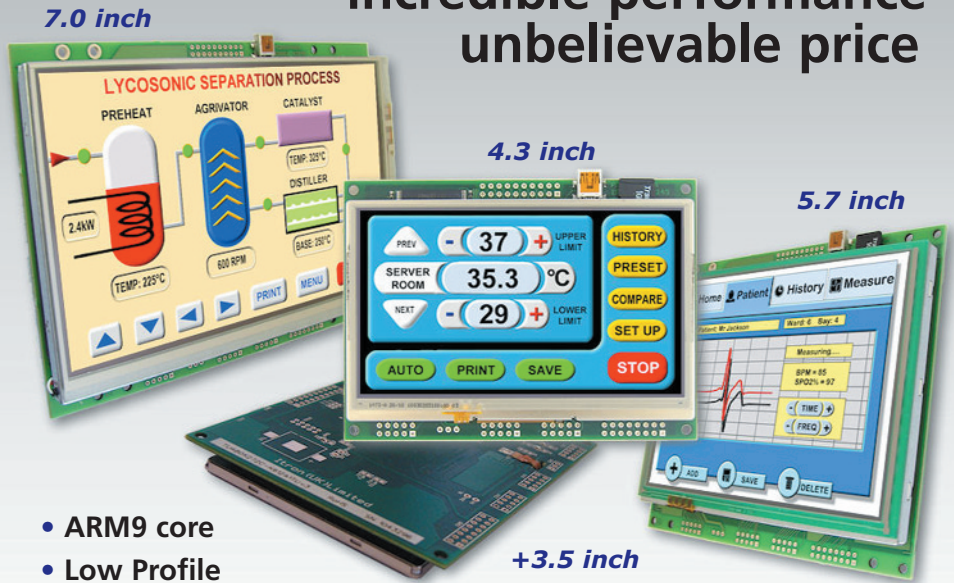**3.5, 4.3, 5.7 & 7.0 inch
256K+ Colours
64Mbyte Display RAM
128MByte Flash
4G+ Micro SDHC Slot
LED Backlight Control
5V Supply 3.3V Logic
ASCII + MultiFonts**

**Full RS232 Port
SPI - I2C Interfaces
USB 2.0 Interface
Resistive Touch Screen
Up to 12x12 Key Control
Up to 24 User Digital I/O
Up to 4 PWM Outputs
2 Analogue Inputs
Real Time Clock + Date**

**Run Animations
Auto Menu Control
Screen Rotation
Graphic User Interface
Integrated Debugger**

incredible performance
unbelievable price

7.0 inch

4.3 inch

5.7 inch

+3.5 inch

- **ARM9 core**
- **Low Profile**
- **5yr+ Product Platform availability**
- **Easy upgrade for LCD character module users**

iSMART TFT Modules
Fast access 64Mbyte display memory
Reusable display pages & menus

Powerful but Easy to Use
Create and link buttons, text, shapes, images and photos via your host interface or use a text editor to create and pre-store them on an SDHC card for transfer to on board flash memory or RAM. Build in functionality behind the page and let the module take care of the navigation and process actions.

Load your Application Pages at Initialization or in Real Time
With 64Mbyte of display memory, you can set up templates for your complete application. Activate and change the buttons, text and images using unique 'tag names' via your interface to reduce host communication and CPU overhead.

Multi-function Touch Screen and Dynamic Layering
Transparent buttons can be positioned over text, shapes and images or even over other buttons to create context combinational functions. All entities can be moved around the page with simple host commands due to the modules ability to retain the complete parametric structure of every item the module creates.

SDHC 4G+ Card enables 8 bit CPU as Host
Unlike many other TFT modules, you can use this module with small CPU hosts by storing complex menus, functions and images on an SDHC 4G+ card or transfer up to 128Mbyte to internal flash.

Giving you a High End TFT at a Standard TFT price
Volume manufacture brings this product to you with the power of a PC solution but the price of a display module. Take advantage of reduced development time to bring your product rapidly to world markets.

**Options
5V Logic Interfaces
RS485 Interface
CAN Bus Interface
I2C Sensor Control
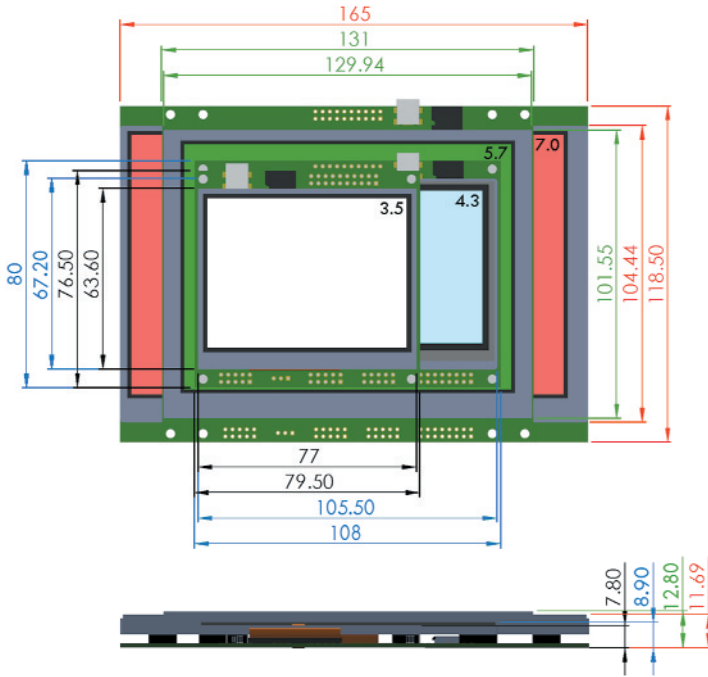USB + SD Card Extender
Audio I/O Card**

