |
| | RS232 | 2.54mm, 5P (CON5) |
| | UART_1 | 1.25mm,3P (CON6) |
| | UART_2 | 1.25mm,3P (CON7) |
| | USB | Type C |
| | CAN FD_1 w/PWR | 2.0mm, 4P (CON8) |
| | CAN FD_2 w/PWR | 2.0mm, 4P (CON9) |
| | I2C_1 | 1.25mm,3P (CON10) |
| | I2C_2 | 1.25mm,3P (CON11) |
| Flash memory | 16MB | N/A |
| Operating voltage | 8V~48V | 1.25mm, 6P(CON13) |
| | SWD debug port | 2.54mm, 4P(CON14) |
| | Micro SD slot | SD |
| | PoE add on function(Option) | (CON15) |
| | Battery coin cell connector | Y(CONA200),<br>PH-SMT-2AW |
| | Push button_1(SW4) | RESET module function |
| | Push button_2(SW2) | PH2 for user development |
| | Push button_3(SW3) | PH3 for user development |
| | LED_1 | for PWR |
| | LED_2 | SWDIO indicator |
| | LED_3 | SWCLK indicator |
| | LED_4 ( share with CON16 GPIO1) | PI15for user development |
| | Ethernet | RJ45 |
| GPIO<br>2.54mm, 16P<br>(CON16) | Each of the GPIO pins can be configured by software as output (push-pull or open-drain, with or without pull-up or pull-down), as input (floating, with or without pull-up or pull-down) or as peripheral alternate function. Most of the GPIO pins are shared with digital or analog alternate functions. Please refer to the datasheet of MCU STM32H747 | |
| | Optional for 1xDAC | Pin1 |
| | Optional for 3xADCs | Pin1/3/4/12/15 |
| | Optional for 16 sets of GPIO | Pin1~16 |

# Product information

## Mechanical Data

| Item | Standard Value | Unit |
|---|---|---|
| LCD panel | 169.9(W) x 103.4(H) x 7.3(D) | mm |

## General information

| Item | Standard Value | Unit |
|---|---|---|
| Operating voltage | DC 8~48V or POE PD(Option) | Vdc |
| Communication Interface | LAN / CANFD / RS485 /RS232 /UART/ I2C/USB | NA |
| MCU | STM32H747 | N/A |
| Flash Memory | 16 | MB |
| LCD display size | 7.0 | inch |
| Dot Matrix | 1024 x RGBx600(TFT) | dot |
| Module dimension | 203.2(W) x 116.5 (H) x 25.8(D) | mm |
| Active area | 154.21 x 85.92 | mm |
| Pixel pitch | 0.1506 x 0.1432 | mm |
| Brightness | Min: 800; Typ: 850 | $cd/m^2$ |
| LCD type | TFT, Normally Black, Transmissive | |
| View Direction | 85/85/85/85 | |
| Aspect Ratio | 16:9 | |
| Touch Panel | With Projected Capacitive Touch Panel (PCAP) | |
| Surface | Glare | |
| GPIO | 16 | CH |
| SD card | Micro SD slot | |

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# Contour Drawing

CON16
GPIO

| PIN | SYMBOL | PIN | SYMBOL |
|---|---|---|---|
| 1 | IO_0 | 2 | IO_1 |
| 3 | IO_2 | 4 | IO_3 |
| 5 | IO_4 | 6 | IO_5 |
| 7 | IO_6 | 8 | IO_7 |
| 9 | IO_8 | 10 | IO_9 |
| 11 | IO_10 | 12 | IO_11 |
| 13 | IO_12 | 14 | IO_13 |
| 15 | IO_14 | 16 | IO_15 |

CON15
(Ag9700-S) PoE

| PIN | SYMBOL |
|---|---|
| 1 | VIN+ |
| 2 | VIN- |
| 3 | VIN+ |
| 4 | VIN- |
| 5 | IC |
| 6 | NC |
| 7 | -VDC |
| 8 | +VDC |
| 9 | ADJ |
| 10 | IC |

