





| Application Note #   | Rev | Drive Family              | Topic                                      |
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| <a href="#">CTAN 110</a>  | 1.3 | Mentor II/Quantum III     | Mentor II / Quantum III Security           |
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| <a href="#">CTAN 190</a>   | 1.1        | Quantum III/ Mentor II                            | Tension Follower-Torque w/Spd Override                     |
| <a href="#">CTAN 191</a>   | 1.3        | Commander SE                                      | Non-Standard Commander SE Keypad Control Variations        |
| <a href="#">CTAN 192</a>   | 1.0        | AC Drives   | E-Stop Duty DB Resistor Protection                         |
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| <a href="#">CTAN 194</a>   | 1.4        | AC Drives   | AC Motor Condensation Elimination                          |
| <a href="#">CTAN 195</a>   | 1.1        | Commander SE                                      | HVAC Local/Remote Control                                  |
| <a href="#">CTAN 196</a>   | 1.0        | MD25 / Mentor II                                  | Quick Setup for DeviceNet MD25                             |
| <a href="#">CTAN 197</a>   | 1.0        | MD25 / Quantum III                                | Quick Setup for DeviceNet MD25                             |
| <a href="#">CTAN 198</a>   | 1.0        | Quantum III/ Mentor II                            | Creating an "About to Start" Warning                       |
| <a href="#">CTAN199</a>  | 1.3        | Quantum III                                       | How to Specify Quantum III Drives                          |
| <a href="#">CTAN 200</a>   | 1.0        | Unidrive  | Selecting 1 of 2 Values                                    |
| <a href="#">CTAN 201</a>   | 1.5        | Unidrive Classic/SP, GP20, Quantum III, Mentor II | Creating a Pulsing Output for Blinking Light/Audible Alarm |
| <a href="#">CTAN 202</a>   | 1.0        | CTNet Capable Products                            | CTNet PCMCIA w/Desktop PC's                                |
| <a href="#">CTAN 203</a>   | 1.2        | Quantum III / Mentor II                           | DC Motors w/ 240VDC Field Voltage                          |
| <a href="#">CTAN 204</a>   | 1.0        | Focus 3 Drives                                    | Power Wiring Guidelines                                    |
| <a href="#">CTAN 205</a>   | 1.3        | Quantum III Family                                | Spectrum Drive Replacement                                 |
| <a href="#">CTAN 206</a>   | 1.2        | Quantum III Family                                | VIP Drive Replacement                                      |
| <a href="#">CTAN 207</a>   | 1.1        | Quantum III Family                                | ES2300RG Drive Replacement                                 |
| <a href="#">CTAN 208</a>   | 1.1        | UnidriveSP Rapidpak                               | AS5100 Series Drive Replacement                            |
| <a href="#">CTAN 209</a>   | 1.2        | CTKP  | Security Code & Set-Up                                     |
| <a href="#">CTAN 210</a>   | 1.0        | UD76/Unidrive                                     | ModbusPlus Quick Setup                                     |
| <a href="#">CTAN 211</a>   | 1.0        | Unidrive  | UD7x Co-Processor Replacement                              |
| <a href="#">CTAN 212</a>   | 1.4        | Quantum III/ Mentor II                            | Creating UniPolar %Speed Meter O/P                         |
| <a href="#">CTAN 213</a>   | 1.1        | Focus 3   | Eddy Current Controller Retrofit                           |
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| <a href="#">CTAN 215</a>   | 1.0        | Focus Family                                      | Earth Grounding & Isolation                                |
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| <a href="#">CTAN 217</a>   | 1.0        | Universal AC Interface                            | 120vac Logic Interface                                     |
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| <a href="#">CTAN 222</a>   | 1.2        | Commander SE                                      | Automatic Water Pressure Regulator                         |
| <a href="#">CTAN 223</a>   | 1.1        | Quantum III/ Mentor II                            | Inversion Faults   |
| <a href="#">CTAN 224</a>   | 1.0        | Quantum III                                       | Interfacing a PLC to the Quantum III                       |
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| <a href="#">CTAN 226</a>  | 1.3        | Quantum III                                       | MOP Function w/Min Speed and Jog                           |
| <a href="#">CTAN 227</a>   | 1.1        | Unidrive SP                                       | Understanding Heavy vs Normal Duty                         |
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| <a href="#">CTAN 229</a>   | 1.0 | Commander SE   | Bi-Directional Speed Pot Applications                  |
| <a href="#">CTAN 230</a>   | 1.0 | Unidrive   | Zero Speed Reference Start Interlock                   |
| <a href="#">CTAN 231</a>   | 1.0 | Quantum III  | Zero Speed Reference Start Interlock                   |
| <a href="#">CTAN 232</a>   | 1.3 | Unidrive SP  | Non-Standard UnidriveSP Keypad Command Variations      |
| <a href="#">CTAN 233</a>   | 1.2 | Unidrive SP  | Using the MOP with the UnidriveSP                      |
| <a href="#">CTAN 234</a>   | 1.0 | Unidrive SP  | A Guide to Tuning the UnidriveSP                       |
| <a href="#">CTAN 235</a>   | 1.0 | Focus 3  | Adjustable Brake / Dynamometer App's                   |
| <a href="#">CTAN 236</a>   | 1.2 | Commander SE   | Data Replacement Instructions                          |
| <a href="#">CTAN 237</a>   | 1.0 | Quantum III/Mentor II                                  | Adjustable Brake / Dynamometer App's                   |
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| <a href="#">CTAN 239</a>   | 1.0 | Commander SE   | Analog Input Configurations                            |
| <a href="#">CTAN 240</a>   | 1.0 | Focus 3  | Speed Master w/ Torque Slave                           |
| <a href="#">CTAN 241</a>   | 1.1 | Focus 3  | 120vac Remote Control Pushbuttons                      |
| <a href="#">CTAN 242*</a>  | 1.0 | All  | Interfacing Analog Meters                              |
| <a href="#">CTAN 243</a>   | 1.0 | Focus 3  | Controlling Multiple Drives in Tandem                  |
| <a href="#">CTAN 244</a>   | 1.0 | Focus 1, Focus 3, CommSE                               | Focus Isolated Master Reference Board                  |
| <a href="#">CTAN 245</a>   | 1.1 | CTIU HMI's   | Creating a Custom Splash Screen                        |
| <a href="#">CTAN 246</a>   | 1.0 | Unidrive & CTIU HMI's                                  | Creating a Unidrive Fault Screen                       |
| <a href="#">CTAN 247</a>   | 1.0 | Unidrive & CTIU HMI's                                  | Creating a Fault History Screen                        |
| <a href="#">CTAN 248</a>   | 1.0 | CTIU HMI's   | Custom Splash Screen using Maths                       |
| <a href="#">CTAN 249</a>   | 1.0 | Mentor II/Quantum III & CTIU HMI's                     | Creating a Quantum III Fault Screen                    |
| <a href="#">CTAN 250</a>   | 1.0 | Unidrive SP  | Customizing the LCD Keypad Unit                        |
| <a href="#">CTAN 251</a>   | 1.0 | Unidrive Classic                                       | 4-20mA Control Guidelines                              |
| <a href="#">CTAN 252</a>   | 1.0 | Focus 3  | Local/Remote Control Modes                             |
| <a href="#">CTAN 253</a>   | 1.0 | Commander SE   | Line Speed plus Trim using Inc/Dec                     |
| <a href="#">CTAN 254</a>   | 1.2 | Commander SE   | Fan & Pump Setup Guidelines                            |
| <a href="#">CTAN 255</a>   | 1.0 | UD75 & MD29AN  | CTNet Revision FAQ's                                   |
| <a href="#">CTAN 256</a>   | 1.2 | Unidrive SP  | Stegmann Encoder w/Hiperface                           |
| <a href="#">CTAN 257</a>   | 1.2 | Quantum III  | Quantum II to QIII Conversion Guide                    |
| <a href="#">CTAN 258</a>   | 1.0 | Commander SE, Unidrive Classic, Mentor II/ Quantum III | Creating Proper Drive Documentation                    |
| <a href="#">CTAN 259</a>   | 1.1 | Unidrive SP  | Quick Setup Guide w/CTNet                              |
| <a href="#">CTAN 260</a>   | 1.0 | Commander SE   | Setting up with a CTIU                                 |
| <a href="#">CTAN 261</a>   | 1.0 | Unidrive SP  | Setting up with a CTIU                                 |
| <a href="#">CTAN 262</a>   | 1.0 | Unidrive SP  | Accessing 32 bit Data via Modbus RTU                   |
| <a href="#">CTAN 263</a>   | 1.1 | Mentor I to Mentor II                                  | Co-Processor Conversion Details                        |
| <a href="#">CTAN 265</a>   | 1.0 | Unidrive Classic                                       | DigitAx Replacement Solution                           |
| <a href="#">CTAN 266</a>   | 1.0 | All  | Relay Suppression                                      |
| <a href="#">CTAN 267</a>   | 1.0 | SE   | Latching External Trip                                 |
| <a href="#">CTAN 268</a>  | 1.2 | Commander SE and SK                                    | Shear Pin Trip Function                                |
| <a href="#">CTAN 270</a>   | 1.0 | Unidrive SP  | A Guide to Tuning the UnidriveSP – Winder Applications |