**Custom Hardware
Custom Firmware**

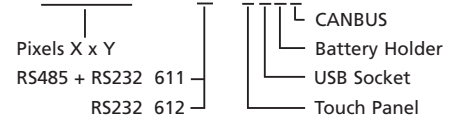## Noritake Itron

Email: sales@itrontft.com   Web: www.itrontft.com

Noritake Itron

iSMART TFT Modules

Electro-Optic Specification				
Screen	3.5"	4.3"	5.7"	7.0"
Pixels	320x240	480x272	640x480	800x480
TFT mm	70x53	95x54	115x86	152x91
PCB mm	80x77	108x80	131x119	165x119
Colours	256k	16 million	256k	256k
Supply	5VDC	5VDC	5VDC	5VDC
Current	298mA	350mA	510mA	550mA
I/O Interfaces	3.3VDC (5V IN option)			
RS232 Interface	+/-5V to 15V IN			
Display Type	Transmissive			
Contrast Ratio	250:1			
View Angle (typ)	60 degrees			
Std Illumination	280 cd/m^2			
Response Time	25ms @ 25C			
Operating Temp	-20C to + 70C			
Storage Temp	-30C to + 80C			

Part No: **TU480X272C-K61XA1TUBC**

Pixels X x Y

RS485 + RS232 611

RS232 612

CANBUS
Battery Holder
USB Socket
Touch Panel

Software Command Overview

Commands are text based for easy creation & debugging in a text editor or using iDevTFT software. These can be sent via interfaces or stored in an on-board menu file. Each entity is given a name like 'Main', 'EnterButton' or 'Volts' which allows easy referencing by other commands.

Command	Function
PAGE(Name,Style) {…….}	Create a Page or Group of entities
LOAD(DestName,Name,,....)	Copy 2 or more Pages or Variables
SHOW(Name)	Show Page Group or Entity on Display
HIDE(Name)	Hide a Group or Entity on Display
RESET(Name)	Reset system, counter or library
DEL(Name)	Delete a Page, Group, Entity or Buffer
STYLE(Name,Type) {…….}	Define a Style with attributes
POSN(X,Y,Page/Name)	Position Cursor +X or X,Y or X, Y, Page
TEXT(Name,Text,Style)	Create a Text at cursor position
DRAW(Name,X,Y,Style)	Draw line, box, circle at cursor, size X,Y
IMG(Name,Source,Style)	Draw an image at cursor
KEY(Name,Function,X,Y,Style)	Create a Touch Area at cursor, size X,Y

Command	Function
LIB(Name,Source)	Store image or font in Flash Library
VAR(Name,Value,Style)	Create an Entity Pointer or variable
CALC(ResVar,VarA, VarB,Method)	Calculate a result using variables or absolute values by applying a method. Manipulate text content and length
INT(Name,Buf,Func)	If buffer receives interrupt do function
IF(Var~Var?Fn1:Fn2)	Compare variables. If true do function one else do function two. Use > = < ~ symbols as in conditional syntax.
FUNC(Name) {…}	Create a function called by commands
WAIT(Time)	Wait for a period of milliseconds
INC(Srce)	Include file in another file
RUN(Name)	Run function or user custom code
	more…...

Pages can be larger or smaller than the screen for pop ups, lists and scrolling information. Buttons, text, lines and images (entities) on a page can be layered to allow mapping transparent buttons over an image. Buttons can be radio, rectangle or check box style with connection to navigation actions. The cursor position command allows relative or absolute positioning for simplified instructions during page layout. Entities can be updated by incoming host commands or using the show command with their associated functions running all the time or only when the entity or it's page is visible. When a text is numeric, it can be compared, calculated or counted up or down. Buffers or variables can be created for interfaces, entity pointers, timers, counters, co-ordinates, numerical values and text. Hex code can be included in text variables when prefixed by \\. All entities and buffers use parameters stored in a Style similar to HTML. These are extensive and define colours, entity types, memory allocation and interface parameters like baud rate, clock edges, data format. The integrated debugger makes it easier to find syntax and communication errors. The SD card is supplied as an optional extra.

Character Fonts

ASCII FONTS
European Cyrillic
5x7, 7x15,
14x30, 28x60 +
MULTIFONTS
Arabic, Bengali, Chinese +
16x16, 32x32,
24x24, 48x48 +
USER FONTS
Upload your own font,
image or symbols

Interface Connections

CN1	Full RS232 Port
CN2	5V Power In / Piezo Out
CN3	SPI, I2C, Async2, SSC
CN4	Analog, PWM, Audio, I/O
CN5	USB, SD Card Expansion
CN6	Aync3, DEBUG,IR, I/O
CN7	12x12 Key or 16 User I/O

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