CON14 SWD

| PIN | SYMBOL |
|---|---|
| 1 | SWCLK |
| 2 | GND |
| 3 | SWDI |
| 4 | NRST |

CON13
Power input

| PIN | SYMBOL |
|---|---|
| 1 | GND |
| 2 | VIN |
| 3 | VIN |
| 4 | VIN |
| 5 | NC |
| 6 | GND |

CON10
I2C_1

| PIN | SYMBOL |
|---|---|
| 1 | SDA |
| 2 | SCL |
| 3 | GND |

CON11
I2C_2

| PIN | SYMBOL |
|---|---|
| 1 | SDA |
| 2 | SCL |
| 3 | GND |

CON8
CAN FD_1

| PIN | SYMBOL |
|---|---|
| 1 | VIN |
| 2 | CAN_H |
| 3 | CAN_L |
| 4 | GND |

CON9
CAN FD_2

| PIN | SYMBOL |
|---|---|
| 1 | VIN |
| 2 | CAN_H |
| 3 | CAN_L |
| 4 | GND |

CON6
UART_1

| PIN | SYMBOL |
|---|---|
| 1 | URTX |
| 2 | URRX |
| 3 | GND |

CON7
UART_2

| PIN | SYMBOL |
|---|---|
| 1 | URTX |
| 2 | URRX |
| 3 | GND |

CON5
RS232

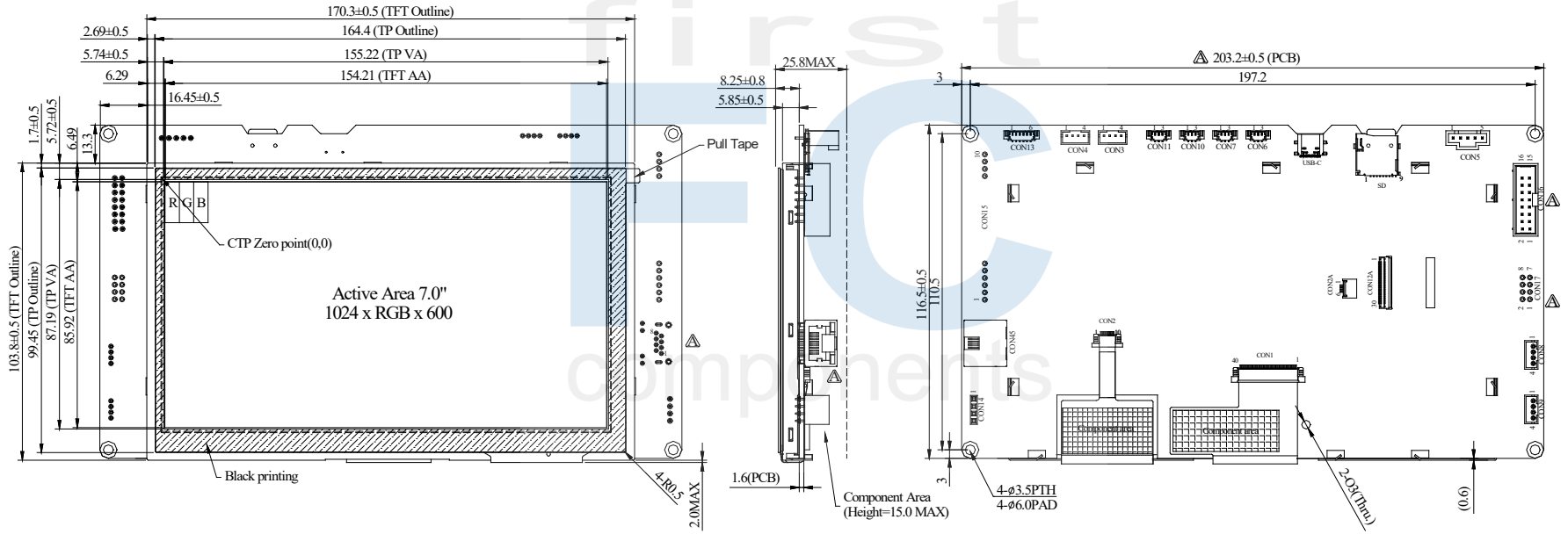
| PIN | SYMBOL |
|---|---|
| 1 | RTS |
| 2 | CTS |
| 3 | TXD |
| 4 | RXD |
| 5 | GND |

CON3
RS485_1

| PIN | SYMBOL |
|---|---|
| 1 | VIN |
| 2 | 485A |
| 3 | 485B |
| 4 | GND |

CON4
RS485_2

| PIN | SYMBOL |
|---|---|
| 1 | VIN |
| 2 | 485A |
| 3 | 485B |
| 4 | GND |




The non-specified tolerance of dimension is ±0.3mm.