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| <a href="#">CTAN271</a>   | 1.0 | Commander SX              | Keypad Lockup at Parameter 01                      |
| <a href="#">CTAN272</a>    | 1.0 | Commander SK              | Accessing Parameters Outside Menu 0                |
| <a href="#">CTAN273</a>   | 1.1 | Commander SK              | Remote Keypad in the Hand-Off-Auto Mode            |
| <a href="#">CTAN274</a>   | 1.2 | Commander SK              | Remote Analog / Local Keypad Control               |
| <a href="#">CTAN275</a>   | 1.0 | All                       | Need another Digital Input ?                       |
| <a href="#">CTAN276</a>   | 1.1 | Commander SE, SK          | Bi-Polar Analog Speed Control                      |
| <a href="#">CTAN277</a>   | 1.4 | Unidrive                  | Unidrive Classic to Unidrive SP Considerations     |
| <a href="#">CTAN278</a>   | 1.1 | Unidrive                  | Converting from Unidrive Classic to Unidrive SP    |
| <a href="#">CTAN279</a>    | 1.2 | Commander SK              | Commander SK Security                              |
| <a href="#">CTAN280</a>   | 1.0 | Unidrive SP               | VT Terminal Quickstart for the Unidrive SP         |
| <a href="#">CTAN281</a>   | 1.0 | Focus 3 Regen             | Reversing Focus 3 Regen w/UniPolar Command         |
| <a href="#">CTAN282</a>   | 1.1 | Unidrive SP/GP20/SK       | Selecting 1 of 2 Values                            |
| <a href="#">CTAN283</a>   | 1.0 | Unidrive SP               | Using Beckhoff Remote I/O                          |
| <a href="#">CTAN284</a>   | 1.1 | Mentor II/Quantum III     | FXM5 Field Control via External Voltage            |
| <a href="#">CTAN285</a>   | 1.2 | Commander SK              | Enhanced Hand-Off-Auto Control Using Logic Stick   |
| <a href="#">CTAN286</a>   | 1.2 | Commander SK              | Enhanced Local/Remote Control Using Logic Stick    |
| <a href="#">CTAN287</a>   | 1.3 | Commander SK              | Water Pressure PID Loop Control                    |
| <a href="#">CTAN288</a>   | 1.0 | SM-Ethernet               | Establishing PC Connection to SM-Ethernet Module   |
| <a href="#">CTAN289</a>   | 1.3 | Commander SK/GP20         | SM-Keypad Plus Customized Displays                 |
| <a href="#">CTAN290</a>   | 1.2 | Unidrive SP/GP20          | 4-20mA Current Loop Extensions                     |
| <a href="#">CTAN291</a>   | 1.0 | All AC Drives             | Dynamic Braking Sizing & Protection Methods        |
| <a href="#">CTAN292</a>   | 1.0 | Unidrive SP/GP20/SK       | Process Line Speed plus Trim                       |
| <a href="#">CTAN293</a>   | 1.2 | Commander SK              | Fan and Pump Application Setup                     |
| <a href="#">CTAN294</a>   | 1.0 | Unidrive SP/GP20          | Parameter Security Details                         |
| <a href="#">CTAN295</a>   | 1.1 | CTNet Options             | Supported Beckhoff I/O Modules                     |
| <a href="#">CTAN296</a>   | 1.0 | Unidrive SP/GP20          | RFC (Rotor Flux Control)                           |
| <a href="#">CTAN297</a>   | 1.1 | Unidrive SP/GP20/SK       | SM-Ethernet Save, Restore & Re-Init                |
| <a href="#">CTAN298</a>   | 1.2 | Mentor II/Quantum III     | FXM5 Field Loss Trips w/o Ribbon Control           |
| <a href="#">CTAN299</a>   | 1.2 | Commander SK              | Simple Commander SK Torque Winder                  |
| <a href="#">CTAN300</a>   | 1.5 | Commander SK              | Ethernet Quick Start Guide                         |
| <a href="#">CTAN301</a>   | 1.0 | Mentor II/Quantum III     | Eliminating Motor Creep                            |
| <a href="#">CTAN302*</a>  | 1.0 | Unidrive SP/GP20          | AC Motor De-Icing/Condensation Elimination         |
| <a href="#">CTAN303</a>   | 1.2 | Mentor II/Quantum III     | FXM5 Field Economy in Standalone Mode              |
| <a href="#">CTAN304</a>   | 1.0 | Quantum III               | Powering Up the Quantum III in your Office         |
| <a href="#">CTAN305</a>   | 1.1 | Unidrive SP/GP20/Affinity | Creating a Custom Motor Overtemperature Trip       |
| <a href="#">CTAN306</a>   | 1.0 | Unidrive SP/GP20/SK       | SM-DeviceNet Save, Restore & Re-Init               |
| <a href="#">CTAN307</a>   | 1.0 | Unidrive SP               | Commissioning Sine-Cosine Encoder Setups           |
| <a href="#">CTAN308*</a>  | 1.0 | CTNet                     | The Basics of Setting-up CTNet Cyclic Links        |
| <a href="#">CTAN309*</a>  | 1.0 | Commander SK              | Creating a Delayed Start with Warning Capability   |
| <a href="#">CTAN310</a>   | 1.0 | Unidrive Classic          | Extracting all Drive and CoProcessor Data w/CTSoft |
| <a href="#">CTAN311</a>   | 1.0 | Mentor II/Quantum III     | Accommodating Motors w/Low Field Voltages          |
| <a href="#">CTAN312</a>   | 1.0 | Unidrive SP/GP20/SK       | Creating a Broken Belt/Ruptured Pipe Alarm         |
| <a href="#">CTAN313</a>   | 1.0 | Unidrive SP/GP20/SK       | Using Keypad Plus as Startup Tool                  |
| <a href="#">CTAN314</a>  | 1.1 | Commander SK & SL         | Applying Groschopp Motors                          |
| <a href="#">CTAN315</a>   | 1.0 | Mentor II/Quantum III     | SAF dcM6+/dcM12+ Conversion Summary                |
| <a href="#">CTAN316</a>   | 1.0 | Unidrive SP/GP20/SK       | Drive Parameter Menu Structure                     |

