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| --- | --- | --- | --- |
| **Data from PLC to Robot** | | | |
| communication\_structure.py | | | |
|  | Data  : byte(type) | Description |  |
| 1  Communication  Connection  Check | 00 | Disconnect  Communication |  |
| 10 | Connect  Communication |  |
| 2  Command | A0 | Wait(Default) |  |
| B0 | Start Charging |  |
| C0 | Finish Charging |  |
| Z0 | Recover |  |
| 3  Position | H0 | Go to home position |  |
| W0 | Go to wait position |  |
| 4  IO Status | 00 | Unclamp | 안 쓸 듯? |
| 10 | Clamp | 안 쓸 듯? |
| 5  Charging Type | 10 | Connect Combo |  |
| 20 | Connect CHAdeMO |  |
| 6 | 00 | Reserved |  |
| 7 | 00 | Reserved |  |
| 8 | 00 | Reserved |  |
| 9 | 00 | Reserved |  |
| 10  Emergency  Stop  Button  Status | 00 | Emergency  Not  Pushed |  |
| 99 | Emergency  Pushed |  |

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| --- | --- | --- | --- | --- | --- |
| **Data from Robot to PLC** | | | | | |
| communication\_structure.py / operation\_structure.py | | | | | |
|  | Class | Method | Data  : str ‘xx’ | Description | Remark |
| 1  Communication  Connection  Check | Communication | communication\_check | 00 | Communication disconnected |  |
| 10 | Communication connected |  |
| 2  Command | command\_check | AC | Wait Command Confirmed |  |
| BC | Start Charging Command Confirmed |  |
| CC | Finish Charging Command Confirmed |  |
| ZC | Recover Command Confirmed |  |
| Operation | TBD | 0A | Wait |  |
| 0B | Start Charging |  |
| 0C | Finish Charging |  |
| 0Z | Recover |  |
| 3  Position | Communication | position\_check | 00 | Doing Nothing |  |
| HC | To Home Position Confirmed |  |
| WC | To Wait Position Confirmed |  |
| Operation | TBD | 0H | Home Position |  |
| 0W | Wait Position |  |
| 4  IO Status | Communication | IO\_status\_check | 00 | Unclamping | Did not choose to update from ‘Operation’ since there’s a builtin function from Doosan Robotics |
| 10 | Clamping |
| 5  Charging Type |  | not\_connected | 00 | Not connected |  |
|  | connecting | 05 | Connecting With Vision Data Coming In |  |
|  | combo\_connected | 10 | Combo connected |  |
|  | chademo\_connected | 20 | CHAdeMO connected |  |
| 6 |  | reserved | 00 | Default Value |  |
| 7 |  | reserved | 00 | Default Value |  |
| 8 |  | reserved | 00 | Default Value |  |
| 9 |  | reserved | 00 | Default Value |  |
| 10 | Communication | emergency\_not\_pushed | 00 | Emergency not pushed |  |
| emergency\_pushed | 99 | Emergency pushed |  |