

## AMT PCAP Touch Solution Capabilities

### Powerful Touch Panel & Controller Functionality



#### Thick Cover Lens

Select cover lenses up to 10mm thick for ruggedized systems or applications in high traffic areas.



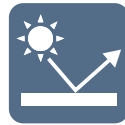
#### PhotoReal Décor Glass

The world's only full color gradient, photorealistic décor glass cover lens for PCAP touch panels.



#### Anti-UV Design

Anti-UV touch panel design meets ASTM G154 performance criteria cycle 1 for 500 hours to protect your system in direct sunlight.



#### Low Reflective Design

Low reflective touch panel design lowers reflective rate to 1.5% for excellent readability in direct sunlight or other bright environments.



#### Noise Immunity

Touch solution meets IEC 61000-4-3 RS Level III 10V/m, IEC 61000-4-6 CS Level III 10Vrms EMC standards and medical safety IEC 60601-1-2 V4 certification.



#### Advanced Water Handling

Advanced water handling prevents false touch signals when the touch panel is wet and allows limited touch operation.



#### Gloved Operation

Supports most glove types such as rubber gloves, leather gloves and latex gloves.



#### Virtual Key

Setup virtual keys outside the LCD area for the execution of dedicated commands.



#### System Reference

System Reference identifies real-time influence of environmental temperature changes and adapts accordingly for optimal performance.



#### Enhanced Driving

Enhanced driving provides enhanced noise immunity in interference laden environments.



#### Data Encryption

Encrypt data communication between touch controller and host system to secure private information or banking data.



#### Remote Firmware Updates

Update firmware, adjust parameters, and enable features remotely without geographical or time constraints.



#### CRC Code Numbers

Verify parameter settings with product CRC codes for shipment and technical services.



#### TP + LCD Optical Bonding

Optical bonding increases light transmission up to 91% and reduces reflection rate while enhancing the overall ruggedness of the touch panel.

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# AMT



## Projected Capacitive Touch Solutions

Touch Panels, PenMount Control Boards and Drivers

# AMT

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Apex Material Technology Corporation (AMT) has been a solid pillar of the touch screen industry since its establishment in 1998. From its inception, AMT has focused on the highly demanding industrial and medical markets where custom components, safety, and reliability are paramount. Inherently exacting specifications, and high complexity have tempered AMT's production capabilities into a skill set unmatched by any industry peer.

Our scrupulous management and exacting dedication to quality allows us to offer exceptional projected capacitive (PCAP or PCI) total touch solutions that incorporate AMT PCAP touch panels and PenMount PCAP control boards, firmware, drivers, and utilities. AMT and PenMount PCAP touch solutions are designed to meet the needs of different applications. The superior performance of PenMount PCAP controllers is demonstrated by their noise immunity, advanced water handling, gloved operation, thick cover lens and easily adjusted parameters.

AMT PCAP touch solutions support standard features that both protect against noise interference and allow customers to operate touch systems while wearing gloves. We use the metaphor of "carrying a sword in one hand" to describe the advanced features of operation while gloved or with a thick PCAP top glass surface and "holding a shield in the other" as the protection offered by noise-handling and the ability to withstand the effects of water. AMT's reliable and durable PCAP touch panels allow your products to deploy the most powerful diverse functions in various application environments.

With comprehensive support and services, AMT strives to provide customers the benefits of total solutions and the ease of a smoothly integrated user experience. Through our dedication to quality and customer support, AMT has developed the product lines and flexibility to meet any customer request. AMT is also happy to work with customers to design customized components for specific applications or environments.

## PenMount



### AMT PCAP Touch Panel Specifications

- Sensor Size : 3.5"~32"
- Surface Hardness : Mohs 5 for clear surface glass
- Cover Lens : Glass
- Cover Lens Thickness : 1.1/ 1.8/ 2.8mm (contact AMT for details)
- Light Transmission : 87%  $\pm$  3% for GFFF structure  
90%  $\pm$  3% for GFF structure
- Haze : < 3% based on clear surface for GFFF structure  
< 3% or 7  $\pm$  3% based on clear surface for GFF structure
- Tail Design : FPC or COF tail
- Input Media : Finger, and gloved hand (contact AMT for details)
- Activation Force : Forceless
- ADC Resolution : 10 bits

### PenMount Control Board Specifications

- Storage Temperature : -40°C ~ +85°C
- Operating Temperature : -20°C ~ +70°C or -30°C ~ +70°C
- Operating Voltage : +5V
- Drivers : Windows 7, 8, 10, Vista, XP, CE  
Linux : Android, others by request
- Firmware : Develop by PenMount team

### Surface Chemical Resistance : cover glass

- Industrial Chemicals : Acetone, Alcohol, 5% Ammonia, Antifreeze, Coal Oil, Diesel Fuel, Hexane, 6% Hydrochloric Acid, 3% Hydrogen Peroxide, Isopropanol, Methylene Chloride, Methyl Ethyl Ketone (MEK), Mineral Spirit, Motor Oil, 70% Nitric Acid, 10% Sodium Hydroxide, 40% Sulfuric Acid, Toluene, Transmission Fluid, Turpentine, Unleaded Gasoline.
- Household Products : Ammonia-based Glass Cleaner, Cleaner, Coffee, Cola, Cooking Oil, Grease, Laundry Detergents, Salt, Vinegar.