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| <a href="#">CTAN318</a>   | 1.0 | All                           | Determining the Hardware and Firmware Levels           |
| <a href="#">CTAN319</a>   | 1.0 | AC Drives                     | Squeezing a Bit More from your DB Resistor             |
| <a href="#">CTAN320</a>   | 1.5 | All                           | Rudiments of Fieldbus Communications                   |
| <a href="#">CTAN321</a>   | 1.1 | Unidrive SP/GP20/SK           | Obtaining the Greater or Lesser of Two Signals         |
| <a href="#">CTAN322</a>   | 1.0 | Commander SL                  | Commander SL Security                                  |
| <a href="#">CTAN323</a>   | 1.0 | Unidrive SP/GP20/SK           | Scaling and Filtering Drive Registers for HMI Displays |
| <a href="#">CTAN324</a>   | 1.0 | Affinity Series               | Fan & Pump with PID Loop Control                       |
| <a href="#">CTAN325</a>   | 1.1 | Unidrive SP/GP20/SK           | Simple PID Dancer Unwind                               |
| <a href="#">CTAN326</a>   | 1.3 | UnidriveSP, GP20, Affinity    | Analog Output Scaling of Common Values                 |
| <a href="#">CTAN327</a>   | 1.2 | Commander SK                  | Comm SK and SM-DeviceNet Quick Start Guide             |
| <a href="#">CTAN328</a>   | 1.0 | Co Processors                 | Using SyPT Pro Demo as a Code Extraction Tool          |
| <a href="#">CTAN329</a>   | 1.1 | Comm SK                       | Dual Stopping Rates                                    |
| <a href="#">CTAN330</a>   | 1.1 | Unidrive SP, Affinity         | Dual Stopping Rates                                    |
| <a href="#">CTAN331</a>   | 1.1 | Unidrive SP, Classic          | Creating a UniPolar Analog Speed Output                |
| <a href="#">CTAN332</a>   | 1.0 | Unidrive SP, CommSK, Affinity | Time of Day/Day of Week Applications                   |
| <a href="#">CTAN333</a>   | 1.1 | Commander SK                  | Comm SK and SM-Profibus Quick Start Guide              |
| <a href="#">CTAN334</a>   | 1.0 | Commander SK w/ByPass         | Quick Start-up Guide for FPCHSK/FPCBA                  |
| <a href="#">CTAN335</a>   | 1.0 | Unidrive SP                   | CTNet Basic Practices and Checkout                     |
| <a href="#">CTAN336</a>   | 1.2 | Our AC Drive Families         | Using the Drives +24vdc Supply                         |
| <a href="#">CTAN337</a>   | 1.1 | Single Phase DC               | Focus 1 to 2100/2300 Replacement Guidance              |
| <a href="#">CTAN338</a>   | 1.0 | Affinity                      | Maintenance Due Reminder Alarms                        |
| <a href="#">CTAN339</a>   | 1.0 | Unidrive SP                   | Maintenance Due Reminder Alarms                        |
| <a href="#">CTAN340</a>   | 1.1 | Commander SK                  | Remote Control via Fieldbus/Local via Keypad           |
| <a href="#">CTAN341</a>   | 1.0 | Commander SK                  | Simple Pump Setup Instruction Sheet                    |
| <a href="#">CTAN342</a>   | 1.0 | Commander SK                  | Water Level Control System                             |
| <a href="#">CTAN343</a>   | 1.1 | SM-IO Timer Module            | Setting the Real Time Clock                            |
| <a href="#">CTAN344 *</a> | 1.1 | Our AC Drive Families         | Single Drive Running Multiple Motors                   |
| <a href="#">CTAN345</a>   | 1.0 | All Our Drives                | Stabilizing Erratic Signals                            |
| <a href="#">CTAN346</a>   | 1.0 | Commander SK                  | 120vac Start/Stop Control                              |

\* not yet released

## Quantum III / Mentor II Application Notes

| Application Note #   | Rev  | Drive Family  | Topic  |
|--|------|---|--|
| <a href="#">CTAN 110</a>  | 1.3  | Mentor II/Quantum III                               | Mentor II / Quantum III Security                           |
| <a href="#">CTAN 111</a>   | 1.4  | Mentor II/Quantum III                               | Programmable Analog I/O                                    |
| <a href="#">CTAN 112</a>   | 1.2  | Quantum III   | Independent Jog Rates                                      |
| <a href="#">CTAN 113</a>   | 1.2  | Mentor II/Quantum III                               | Simple Ratio Scheme  |
| <a href="#">CTAN 121</a>   | 1.6  | Mentor II/Quantum III                               | Pseudo S-Ramp  |
| <a href="#">CTAN 122</a>   | 1.3  | MII/QIII/Unidrive/SE                                | Programmable Time Delays                                   |
| <a href="#">CTAN 123</a>   | 1.2  | Mentor II/Quantum III                               | Current Loop Tuning ( Manual/Scope method)                 |
| <a href="#">CTAN 124</a>   | 1.4  | MII/QIII/Unidrive/SE                                | Filtering for Digital Displays                             |
| <a href="#">CTAN 126</a>   | 1.0  | Mentor  | Cooling Fan Data   |
| <a href="#">CTAN 133</a>   | 1.0  | Mentor I/Quantum II                                 | MD21 BASIC Support today                                   |
| <a href="#">CTAN 138</a>   | 1.0  | Quantum III   | Remote On/Off Control                                      |
| <a href="#">CTAN 139</a>   | 1.3  | Quantum III/Mentor II                               | Contactless ( Machine Gun ) Jog                            |
| <a href="#">CTAN 140</a>   | 1.3  | MII/QIII/Unidrive/SE                                | Programmable Logic Gates                                   |
| <a href="#">CTAN 141</a>   | 1.1  | MII/QIII/Unidrive                                   | Combinatorial Logic  |
| <a href="#">CTAN 142</a>   | 1.1  | Unidrive /MII/QIII                                  | Comparators and Decoder Applications                       |
| <a href="#">CTAN 152</a>   | 1.4  | Quantum/Mentor                                      | Hi Hp Drives Field Selection-Size 2 & 3                    |
| <a href="#">CTAN 154</a>   | 1.5  | All   | Driving External Relays                                    |
| <a href="#">CTAN 155</a>   | 1.5  | Quantum III/ Mentor II                              | Thread/Run Speeds  |
| <a href="#">CTAN 156</a>   | 1.3  | Quantum III/ Mentor II                              | Auto (4-20mA ) /Manual Operation                           |
| <a href="#">CTAN 157</a>   | 1.1  | Quantum III   | Quantum III Factory Default Files                          |
| <a href="#">CTAN 158</a>   | 1.3  | Quantum III/ Mentor II                              | Load Sharing Applications                                  |
| <a href="#">CTAN 159</a>   | 1.10 | All   | Creating Custom & Power-Up Displays                        |
| <a href="#">CTAN 160</a>   | 1.0  | All   | 4-20ma Current Loop Control                                |
| <a href="#">CTAN 163</a>   | 1.3  | Quantum III/Mentor II                               | Dual Stopping Rates  |
| <a href="#">CTAN 166</a>   | 1.2  | Quantum III/ Mentor II                              | MD21 to MD29 Migration                                     |
| <a href="#">CTAN 167</a>   | 1.0  | Quantum III/ Mentor II                              | Timed Starting Current                                     |
| <a href="#">CTAN 172</a>   | 1.1  | Quantum III   | Universal Spares   |
| <a href="#">CTAN 175</a>   | 1.6  | Quantum III/Mentor II<br>( Size 2-3)                | Field Economy w/ Time Delay                                |
| <a href="#">CTAN 186</a>   | 1.3  | Unidrive/QIII/Mentor II                             | Saving all Drive & Coprocessor Data                        |
| <a href="#">CTAN 188</a>   | 1.3  | Quantum III/ Mentor II                              | %Load Meter Outputs  |
| <a href="#">CTAN 190</a>   | 1.1  | Quantum III/ Mentor II                              | Tension Follower-Torque w/Spd Override                     |
| <a href="#">CTAN 193</a>   | 1.6  | Quantum III / Mentor II                             | Data Replacement Instructions                              |
| <a href="#">CTAN 196</a>   | 1.0  | Mentor II   | Quick Setup for DeviceNet MD25                             |
| <a href="#">CTAN 197</a>   | 1.0  | Quantum III   | Quick Setup for DeviceNet MD25                             |
| <a href="#">CTAN 198</a>   | 1.0  | Quantum III/ Mentor II                              | Creating an "About to Start" Warning                       |
| <a href="#">CTAN 199</a>   | 1.2  | Quantum III   | How to Specify Quantum III Drives                          |
| <a href="#">CTAN 201</a>   | 1.5  | Unidrive Classic/SP,<br>GP20,Quantum III, Mentor II | Creating a Pulsing Output for Blinking Light/Audible Alarm |
| <a href="#">CTAN 203</a>   | 1.2  | Quantum III / Mentor II                             | DC Motors w/ 240VDC Field Voltage                          |
| <a href="#">CTAN 205</a>   | 1.3  | Quantum III Family                                  | Spectrum Drive Replacement                                 |
| <a href="#">CTAN 212</a>   | 1.4  | Quantum III/ Mentor II                              | Creating UniPolar %Speed Meter O/P                         |
| <a href="#">CTAN 214</a>   | 1.3  | Quantum III/ Mentor II                              | Mentor II vs Quantum III                                   |




