

# AMT PCAP Touch Solution Capabilities

## Powerful Touch Panel & Controller Functionality

The AMT Touch Solution is the foundation of AMT's comprehensive line of touch products. AMT products are manufactured to the highest standards and AMT's powerful functionality is flexible enough to fit any project. Customers can rollout their products with confidence when enjoying AMT's expert support and service.

As one of the few touch solution manufacturer in the world producing both proprietary touch panels and controllers, AMT projected capacitive (PCAP) touch products are extremely full-featured and solidly reliable.

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|  <b>Thick Cover Lens</b><br>Select cover lenses up to 10mm thick for ruggedized systems or applications in high traffic areas.   |  <b>PhotoReal Décor Glass</b><br>The world's only full color gradient, photorealistic décor glass cover lens for PCAP touch panels.   |
|  <b>Anti-UV Design</b><br>Anti-UV touch panel design meets ASTM G154 performance criteria cycle 1 for 500 hours to protect your system in direct sunlight.                           |  <b>Low Reflective Design</b><br>Low reflective touch panel design lowers reflective rate to 1.5% for excellent readability in direct sunlight or other bright environments.        |
|  <b>Noise Immunity</b><br>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. |  <b>Advanced Water Handling</b><br>Advanced water handling prevents false touch signals when the touch panel is wet and allows limited touch operation.                            |
|  <b>Gloved Operation</b><br>Supports most glove types such as rubber gloves, leather gloves and latex gloves.  |  <b>Virtual Key</b><br>Setup virtual keys outside the LCD area for the execution of dedicated commands.   |
|  <b>System Reference</b><br>System Reference identifies real-time influence of environmental temperature changes and adapts accordingly for optimal performance.                   |  <b>Enhanced Driving</b><br>Enhanced driving provides enhanced noise immunity in interference laden environments.   |
|  <b>Data Encryption</b><br>Encrypt data communication between touch controller and host system to secure private information or banking data.                                      |  <b>Remote Firmware Updates</b><br>Update firmware, adjust parameters, and enable features remotely without geographical or time constraints.                                     |
|  <b>CRC Code Numbers</b><br>Verify parameter settings with product CRC codes for shipment and technical services.  |  <b>TP + LCD Optical Bonding</b><br>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



THE CLEAR LEADER

## 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. All of PenMount's advanced features are built into one standard firmware and can be used simultaneously without compromise.

Among PCAP touch controller manufacturers, PenMount is unique for providing the easiest and most extensive fine-tuning capabilities to our customers. The PenMount team works with customers every day to solve issues particular to each individual project and those projects can be refined onsite with convenient PenMount utilities without the need for factory re-adjustment. We will continue developing functionality customers need to make PenMount PCAP touch controllers the most complete and convenient on the market and drive the innovation necessary to expand the touch experience into new roles and domains.

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.



### AMT PCAP Touch Panel Specifications

- Sensor Size : 3.5"~32"
- Tail Design : FPC or COF tail
- Surface Hardness : Mohs 5 for clear surface glass
- Cover Lens Thickness : 1.1/ 1.8/ 2.8mm (contact AMT for details)
- Light Transmission : 90% ± 3%
- Haze : < 3% based on clear surface
- Cover Lens : Glass
- 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 : -30°C ~ +80°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")	P3036-C20 (5") P3037-C20 (5.7") P3035-C20 (6.5")	P3012-C2D (7"w) P3032-C20 (7"w)	Touch Panel Part No.	P3004-A2B (5.7") P3012-A2B (7"w)	P3007-A2A (8.4") P3021-A2A (10.1") P3008-A2A (10.4")	P3026-A20 (12.1") P3030-A20 (12.1") P3029-A20 (15") P3023-A2B (15.6") P1007-020 (15.6")	P3028-A20 (17") P3019-A2A (18.5") P3027-A20 (19") P3022-A2A (21.5") P3034-A20 (23.8")
COF	PM2103	A : PM2203B B : PM2204	A : PM2300 B : PM2303	Control Board	PM1210	PM1310	A : PM1410 B : PM1415	A : PM1710 B : PM1711 C : PM1715
Touch Controller	PenMount P2-06	PenMount P2-06	A : PenMount P2-06 B : PenMount P2-08	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)	64.1 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 46.1	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 : 24 / B : 23 sensing lines A : 35 / B : 40 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 / B : 50 mA (Working) A : 2.7 / B : 3 mA (Sleep)	A : 41.7 / B : 45 mA (Working) A : 2.5 / 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 / B : 84.2 mA (Working) A : 3.0 / 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

- Sample rate/second varies based on different firmware versions and touch panels.
- If customer require décor glass, anti-UV, or controller options please contact AMT sales representatives.

<b>Part Number Definition:</b>	<b>Type 1 : P30NN-XYZ</b>	<b>P3:</b> Film sensor	<b>NN:</b> Serial Number	<b>X:</b> A means G-F-F / C means COF tail	<b>Y:</b> G means Décor Glass / 2 means Plain Cover Glass	<b>Z:</b> Version Number
	<b>Type 2 : P1nnn-xyz</b>	<b>P1:</b> Glass sensor	<b>nnn:</b> Serial Number	<b>x:</b> P means PenMount COF tail / 0 means FPC tail	<b>y:</b> 1 means Plain Cover Glass / 2 means Décor Glass	<b>z:</b> Version Number

• Above specifications subject to change without prior notice.