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# Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating Temperature | TOP | -20 | — | +70 | ℃ |
| Storage Temperature | TST | -30 | — | +80 | ℃ |

# Electrical Characteristics

**1. Operating conditions:**

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage | VIN | — | 8 | 24 | 48 | V |
| LCM Power Consumption | | — | | 6.48 | 7 | W |
| Current Drawn VIN=8V | | | | 838 | | mA |
| Current Drawn VIN=12V | | | | 531 | | mA |
| Current Drawn VIN=24V | | | | 270 | | mA |
| Current Drawn VIN=48V | | | | 144 | | mA |

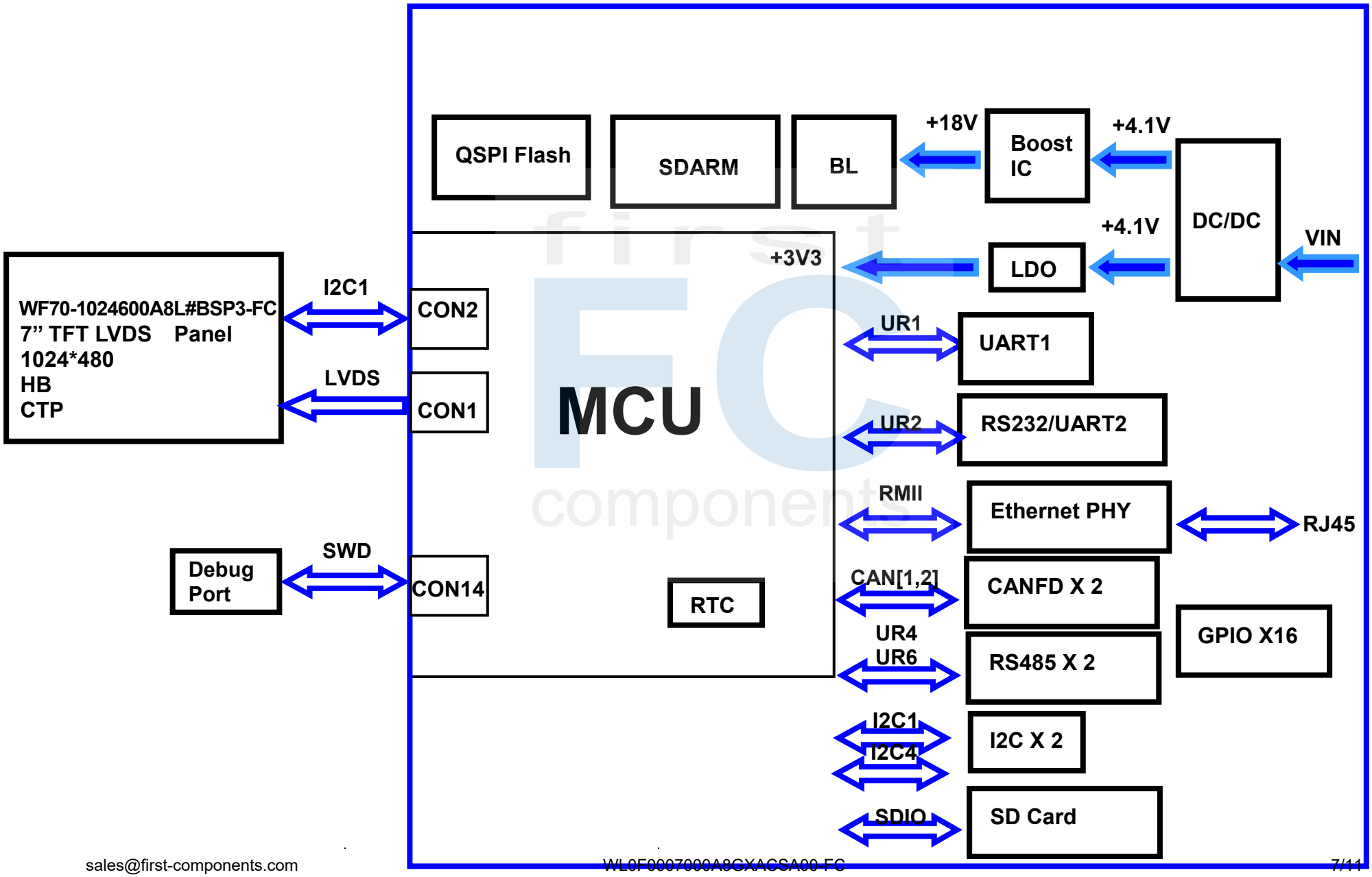
**2. LED driving conditions:**

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| LED current | | - | 188 | | mA |
| Power Consumption | | - | 3.3 | 3.667 | W |