## Unidrive Classic Application Notes

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>                               | <b>Topic</b>   |
|---------------------------|------------|---|--|
| <a href="#">CTAN 114</a>  | 1.5        | Unidrive  | MOP Applications   |
| <a href="#">CTAN 115</a>  | 1.4        | Unidrive  | Analog Ratio Applications                                  |
| <a href="#">CTAN 116</a>  | 1.1        | Unidrive  | UniSoft & Option Modules                                   |
| <a href="#">CTAN 117</a>  | 1.5        | Unidrive  | Unidrive Classic Security                                  |
| <a href="#">CTAN 118</a>  | 1.6        | Unidrive  | Digital Locking Basics                                     |
| <a href="#">CTAN 119</a>  | 1.4        | Unidrive  | Parameter Restoration/Cloning                              |
| <a href="#">CTAN 120</a>  | 1.3        | All   | S-Ramp Accel/Decel Ramps                                   |
| <a href="#">CTAN 122</a>  | 1.3        | MII/QIII/Unidrive/SE                              | Programmable Time Delays                                   |
| <a href="#">CTAN 124</a>  | 1.4        | MII/QIII/Unidrive/SE                              | Filtering for Digital Displays                             |
| <a href="#">CTAN 127</a>  | 1.1        | AC Drives   | Common Bussing Guidelines                                  |
| <a href="#">CTAN 131</a>  | 1.2        | All   | Modem Communications                                       |
| <a href="#">CTAN 132</a>  | 1.3        | All   | Line Reactors  |
| <a href="#">CTAN 140</a>  | 1.3        | MII/QIII/Unidrive/SE                              | Programmable Logic Gates                                   |
| <a href="#">CTAN 141</a>  | 1.1        | MII/QIII/Unidrive                                 | Combinatorial Logic  |
| <a href="#">CTAN 142</a>  | 1.1        | Unidrive /MII/QIII                                | Comparators and Decoder Applications                       |
| <a href="#">CTAN 144</a>  | 1.3        | All   | Line Reactors & Isolation Transformers                     |
| <a href="#">CTAN 145</a>  | A          | Unidrive and Commander SE                         | Analog Input/Output Scaling                                |
| <a href="#">CTAN 146</a>  | 1.1        | Unidrive Servo                                    | Thermal Protection Set-up                                  |
| <a href="#">CTAN 153</a>  | 1.0        | Unidrive  | Cabinet Cooling Fan Optimization                           |
| <a href="#">CTAN 154</a>  | 1.5        | All   | Driving External Relays                                    |
| <a href="#">CTAN 159</a>  | 1.10       | All   | Creating Custom & Power-Up Displays                        |
| <a href="#">CTAN 160</a>  | 1.1        | All   | 4-20ma Current Loop Control                                |
| <a href="#">CTAN 161</a>  | 1.2        | Unidrive Family                                   | Dual Stopping Rates  |
| <a href="#">CTAN 164</a>  | 1.1        | Unidrive Family                                   | Remote Keypad Control using CTIU                           |
| <a href="#">CTAN 169</a>  | 1.0        | Unidrive Family                                   | UD78 Precision Analog Input Module                         |
| <a href="#">CTAN 170</a>  | 1.0        | Unidrive Family                                   | Shaft Orientation  |
| <a href="#">CTAN 173</a>  | 1.1        | Unidrive Size 1 & 2                               | Operating from DC Power Supplies                           |
| <a href="#">CTAN 178</a>  | 1.0        | Unidrive  | Speed Loop Tuning  |
| <a href="#">CTAN 179</a>  | 1.1        | General   | Dynamic Braking Resistor Nomograph                         |
| <a href="#">CTAN 181*</a> |            | Unidrive  | Torque Mode/Torque Follower                                |
| <a href="#">CTAN 182</a>  | 1.8        | Unidrive  | Data Replacement Instructions                              |
| <a href="#">CTAN 183</a>  | 1.0        | Unidrive  | Line Speed plus %Trim                                      |
| <a href="#">CTAN 186</a>  | 1.3        | Unidrive/QIII/Mentor II                           | Saving all Drive & Coprocessor Data                        |
| <a href="#">CTAN 194</a>  | 1.4        | AC Drives   | AC Motor Condensation Elimination                          |
| <a href="#">CTAN 200</a>  | 1.0        | Unidrive  | Selecting 1 of 2 Values                                    |
| <a href="#">CTAN 201</a>  | 1.5        | Unidrive Classic/SP, GP20, Quantum III, Mentor II | Creating a Pulsing Output for Blinking Light/Audible Alarm |

## Unidrive Classic Application Notes-con't

| Application Note #       | Rev | Drive Family          | Topic  |
|--------------------------|-----|-----------------------|--|
| <a href="#">CTAN 208</a> | 1.0 | Unidrive ExpressPak   | AS5100 Series Drive Replacement                    |
| <a href="#">CTAN 209</a> | 1.1 | CTKP                  | Security Code & Set-Up                             |
| <a href="#">CTAN 211</a> | 1.0 | Unidrive              | UD7x Co-Processor Replacement                      |
| <a href="#">CTAN 230</a> | 1.0 | Unidrive              | Zero Speed Reference Start Interlock               |
| <a href="#">CTAN 246</a> | 1.0 | Unidrive & CTIU HMI's | Creating a Unidrive Fault Screen                   |
| <a href="#">CTAN 247</a> | 1.0 | Unidrive & CTIU HMI's | Creating a Fault History Screen                    |
| <a href="#">CTAN 251</a> | 1.0 | Unidrive Classic      | 4-20mA Control Guidelines                          |
| <a href="#">CTAN 258</a> | 1.0 | Unidrive Classic      | Creating Proper Drive Documentation                |
| <a href="#">CTAN 265</a> | 1.0 | Unidrive Classic      | DigitAx Replacement Solution                       |
| <a href="#">CTAN 266</a> | 1.0 | All                   | Relay Suppression                                  |
| <a href="#">CTAN275</a>  | 1.0 | All                   | Need another Digital Input ?                       |
| <a href="#">CTAN277</a>  | 1.4 | Unidrive              | Unidrive Classic to Unidrive SP Considerations     |
| <a href="#">CTAN278</a>  | 1.1 | Unidrive              | Converting from Unidrive Classic to Unidrive SP    |
| <a href="#">CTAN310</a>  | 1.0 | Unidrive Classic      | Extracting all Drive and CoProcessor Data w/CTSoft |
| <a href="#">CTAN318</a>  | 1.0 | All                   | Determining the Hardware and Firmware Levels       |
| <a href="#">CTAN328</a>  | 1.0 | Co Processors         | Using SyPT Pro Demo as a Code Extraction Tool      |
| <a href="#">CTAN331</a>  | 1.1 | Unidrive SP, Classic  | Creating a UniPolar Analog Speed Output            |