	3" ~ 4.9"	5" ~ 7.9"	8" ~ 10.9"		5" ~ 7.9"	8" ~ 10.9"	12.1" ~ 15.6"	17" ~ 32"
PCI COF				Panel + Control Board				
Touch Panel Part No.	P3001-C2A (3.5") P3015-C2B (4.3")	P3012-C2D (7"w) P3012-CGD (7"w) P3032-C20 (7"w)	P3021-C2A (10.1"w) P3021-CGA (10.1"w) P3024-C20 (10.4")	Touch Panel Part No.	P3004-A2B (5.7") P3012-A2B (7")	P3007-A2A (8.4") P3007-AGA (8.4") P3021-A2A (10.1") P3008-A2A (10.4") P3008-AGA (10.4")	P3026-A20 (12.1") P3026-AG0 (12.1") P3030-A20 (12.1") P3029-A20 (15") P3029-AG0 (15") P3023-A2B (15.6")	P3028-A20 (17") P3028-AG0 (17") P3019-A2A (18.5") P3019-AGA (18.5") P3027-A20 (19") P3027-AG0 (19") P3022-A2A (21.5") P3022-AGA (21.5") P3034-A20 (23.8") P3025-A20 (24") P3025-AG0 (24") P3031-A20 (32")
COF	PM2103	A : PM2203B B : PM2204	A : PM2300 B : PM2301A (optional)	Control Board	PM1210	PM1310	A : PM1410 B : PM1415	A : PM1710 B : PM1711 C : PM1715
Touch Controller	PenMount P2-06	PenMount P2-06	PenMount P2-06	Touch Controller	PenMount P2-06	PenMount P2-08	PenMount P2-08 x 2	PenMount P2-08 x 2
COF Tail Size (L x W,mm)	61.5 x 38.5	A : 72.6 x 51.5 B : 72.6 x 41.7	A : 82.6 x 70.5 B : 82.6 x 59.3	Board Size (L x W x H,mm)	40 x 60 x 3	30 x 70 x 3	30 x 90 x 3	A & B : 30 x 125 x 3 / C : 30 x 90 x 3
Tail Terminator	one, 10-pins	one, 10-pins	one, 10-pins	Tail Terminator	one, 50-pins	two, 40-pins+40-pins	two, 60-pins+40-pins	two, 80-pins+50-pins
Interface	USB, UART, I <sup>2</sup> C	USB, UART, I <sup>2</sup> C	USB, UART, I <sup>2</sup> C	Interface Connectors	USB, I <sup>2</sup> C, UART, RS-232	USB, UART, I <sup>2</sup> C	PM1410 : USB, I <sup>2</sup> C, UART, RS-232 PM1415 : USB or I <sup>2</sup> C	PM1710 : USB, RS-232 PM1711 : USB, I <sup>2</sup> C, UART PM1715 : USB or I <sup>2</sup> C
Maximum Touch Lines	10 sensing lines 17 driving lines	A : 15 / B : 24 sensing lines A : 24 / B : 16 driving lines	A & B : 24 sensing lines A : 35 / B : 38 driving lines	Maximum Touch Lines	15 sensing lines 24 driving lines	23 sensing lines 35 driving lines	38 sensing lines 57 driving lines	44 sensing lines 76 driving lines
Power Consumption	41.7 mA (Working) 2.5 mA (Sleep)	A : 46.2 mA / B : 50 mA (Working) A : 2.7 mA / B : 3 mA (Sleep)	A : 41.7 mA / B : 45 mA (Working) A : 2.5 mA / B : 3 mA (Sleep)	Power Consumption	41.0 mA (Working) 2.9 mA (Sleep)	33.2 mA (Working) 1.0 mA (Sleep)	A : 60.3 mA / B : 84.2 mA (Working) A : 3.0 mA / B : 1.42 mA (Sleep)	A & B : 60.7 mA / C : 83.5 mA (Working) 1.6 mA (Sleep)
Sample Rate (Single)	> 150 sps	> 150 sps	> 150 sps	Sample Rate (Single)	> 160 sps	> 160 sps	> 150 sps	> 150 sps

Above PenMount PCAP touch controllers meet IEC 61000-4-3 RS Level III 10V/m and IEC 61000-4-6 CS Level III 10Vrms EMC test standards. In addition, these controllers supports Water Performance & Water Detection water handling functions.

- Above features subject to change without prior notice.
- Sample rate/second varies based on different firmware versions and touch panels.

Part Number Definition: P30nn-xyz

x: A means G-F-F / C means COF tail  
y: 2 means Plain Top Glass / G means Décor Glass

z: Version Number  
nn: Serial Number