# BOM

| Item | Description |
|---|---|
| LCM | WF70-1024600A8L#BSP3-FC |
| PCBA | SV10007R00A8F00N0100 |

# Block diagram



# Interface

**Power input connector**
**CON13 (1.25mm, 6P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | GND | Power supply GND input | Power |
| 2 | VIN | Power supply input; 8~48V | Power |
| 3 | VIN | Power supply input; 8~48V | Power |
| 4 | VIN | Power supply input; 8~48V | Power |
| 5 | NC | | |
| 6 | GND | Power supply GND input | Power |

**RS485_1 interface**
**CON3 (2.0mm, 4P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | VIN | Power supply input; 8~48V | Power |
| 2 | 485A | Non-inverting receiver input and non-inverting driver | |
| 3 | 485B | Inverting receiver input and inverting driver output | |
| 4 | GND | Power supply GND input | Power |

**RS485_2 interface**
**CON4 (2.0mm, 4P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | VIN | Power supply input; 8~48V | Power |
| 2 | 485A | Non-inverting receiver input and non-inverting driver | |
| 3 | 485B | Inverting receiver input and inverting driver output | |
| 4 | GND | Power supply GND input | Power |

**RS232 interface**
**CON5 (2.54mm, 5P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | RTS | Request to send | I/O |
| 2 | CTS | Clear to send | I/O |
| 3 | TXD | Transmit Data | I/O |
| 4 | RXD | Receive Data | I/O |
| 5 | GND | Ground | Power |

**CAN FD_1 interface**
**CON8 (2.0mm, 4P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | VIN | Power supply input; 8~48V | Power |
| 2 | CAN_H | CAN High-Level Voltage | |
| 3 | CAN_L | CAN Low-Level Voltage | |
| 4 | GND | Power supply GND input | Power |

**CAN FD _2 interface**
**CON9 (2.0mm, 4P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | VIN | Power supply input; 8~48V | Power |
| 2 | CAN_H | CAN High-Level Voltage | |
| 3 | CAN_L | CAN Low-Level Voltage | |
| 4 | GND | Power supply GND input | Power |

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**I2C _1 interface**

**CON10 (1.25mm, 3P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | SDA | I2C SDA signal | I/O |
| 2 | SCL | I2C CLK signal | I/O |
| 3 | GND | Power supply GND input | Power |

**I2C _2 interface**

**CON11 (1.25mm, 3P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | SDA | I2C SDA signal | I/O |
| 2 | SCL | I2C CLK signal | I/O |
| 3 | GND | Power supply GND input | Power |

**SWD interface:**

**CON14 (2.54mm, 4P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | SWCLK | CLK pin for SWD interface | Input |
| 2 | GND | GND for SWD interface | Output |
| 3 | SWDI | Data pin for SWD interface | I/O |
| 4 | NRST | Reset pin for SWD interface | Input |

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GPIO

**CON16 (2.54mm, 16P)**

| Pin | Symbol | Function | Pin | Symbol | Function |
|---|---|---|---|---|---|
| 1 | IO0 (PA5) | GPIO,ADC1,DAC1,TIMER2 | 2 | IO1 (PI15) | GPIO |
| 3 | IO2 (PC2) | GPIO,ADC3 | 4 | IO3 (PC3) | GPIO, ADC3 |
| 5 | IO4 (PE4) | GPIO, TIMER15 | 6 | IO5 (PA12) | GPIO |
| 7 | IO6 (PE5) | GPIO,TIMER15 | 8 | IO7 (PE2) | GPIO |
| 9 | IO8 (PE6) | GPIO, TIMER15 | 10 | IO9 (PE3) | GPIO |
| 11 | IO10 (PI11) | GPIO | 12 | IO11 (PB1) | GPIO,ADC1,ADC2,TIMER3 |
| 13 | IO12 (PD11) | GPIO | 14 | IO13 (PB10) | GPIO, TIMER2 |
| 15 | IO14 (PH4) | GPIO,ADC3,I2C2_SCL | 16 | IO15 (PB11) | GPIO, TIMER2, I2C2_SDA |

**RTC Battery interface:**

**CONA200 (2.0mm, 2P)**

| Pin | Symbol | Function | Remark |
|---|---|---|---|
| 1 | Battery+ | 3.0V | Input |
| 2 | Battery- | GND | Output |

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