# Unidrive SP and Commander GP20 Application Notes

| <b>Application Note #</b>   | <b>Rev</b> | <b>Drive Family</b>                               | <b>Topic</b>   |
|---|------------|---|--|
| <a href="#">CTAN 149</a>  | 1.4        | Unidrive SP/GP20                                  | Laser Replacement Options                                  |
| <a href="#">CTAN 150</a>  | 1.3        | Unidrive SP/GP20                                  | Eclipse Replacement Options                                |
| <a href="#">CTAN 159</a>  | 1.10       | All   | Creating Custom & Power-Up Displays                        |
| <a href="#">CTAN 192</a>  | 1.0        | AC Drives   | E-Stop Duty DB Resistor Protection                         |
| <a href="#">CTAN 194</a>  | 1.4        | AC Drives   | AC Motor Condensation Elimination                          |
| <a href="#">CTAN 201</a>  | 1.5        | Unidrive Classic/SP, GP20, Quantum III, Mentor II | Creating a Pulsing Output for Blinking Light/Audible Alarm |
| <a href="#">CTAN 227</a>  | 1.1        | Unidrive SP/GP20                                  | Understanding Heavy vs Normal Duty                         |
| <a href="#">CTAN 232</a>  | 1.3        | Unidrive SP                                       | Non-Standard UnidriveSP Keypad Variations                  |
| <a href="#">CTAN 233</a>  | 1.2        | Unidrive SP/GP20                                  | Using the MOP with the UnidriveSP                          |
| <a href="#">CTAN 234</a>  | 1.0        | Unidrive SP                                       | A Guide to Tuning the UnidriveSP                           |
| <a href="#">CTAN 238</a>  | 1.0        | Unidrive SP                                       | Unidrive SP Feedback Modules                               |
| <a href="#">CTAN 250</a>  | 1.0        | Unidrive SP/GP20                                  | Customizing the LCD Keypad Unit                            |
| <a href="#">CTAN 256</a>  | 1.2        | Unidrive SP                                       | Stegmann Encoder w/Hiperface                               |
| <a href="#">CTAN 259</a>  | 1.1        | Unidrive SP                                       | Quick Setup Guide w/CTNet                                  |
| <a href="#">CTAN 262</a>  | 1.0        | Unidrive SP/GP20                                  | Accessing 32 bit Data via Modbus RTU                       |
| <a href="#">CTAN 266</a>  | 1.0        | Unidrive SP/GP20                                  | Relay Suppression  |
| <a href="#">CTAN 270</a>  | 1.0        | Unidrive SP                                       | UnidriveSP Tuning Guide for Winder Apps                    |
| <a href="#">CTAN 275</a>  | 1.0        | Unidrive SP/GP20                                  | Need another Digital Input ?                               |
| <a href="#">CTAN 277</a>  | 1.4        | Unidrive  | Unidrive Classic to Unidrive SP Considerations             |
| <a href="#">CTAN 278</a>  | 1.1        | Unidrive  | Converting from Unidrive Classic to Unidrive SP            |
| <a href="#">CTAN 279</a>  | 1.0        |   |  |
| <a href="#">CTAN 280</a>  | 1.0        | Unidrive SP/GP20                                  | VT Terminal Quickstart for the Unidrive SP                 |
| <a href="#">CTAN 282</a>  | 1.1        | Unidrive SP/GP20/SK                               | Selecting 1 of 2 Values                                    |
| <a href="#">CTAN 288</a>  | 1.1        | SM-Ethernet                                       | Establishing PC Connection to SM-Ethernet                  |
| <a href="#">CTAN289</a>  | 1.3        | Commander SK/GP20                                 | SM-Keypad Plus Customized Displays                         |
| <a href="#">CTAN290</a>   | 1.2        | Unidrive SP/GP20                                  | 4-20mA Current Loop Extensions                             |
| <a href="#">CTAN291</a>   | 1.0        | All AC Drives                                     | Dynamic Braking Sizing & Protection Methods                |
| <a href="#">CTAN292</a>   | 1.0        | Unidrive SP/GP20/SK                               | Process Line Speed plus Trim                               |
| <a href="#">CTAN294</a>   | 1.0        | Unidrive SP/GP20                                  | Parameter Security Details                                 |
| <a href="#">CTAN296</a>   | 1.0        | Unidrive SP/GP20                                  | RFC (Rotor Flux Control)                                   |
| <a href="#">CTAN297</a>   | 1.0        | Unidrive SP/GP20/SK                               | SM-Ethernet Save, Restore & Re-Init                        |
| <a href="#">CTAN302</a>   | 1.0        | Unidrive SP/GP20/SK                               | AC Motor De-Icing/Condensation Elimination                 |
| <a href="#">CTAN305</a>   | 1.1        | Unidrive SP/GP20/Affinity                         | Creating a Custom Motor Overtemperature Trip               |
| <a href="#">CTAN306</a>   | 1.1        | Unidrive SP/GP20/SK                               | SM-DeviceNet Save, Restore & Re-Init                       |
| <a href="#">CTAN307</a>   | 1.0        | Unidrive SP                                       | Commissioning Sine-Cosine Encoder Setups                   |
| <a href="#">CTAN312</a>   | 1.0        | Unidrive SP/GP20/SK                               | Creating a Broken Belt/Ruptured Pipe Alarm                 |
| <a href="#">CTAN313</a>   | 1.0        | Unidrive SP/GP20/SK                               | Using Keypad Plus as Startup Tool                          |
| <a href="#">CTAN318</a>   | 1.0        | All   | Determining the Hardware and Firmware Levels               |
| <a href="#">CTAN319</a>   | 1.1        | AC Drives   | Squeezing a Bit More from your DB Resistor                 |
| <a href="#">CTAN320</a>   | 1.3        | All   | Rudiments of Fieldbus Communications                       |


## Unidrive SP and Commander GP20 Application Notes- con't

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>              | <b>Topic</b>   |
|---------------------------|------------|----------------------------------|--|
| <a href="#">CTAN321</a>   | 1.1        | Unidrive SP/GP20/SK              | Obtaining the Greater or Lesser of Two Signals       |
| <a href="#">CTAN323</a>   | 1.0        | Unidrive SP/GP20/SK              | Scaling & Filtering Drive Registers for HMI Displays |
| <a href="#">CTAN326</a>   | 1.0        | UndriveSP, GP20, Affinity        | Analog Output Scaling of Common Values               |
| <a href="#">CTAN330</a>   | 1.1        | Unidrive SP, Affinity            | Dual Stopping Rates                                  |
| <a href="#">CTAN331</a>   | 1.1        | Unidrive SP, Classic             | Creating a UniPolar Analog Speed Output              |
| <a href="#">CTAN332</a>   | 1.0        | Unidrive SP,<br>CommSK, Affinity | Time of Day/Day of Week Applications                 |
| <a href="#">CTAN335</a>   | 1.0        | Unidrive SP                      | CTNet Basic Practices and Checkout                   |
| <a href="#">CTAN336</a>   | 1.2        | Our AC Drive Families            | Using the Drives +24vdc Supply                       |
| <a href="#">CTAN339</a>   | 1.0        | Unidrive SP                      | Maintenance Due Reminder Alarms                      |
| <a href="#">CTAN343</a>   | 1.1        | SM-IO Timer Module               | Setting the Real Time Clock                          |
| <a href="#">CTAN345</a>   | 1.0        | All Our Drives                   | Stabilizing Erratic Signals                          |
| <a href="#">CTAN346</a>   | 1.0        | Commander SK                     | 120vac Start/Stop Control                            |




## Commander SE Application Notes

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>       | <b>Topic</b>  |
|---------------------------|------------|---------------------------|---|
| <a href="#">CTAN 122</a>  | 1.3        | MII/QIII/Unidrive/SE      | Programmable Time Delays                            |
| <a href="#">CTAN 124</a>  | 1.4        | MII/QIII/Unidrive/SE      | Filtering for Digital Displays                      |
| <a href="#">CTAN 140</a>  | 1.3        | MII/QIII/Unidrive/SE      | Programmable Logic Gates                            |
| <a href="#">CTAN 142</a>  | 1.1        | Unidrive /MII/QIII        | Comparators and Decoder Applications                |
| <a href="#">CTAN 143</a>  | 1.1        | Commander SE              | Indexing Methods                                    |
| <a href="#">CTAN 144</a>  | 1.3        | All                       | Line Reactors & Isolation Transformers              |
| <a href="#">CTAN 145</a>  | A          | Unidrive and Commander SE | Analog Input/Output Scaling                         |
| <a href="#">CTAN 147</a>  | 1.2        | AC Drives                 | Horizon Replacement w/ Comm SE                      |
| <a href="#">CTAN 148</a>  | 1.4        | AC Drives                 | Prism Replacement w/ Comm SE                        |
| <a href="#">CTAN 149</a>  | 1.4        | AC Drives                 | Laser Replacement Options                           |
| <a href="#">CTAN 150</a>  | 1.3        | AC Drives                 | Eclipse Replacement Options                         |
| <a href="#">CTAN 151</a>  | 1.0        | Commander SE              | Security Code                                       |
| <a href="#">CTAN 154</a>  | 1.5        | All                       | Driving External Relays                             |
| <a href="#">CTAN 159</a>  | 1.10       | All                       | Creating Custom & Power-Up Displays                 |
| <a href="#">CTAN 160</a>  | 1.0        | All                       | 4-20ma Current Loop Control                         |
| <a href="#">CTAN 162</a>  | 1.2        | Commander SE              | Dual Stopping Rates                                 |
| <a href="#">CTAN 165</a>  | 1.1        | Commander SE              | Modbus Protocol Setup                               |
| <a href="#">CTAN 168</a>  | 1.3        | Commander SE              | Pushbutton Jog with 3 Wire Start-Stop               |
| <a href="#">CTAN 173</a>  | 1.1        | Commander SE              | Operating from DC Power Supplies                    |
| <a href="#">CTAN 174</a>  | 1.0        | Commander SE              | Line Speed plus %Trim                               |
| <a href="#">CTAN 180</a>  | 1.3        | Commander SE              | Advanced CTKP Control for Comm SE                   |
| <a href="#">CTAN 185*</a> |            | Commander SE              | Start/Stop Configurations                           |
| <a href="#">CTAN 187</a>  | 1.2        | Commander SE              | Simple Commander SE Torque Winder                   |
| <a href="#">CTAN 191</a>  | 1.3        | Commander SE              | Non-Standard Commander SE Keypad Control Variations |
| <a href="#">CTAN 195</a>  | 1.1        | Commander SE              | HVAC Local/Remote Control                           |
| <a href="#">CTAN 209</a>  | 1.1        | CTKP                      | Security Code & Set-Up                              |
| <a href="#">CTAN 222</a>  | 1.2        | Commander SE              | Automatic Water Pressure Regulator                  |
| <a href="#">CTAN 225</a>  | 1.3        | Commander SE              | Use of Cloning QuicKey                              |
| <a href="#">CTAN 229</a>  | 1.0        | Commander SE              | Bi-Directional Speed Pot Applications               |
| <a href="#">CTAN 236</a>  | 1.2        | Commander SE              | Data Replacement Instructions                       |
| <a href="#">CTAN 239</a>  | 1.0        | Commander SE              | Analog Input Configurations                         |
| <a href="#">CTAN 244</a>  | 1.0        | Focus 1, Focus 3, CommSE  | Focus Isolated Master Reference Board               |
| <a href="#">CTAN 253</a>  | 1.0        | Commander SE              | Line Speed plus Trim using Inc/Dec                  |
| <a href="#">CTAN 254</a>  | 1.2        | Commander SE              | Fan & Pump Setup Guidelines                         |
| <a href="#">CTAN 258</a>  | 1.0        | Commander SE              | Creating Proper Drive Documentation                 |
| <a href="#">CTAN 260</a>  | 1.0        | Commander SE              | Setting up with a CTIU                              |
| <a href="#">CTAN 266</a>  | 1.0        | All                       | Relay Suppression                                   |

## Commander SE Application Notes con't

| <b>Application Note #</b>   | <b>Rev</b> | <b>Drive Family</b> | <b>Topic</b>                  |
|---|------------|---------------------|-------------------------------|
| <a href="#">CTAN267</a>   | 1.0        | SE                  | Latching External Trip        |
| <a href="#">CTAN268</a>  | 1.2        | Commander SE and SK | Shear Pin Trip Function       |
| <a href="#">CTAN275</a>   | 1.0        | All                 | Need another Digital Input ?  |
| <a href="#">CTAN276</a>   | 1.1        | Commander SE, SK    | Bi-Polar Analog Speed Control |
|   |            |                     |                               |
|   |            |                     |                               |
|   |            |                     |                               |
|   |            |                     |                               |

## Commander SK Application Notes

| Application Note #  | Rev  | Drive Family                  | Topic  |
|---|------|-------------------------------|--|
| <a href="#">CTAN159</a>   | 1.10 | All                           | Creating Custom & Power-Up Displays                  |
| <a href="#">CTAN192</a>   | 1.0  | AC Drives                     | E-Stop Duty DB Resistor Protection                   |
| <a href="#">CTAN194</a>   | 1.4  | AC Drives                     | AC Motor Condensation Elimination                    |
| <a href="#">CTAN268</a>  | 1.2  | Commander SE & SK             | Shear Pin Trip Function                              |
| <a href="#">CTAN272</a>   | 1.0  | Commander SK                  | Accessing Parameters outside Menu 0                  |
| <a href="#">CTAN273</a>   | 1.1  | Commander SK                  | Remote Keypad in the Hand-Off-Auto Mode              |
| <a href="#">CTAN274</a>   | 1.2  | Commander SK                  | Remote Analog / Local Keypad Control                 |
| <a href="#">CTAN275</a>   | 1.0  | All                           | Need another Digital Input ?                         |
| <a href="#">CTAN276</a>   | 1.1  | Commander SE, SK              | Bi-Polar Analog Speed Control                        |
| <a href="#">CTAN279</a>  | 1.2  | Commander SK                  | Commander SK Security                                |
| <a href="#">CTAN282</a>   | 1.1  | Unidrive SP/GP20/SK           | Selecting 1 of 2 Values                              |
| <a href="#">CTAN285</a>   | 1.2  | Commander SK                  | Enhanced Hand-Off-Auto Control w/Logic Stick         |
| <a href="#">CTAN286</a>   | 1.2  | Commander SK                  | Enhanced Local/Remote Control w/Logic Stick          |
| <a href="#">CTAN287</a>   | 1.3  | Commander SK                  | Water Pressure PID Loop Control                      |
| <a href="#">CTAN288</a>   | 1.0  | SM-Ethernet                   | Establishing PC Connection to SM-Ethernet            |
| <a href="#">CTAN289</a>  | 1.3  | Commander SK/GP20             | SM-Keypad Plus Customized Displays                   |
| <a href="#">CTAN291</a>   | 1.0  | All AC Drives                 | Dynamic Braking Sizing & Protection Methods          |
| <a href="#">CTAN292</a>   | 1.0  | Unidrive SP/GP20/SK           | Process Line Speed plus Trim                         |
| <a href="#">CTAN293</a>   | 1.2  | Commander SK                  | Fan and Pump Application Setup                       |
| <a href="#">CTAN297</a>   | 1.0  | Unidrive SP/GP20/SK           | SM-Ethernet Save, Restore & Re-Init                  |
| <a href="#">CTAN299</a>   | 1.2  | Commander SK                  | Simple Commander SK Torque Winder                    |
| <a href="#">CTAN300</a>   | 1.4  | Commander SK                  | Ethernet Quick Start Guide                           |
| <a href="#">CTAN302*</a>  | 1.0  | Unidrive SP/GP20/SK           | AC Motor De-Icing/Condensation Elimination           |
| <a href="#">CTAN306</a>   | 1.0  | Unidrive SP/GP20/SK           | SM-DeviceNet Save, Restore & Re-Init                 |
| <a href="#">CTAN309</a>   | 1.0  | Commander SK                  | Creating a Delayed Start with Warning Capability     |
| <a href="#">CTAN312</a>   | 1.0  | Unidrive SP/GP20/SK           | Creating a Broken Belt/Ruptured Pipe Alarm           |
| <a href="#">CTAN313</a>   | 1.0  | Unidrive SP/GP20/SK           | Using Keypad Plus as Startup Tool                    |
| <a href="#">CTAN318</a>   | 1.0  | All                           | Determining the Hardware and Firmware Levels         |
| <a href="#">CTAN319</a>   | 1.0  | AC Drives                     | Squeezing a Bit More from your DB Resistor           |
| <a href="#">CTAN320</a>   | 1.4  | All                           | Rudiments of Fieldbus Communications                 |
| <a href="#">CTAN321</a>   | 1.1  | Unidrive SP/GP20/SK           | Obtaining the Greater or Lesser of 2 Signals         |
| <a href="#">CTAN323</a>   | 1.0  | Unidrive SP/GP20/SK           | Scaling & Filtering Drive Registers for HMI Displays |
| <a href="#">CTAN325</a>   | 1.0  | Unidrive SP/GP20/SK           | Simple PID Dancer Unwind                             |
| <a href="#">CTAN327</a>   | 1.1  | Comm SK                       | Comm SK and SM-DeviceNet Quick Start Guide           |
| <a href="#">CTAN329</a>   | 1.1  | Comm SK                       | Dual Stopping Rates                                  |
| <a href="#">CTAN332</a>   | 1.0  | Unidrive SP, CommSK, Affinity | Time of Day/Day of Week Applications                 |
| <a href="#">CTAN334</a>   | 1.0  | Commander SK w/ByPass         | Quick Start-up Guide for FPCHSK/FPCBA                |
| <a href="#">CTAN336</a>   | 1.2  | Our AC Drive Families         | Using the Drives +24vdc Supply                       |
| <a href="#">CTAN340</a>   | 1.1  | Commander SK                  | Remote Control via Fieldbus/Local via Keypad         |

\* not yet released

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b> | <b>Topic</b>                                 |
|---------------------------|------------|---------------------|--|
| <a href="#">CTAN340</a>   | 1.0        | Commander SK        | Remote Control via Fieldbus/Local via Keypad |
| <a href="#">CTAN341</a>   | 1.0        | Commander SK        | Simple Pump Setup Instruction Sheet          |
| <a href="#">CTAN342</a>   | 1.0        | Commander SK        | Water Level Control System                   |
| <a href="#">CTAN343</a>   | 1.1        | SM-IO Timer Module  | Setting the Real Time Clock                  |
| <a href="#">CTAN345</a>   | 1.0        | All Our Drives      | Stabilizing Erratic Signals                  |
| <a href="#">CTAN346</a>   | 1.0        | Commander SK        | 120vac Start/Stop Control                    |

## Focus Family Application Notes

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>         | <b>Topic</b>                               |
|---------------------------|------------|-----------------------------|--|
| <a href="#">CTAN 125</a>  | A          | Focus 3                     | Replacing Focus 2 with Focus 3 Drives      |
| <a href="#">CTAN 130</a>  | 1.1        | Focus 3                     | Tach Follower Applications                 |
| <a href="#">CTAN 184</a>  | 1.1        | Focus 1                     | Pushbutton Control                         |
| <a href="#">CTAN 204</a>  | 1.0        | Focus 3 Drives              | Power Wiring Guidelines                    |
| <a href="#">CTAN 213</a>  | 1.1        | Focus 3                     | Eddy Current Controller Retrofit           |
| <a href="#">CTAN 215</a>  | 1.0        | Focus Family                | Earth Grounding & Isolation                |
| <a href="#">CTAN 216</a>  | 1.0        | Focus 3 Family              | Eddy Current Replacement Solution          |
| <a href="#">CTAN 228</a>  | 1.0        | Focus 1 Family              | Achieving Isolation                        |
| <a href="#">CTAN 235</a>  | 1.0        | Focus 3                     | Adjustable Brake / Dynamometer App's       |
| <a href="#">CTAN 240</a>  | 1.0        | Focus 3                     | Speed Master w/ Torque Slave               |
| <a href="#">CTAN 241</a>  | 1.1        | Focus 3                     | 120vac Remote Control Pushbuttons          |
| <a href="#">CTAN 243</a>  | 1.0        | Focus 3                     | Controlling Multiple Drives in Tandem      |
| <a href="#">CTAN 244</a>  | 1.0        | Focus 1, Focus 3,<br>CommSE | Focus Isolated Master Reference Board      |
| <a href="#">CTAN 252</a>  | 1.0        | Focus 3                     | Local/Remote Control Modes                 |
| <a href="#">CTAN 281</a>  | 1.0        | Focus 3 Regen               | Reversing Focus 3 Regen w/UniPolar Command |
| <a href="#">CTAN 337</a>  | 1.1        | Single Phase DC             | Focus 1 to 2100/2300 Replacement Guidance  |

## Fieldbus, Communications & Coprocessor Application Notes

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>      | <b>Topic</b>                                     |
|---------------------------|------------|--------------------------|--|
| <a href="#">CTAN131</a>   | 1.2        | All                      | Modem Communications                             |
| <a href="#">CTAN133</a>   | 1.0        | Mentor I/Quantum II      | MD21 BASIC Support today                         |
| <a href="#">CTAN134</a>   | 1.0        | UD77/Unidrive            | Local/Remote via Fieldbus                        |
| <a href="#">CTAN135</a>   | 1.4        | UD77/Unidrive            | DeviceNet Quick Setup                            |
| <a href="#">CTAN136</a>   | 1.0        | UD73/Unidrive            | Profibus Quick Setup                             |
| <a href="#">CTAN137</a>   | 1.0        | UD74/Unidrive            | Interbus Quick Setup                             |
| <a href="#">CTAN138</a>   | 1.0        | Quantum III              | Remote On/Off Control                            |
| <a href="#">CTAN164</a>   | 1.1        | Unidrive Family          | Remote Keypad Control using CTIU                 |
| <a href="#">CTAN165</a>   | 1.1        | Commander SE             | Modbus Protocol Setup                            |
| <a href="#">CTAN166</a>   | 1.2        | Quantum III/ Mentor II   | MD21 to MD29 Migration                           |
| <a href="#">CTAN171</a>   | 1.1        | MD29/UD70 and SyPT       | Scale & Offset Function Blocks                   |
| <a href="#">CTAN186</a>   | 1.3        | Unidrive/QIII/Mentor II  | Saving all Drive & Coprocessor Data              |
| <a href="#">CTAN196</a>   | 1.0        | MD25 / Mentor II         | Quick Set for DeviceNet MD25                     |
| <a href="#">CTAN197</a>   | 1.0        | MD25 / Quantum III       | Quick Set for DeviceNet MD25                     |
| <a href="#">CTAN202</a>   | 1.0        | CTNet Products           | CTNet PCMCIA w/Desktop PC's                      |
| <a href="#">CTAN210</a>   | 1.0        | UD76/Unidrive            | ModbusPlus Quick Setup                           |
| <a href="#">CTAN211</a>   | 1.0        | Unidrive                 | UD7x Co-Processor Replacement                    |
| <a href="#">CTAN219</a>   | 1.1        | MD29 & UD7x CoProcessors | Evaluating Coprocessor Contents                  |
| <a href="#">CTAN220</a>   | 1.0        | MD24 / Mentor II         | Quick Setup for Profibus MD24                    |
| <a href="#">CTAN221</a>   | 1.0        | MD24 / Quantum III       | Quick Setup for Profibus MD24                    |
| <a href="#">CTAN255</a>   | 1.0        | UD75 & MD29AN            | CTNet Revision FAQ's                             |
| <a href="#">CTAN259</a>   | 1.1        | Unidrive SP              | Quick Setup Guide w/CTNet                        |
| <a href="#">CTAN262</a>   | 1.0        | Unidrive SP              | Accessing 32 bit Data via Modbus RTU             |
| <a href="#">CTAN283</a>   | 1.0        | Unidrive SP              | Using Beckhoff Remote I/O                        |
| <a href="#">CTAN288</a>   | 1.1        | SM-Ethernet              | Establishing PC Connection to SM-Ethernet Module |
| <a href="#">CTAN295</a>   | 1.1        | CTNet Options            | Supported Beckhoff I/O Modules                   |
| <a href="#">CTAN297</a>   | 1.0        | Unidrive SP/GP20/SK      | SM-Ethernet Save, Restore & Re-Init              |
| <a href="#">CTAN300</a>   | 1.5        | Commander SK             | Ethernet Quick Start Guide                       |
| <a href="#">CTAN306</a>   | 1.1        | Unidrive SP/GP20/SK      | SM-DeviceNet Save, Restore & Re-Init             |
| <a href="#">CTAN308</a>   | 1.0        | CTNet                    | The Basics of Setting-up CTNet Cyclic Links      |
| <a href="#">CTAN317</a>   | 1.0        | Unidrive SP/GP20/SK      | SM-Profibus Unidrive (UD73) Compatibility Mode   |
| <a href="#">CTAN320</a>   | 1.4        | All                      | Rudiments of Fieldbus Communications             |
| <a href="#">CTAN327</a>   | 1.2        | Commander SK             | SM-DeviceNet Quick Start Guide                   |
| <a href="#">CTAN328</a>   | 1.0        | Co Processors            | Using SyPT Pro Demo as a Code Extraction Tool    |
| <a href="#">CTAN333</a>   | 1.1        | Commander SK             | SM-Profibus Quick Start Guide                    |
| <a href="#">CTAN335</a>   | 1.0        | Unidrive SP              | CTNet Installation Practices and Checkout        |

## General Drive Application Notes

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>    | <b>Topic</b>                                  |
|---------------------------|------------|------------------------|---|
| <a href="#">CTAN120</a>   | 1.3        | All                    | S-Ramp Accel/Decel Ramps                      |
| <a href="#">CTAN122</a>   | 1.3        | MII/QIII/Unidrive/SE   | Programmable Time Delays                      |
| <a href="#">CTAN124</a>   | 1.4        | MII/QIII/Unidrive/SE   | Filtering for Digital Displays                |
| <a href="#">CTAN131</a>   | 1.2        | All                    | Modem Communications                          |
| <a href="#">CTAN132</a>   | 1.5        | All                    | Line Reactors                                 |
| <a href="#">CTAN140</a>   | 1.3        | MII/QIII/Unidrive/SE   | Programmable Logic Gates                      |
| <a href="#">CTAN144</a>   | 1.4        | All                    | Line Reactors & Isolation Transformers        |
| <a href="#">CTAN154</a>   | 1.5        | All                    | Driving External Relays                       |
| <a href="#">CTAN159</a>   | 1.9        | All                    | Creating Custom & Power-Up Displays           |
| <a href="#">CTAN160</a>   | 1.1        | All                    | 4-20ma Current Loop Control                   |
| <a href="#">CTAN176</a>   | 1.1        | General                | Power Factor of AC & DC Drives                |
| <a href="#">CTAN177</a>   | 1.2        | AC Drive Series        | Input & Output Current of AC Drives           |
| <a href="#">CTAN179</a>   | 1.1        | General                | Dynamic Braking Resistor Nomograph            |
| <a href="#">CTAN192</a>   | 1.0        | AC Drives              | E-Stop Duty DB Resistor Protection            |
| <a href="#">CTAN209</a>   | 1.1        | CTKP                   | Security Code & Set-Up                        |
| <a href="#">CTAN217</a>   | 1.0        | Universal AC Interface | 120vac Logic Interface                        |
| <a href="#">CTAN245</a>   | 1.1        | CTIU HMI's             | Creating a Custom Splash Screen               |
| <a href="#">CTAN248</a>   | 1.0        | CTIU HMI's             | Custom Splash Screen using Maths              |
| <a href="#">CTAN258</a>   | 1.0        | All                    | Creating Proper Drive Documentation           |
| <a href="#">CTAN266</a>   | 1.0        | All                    | Relay Suppression                             |
| <a href="#">CTAN275</a>   | 1.0        | All                    | Need another Digital Input ?                  |
| <a href="#">CTAN291</a>   | 1.0        | All AC Drives          | Dynamic Braking Sizing & Protection Methods   |
| <a href="#">CTAN313</a>   | 1.0        | Unidrive SP/GP20/SK    | Using Keypad Plus as Startup Tool             |
| <a href="#">CTAN318</a>   | 1.0        | All                    | Determining the Hardware and Firmware Levels  |
| <a href="#">CTAN319</a>   | 1.0        | AC Drives              | Squeezing a Bit More from your DB Resistor    |
| <a href="#">CTAN320</a>   | 1.5        | All                    | Rudiments of Fieldbus Communications          |
| <a href="#">CTAN328</a>   | 1.0        | Co Processors          | Using SyPT Pro Demo as a Code Extraction Tool |
| <a href="#">CTAN336</a>   | 1.2        | Our AC Drive Families  | Using the Drives +24vdc Supply                |

## FXM5 Application Notes

| <b>Application Note #</b> | <b>Rev</b> | <b>Drive Family</b>    | <b>Topic</b>                                      |
|---------------------------|------------|------------------------|---|
| <a href="#">CTAN284</a>   | 1.1        | Mentor II/Quantum III  | FXM5 Field Control via External Voltage           |
| <a href="#">CTAN298</a>   | 1.2        | Mentor II/Quantum III  | FXM5 Field Loss Trips w/o Ribbon Control          |
| <a href="#">CTAN303</a>   | 1.2        | Mentor II/Quantum III  | FXM5 Field Economy in Standalone Mode             |
|                           |            |                        |   |
|                           |            |                        |   |
|                           |            |                        |   |
|                           |            |                        |   |
| <a href="#">CTTN138</a>   | 1.1        | Mentor II/Quantum III  | FXM5 Setup Guide using Ribbon                     |
| <a href="#">CTTN151</a>   | 1.0        | Mentor II/ Quantum III | FXM5 Setup for Field Weakening - Stand Alone Mode |
| <a href="#">CTTN152</a>   | 1.0        | Mentor II/ Quantum III | FXM5 Setup –Stand Alone Mode                      |
|                           |            |                        |   |
|                           |            |                        |   |
|                           |            |                        |   |
|                           |            |                        |   |